www.sgh-sghr-kongresse.ch

SGH-/SGHR-KONGRESS
CONGRÈS SSCM/SSRM

Palazzo dei Congressi, Lugano
28.–29.11.2024

TUTTI PER UNO, UNO PER TUTTI!

© Lugano Region – Milo Zanecchia

Version 8.10.2024

Abstracts

Guest societies

belgian handgroup

Schweizerische Gesellschaft für Handchirurgie **SGH**
Société Suisse de Chirurgie de la Main **SSCM**
Società Svizzera di Chirurgia della Mano **SSCM**

Organising societies

Schweizerische Gesellschaft für Handrehabilitation
Société Suisse de Rééducation de la Main
Società Svizzera per la Rieducazione della Mano

Inhaltsverzeichnis/Sommaire

Tagungsleitung/Direction d'organisation

SGH/SSCM

Dr. med. Ivan Tami
Präsident SGH
Président SSCM

Dr. med. Torsten Franz
Vize-Präsident SGH
Vice-président SSCM

Prof. Dr. med.
Maurizio Calcagni
Past-Präsident SGH
Ancien Président SSCM

SGHR/SSRM

Tamara Hauri
Mitglied SGHR
Membre SSRM

Sabrina Koch-Borner
Mitglied SGHR
Membre SSRM

Abstract-Reviewer

SGH/SSCM

Dr. med. Thierry Christen, Lausanne
Dr. med. Alexandre Kämpfen, Basel
Dr. med. Dominique Merky, Bern
Dr. med. Olga Politikou, Zürich
Dr. med. Lisa Reissner, Zürich
Dr. med. Nadja Zechmann-Müller, Winterthur

SGHR/SSRM

Muriel Furrer, Winterthur
Nora Käser, Basel
Fay Zischeck, Zürich

Professional Congress Organizer

Medword AG, Sennweidstrasse 46, 6312 Steinhausen
Tel. 041 748 23 00, toni.vonwyl@medworld.ch, www.sgh-sghr-kongresse.ch

Freie Mitteilungen SGH
Communications libres SSCM

Freie Mitteilungen / Communications libres I: CMC 1

FM1
Best and worst thumb CMC implant patients: Do they differ regarding their baseline characteristics?

M. Marks[1], V. Reischenböck[1], K. Mathis[1], S. Schindele[1], D. Herren[2] ([1]Schulthess Klinik, Zürich; [2]Schulthess Klinik, Zurich)

Aim. The aim was to investigate whether patients with good outcomes after thumb carpometacarpal (CMC) joint arthroplasty differ in their baseline characteristics from patients with poor outcomes.

Methods. Of 442 thumb CMC implant arthroplasties (Touch®, Keri Medical) documented in a prospective registry, 20 patients with the best and 20 patients with the worst 1-year outcome, measured by pain during daily activities, were selected. Baseline characteristics, i.e. age, sex, affected hand, Eaton stage of osteoarthritis, pain during daily activities (0-10, 0=best), brief Michigan Hand Outcomes (MHQ) questionnaire scores (0-100, 100=best) and key pinch strength of both groups were compared using the Mann-Whitney-U test. Median values with interquartile ranges (IQR) were calculated.

Results. Patients in the best group had a 1-year pain score of 0 (IQR: 0) and patients in the worst group had a 1-year pain score of 7 (2). The baseline brief MHQ score was significantly higher in the best group (47 (21)) than in the worst group (36 (9), $p \leq 0.01$, figure 1). Similar results were found for key pinch strength where the best group had a baseline strength of 4kg (2) while the worst group had 3kg (2) ($p \leq 0.01$, figure 1). No differences were found between the groups in the other variables ($p > 0.05$).

Conclusion. Patients with better hand function before surgery have a higher chance to have less pain one year after thumb CMC implant arthroplasty. These findings underscore the importance of a thorough indication for surgery. It is important to consider that delaying surgery until symptoms worsen may result in poorer outcomes.

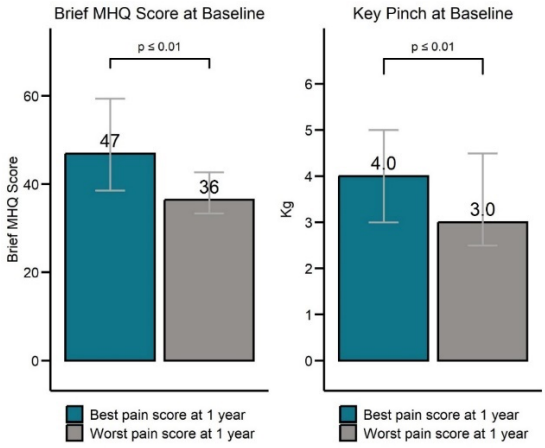


Figure 1: Patients with no pain at 1 year (blue bars) have significantly better baseline brief MHQ scores (left) and greater key pinch strength (right) than patients with high 1-year pain (grey bars). Median and interquartile ranges are shown.

FM2
Automated analysis of TMC joint kinematics using four-dimensional computed tomography

K. van Royen[1], B. Keelson[2], T. Jager[2], N. Buls[2], T. Scheerlinck[2], E. Cattrysse[3] ([1]OLVZ Aalst, Aalst BE; [2]UZ Brussel, Bruxelles BE; [3]VUB, Bruxelles BE)

The trapeziometacarpal (TMC) joint poses challenges in studying its kinematics due to its complex anatomy. Despite its susceptibility to osteoarthritis, our current understanding of TMC joint kinematics remains limited. Existing studies often utilize static computer tomography (CT) images, providing insights into the start and endpoints of specific movements but neglecting the dynamics during the movement. This study addresses these gaps by introducing a novel automated approach utilizing four-dimensional (4D) CT imaging to comprehensively analyze TMC joint kinematics during active opposition-retropulsion movements. The objective is to provide detailed characterization of TMC joint kinematics during an opposition-retropulsion cycle.

Fifteen healthy volunteers with a mean age of 25 years, participated in the study. Volunteers underwent both static and dynamic scans, with the latter involving a cyclic opposition-retropulsion movement. Dynamic acquisitions consisted of 19 static scans per movement cycle.

The image processing and motion estimation workflow incorporated automated segmentation and registration techniques. Motion of the thumb metacarpal relative to the trapezium, trapezium relative to the index metacarpal, and thumb metacarpal relative to the index metacarpal were

described using cardan angles, representing flexion/extension, internal/external rotation, and abduction/adduction.

TMC joint kinematics during opposition-retropulsion revealed detailed motion patterns for each bone involved. The position of the thumb metacarpal relative to the trapezium exhibited mean flexion of 41°, internal rotation of 21°, and abduction of 34° at terminal opposition. The trapezium's position relative to the index metacarpal showed mean flexion of 3°, internal rotation of 5°, and abduction of 5° at terminal opposition. Thumb metacarpal motion relative to the index metacarpal demonstrated mean flexion of 21°, internal rotation of 50°, and abduction of 19° at terminal opposition.

In conclusion, this study introduces a novel and automated approach to analyze TMC joint kinematics during an active opposition-retropulsion movement using 4D CT images. The workflow significantly reduces processing time compared to previous manual analyses, addressing a major limitation in the field. The comprehensive analysis of TMC joint kinematics, hysteresis effects, and joint proximity dynamics provides valuable insights into the complex biomechanics of the joint.

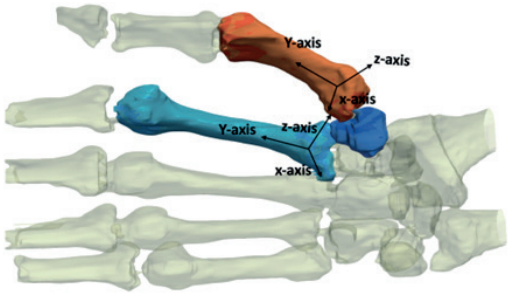


Figure 1: Coordinate systems

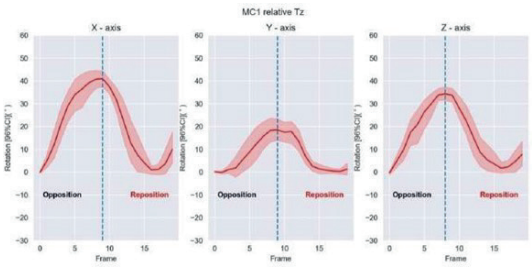


Figure 2: Motion of MC1 relative to trapezium

FM3
Analysis of trapeziometacarpal prosthesis cup position with respect to the trapezial anatomy.

K. van Royen[1], J. Goubau[2], S. Bogaert[3], C. K. Goorens[4], B. Vanmierlo[5], J. Duerinckx[6] ([1]OLVZ Aalst, Aalst BE; [2]AZ Maria Middelares, Gent BE; [3]Bruxelles BE; [4]Tienen BE; [5]Roeselare BE; [6]Genk BE)

A trapeziometacarpal joint prosthesis is becoming increasingly popular in the treatment of symptomatic trapeziometacarpal joint osteoarthritis. The introduction of dual mobility designs has decreased the risk of dislocation, but incorrect cup placement is still a reason for concern.

The purpose of this study is to analyze the anatomy of the trapezium with regard to cup position in trapeziometacarpal prosthesis and identify those trapeziums that are at risk for cup perforation in the trapezoid articular surface. The width of the proximal articular surface (PAST) and distal articular surface (DAST) and the height of the trapezium and second metacarpal facet were measured on 96 peritrapezial views. The TRAST angle was defined as the angle between the line connecting the most ulnar point of the PAST and DAST and the line perpendicular to the most ulnar point of the PAST. The TRAST angle was calculated for each trapezium and four different cup designs were virtually positioned central in the trapezium and parallel to the proximal articular surface of the trapezium. Risk of perforation was defined as a cup that exceeds the ulnar border of the proximal articular surface. Mean TRAST angle in our study was 33°. We introduce a classification to identify those trapeziums that are at risk for perforation. A type A trapezium has a second metacarpal facet height of more than 5 mm and has a low risk of perforation. A type B trapzium has a second metacarpal facet height of less than 5 mm. A type B1 has a TRAST angle of less than 35° and has a low risk of perforation. A type B2 has a TRAST angle of 35° or more and has a high risk of perforation. In our study, 19% is a type A, 50% is a type B1 and 31% is a type B2. When a type B2 trapezium is present, the cup could be positioned more radial or more distal to avoid perforation of the trapezoid articular surface.

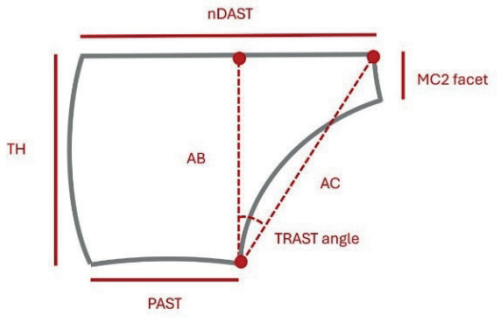


Figure 1: TRAST angle

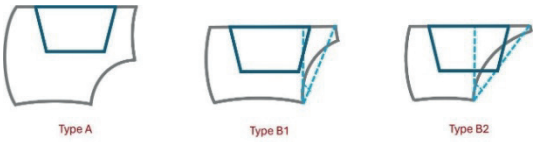


Figure 2: Classification

FM4
3D printed individual guide for centering the cup in TMC joint prosthesis - a proof-of-concept study.

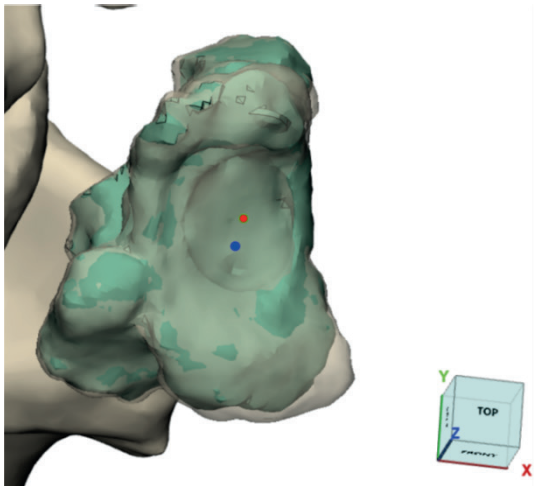
A. Wenger[1], J. Hainich[1], D. Gascho[2], B. Lauber[3], V. Schmidt[1] ([1]Kantonsspital St. Gallen, St. Gallen; [2]Institut für Rechtsmedizin, Universität Zürich, Zürich; [3]Anatomisches Institut, Universität Zürich, Zürich)

Introduction. Since the invention of TMC-joint prosthesis some 15 years ago, several ball-in-socket prosthesis have been developed and clinical results are very promising. Still, most failures and revisions are due to loosening or dislocation. Duerinckx and Caekebeke (2016, 2017) described incorrect cup positioning as a contributing factor and postulated the intraoperatively central positioning of the cup essential for optimal results. Yet, guidelines for its orientation are not uniformly defined.During surgery, the positioning of the drill for the cup in the trapezium is the most critical part. The K-wire position is confirmed with intraoperative x-ray. To facilitate determining the centerpoint of the trapezium joint surface we tested the use of an individually 3D printed surgical guide to confirm the hypothesis that this will be more exact than positioning the cup without guide.

Methods. For the current proof of concept study preoperative CT scans were done on 20 cadaver hands as well as semi-automatic segmentation of the trapezium. The center point of the distal joint surface of the trapezium to the first metacarpal bone was calculated. A surgical guide for positioning the K-wire of the cannulated drill at the centerpoint of the trapezium was 3D-printed individually for 10 hands (Materialise, BE). Then, arthroplasty (MAIA prosthesis, Medkoh, CH) of the TMC-joint was done in the 20 cadaver hands using the individual guide in 10, the other 10 acting as control. Surgery was performed as in the routine clinical setting with intraoperative X-ray (Smart C, Swissray, CH). Postoperatively, another CT scan was obtained and the error to the centerpoint was calculated.

Results. For the guides group the postoperative centerpoint was obtained with an accuracy of 99,3% compared to the preoperatively calculated position and 98,3% for the control group respectively. The difference between groups was 0,64mm and 1,03% (not statistically significant).

Discussion. Although we could prove that positioning of the cup is more accurate with an individually 3D printed guide, our results were not statistically significant. This could be due to the small numbers of hands in each group. In the future we'd like to transfer the idea into daily surgery in patients with the objective to make TMC joint prosthesis safer and longer lasting in patients, since the cup positioning would be reproducibly optimal and therefore loosening or dislocation would be reduced to the minimum.



FM5
Thumb CMC total joint arthroplasty – Radiological comparison of spherical and conical cups at 1 year after surgery.

B. van Hove[1], J. Duerinckx[2] ([1]RZ Heilig Hart Leuven, Leuven BE; [2]Ziekenhuis Oost-Limburg, Genk BE)

Introduction. Total joint replacement has become a reliable procedure for the treatment of trapeziometacarpal joint arthritis. Implant survival is reported to be between 15 and 25 years. Problems around the trapezial cup (loosening, fracture, ossifications) are the main indications for revision surgery. There is a variety of cup designs, but it is unclear which design is beneficial for long term survival.

Objectives. The goal of this study is to radiographically compare trapezial bone remodeling 1 year after implantation of a spherical or conical cup. We wish to objectively identify bony changes around the cup that might lead to implant failure.

Methods. We retrospectively evaluated radiographs of 106 patients at 1 year postoperatively of a trapeziometacarpal total joint replacement (Touch, Kerimedical, Geneva), operated between 2019 and 2021. Patients were selected to include that 53 had been implanted with a spherical cup and 53 with a conical cup. The decision to implant either implant is made peroperatively based on clinical findings. We evaluated the radiographies for bone resorption around the trapezial implant, subsidence, fracture, and heterotopic ossifications.

Results. We observed no cup tilt or dislocations, stage 1 loosening of 13% in spherical and 9% in conical cups, minor subsidence in 4% of spherical and in 4% of conical cups, observed the occurrence of heterotopic ossifications in 47% in spherical cups and 62% in conical cups. We found no difference between the two groups.

Conclusion. Our research showed that there is no clinical or radiological difference between the two types of cups. We observed a high occurrence of heterotopic ossifications in both groups. This warrants further long term follow up into the use of both cup designs.

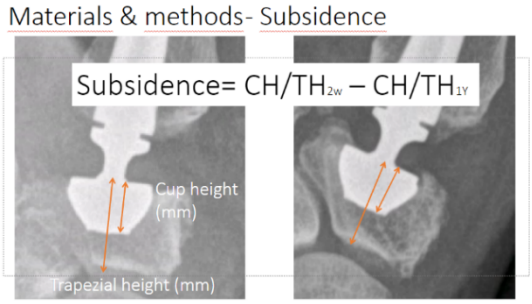


Figure 1: Schermafbeelding

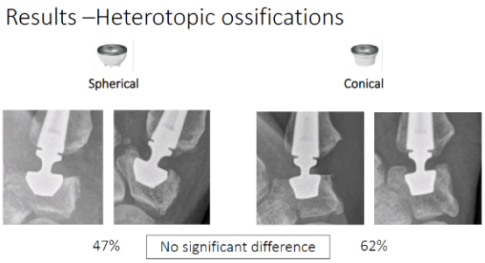


Figure 2: Schermafbeelding

FM6
Does the cup shape matter for Touch® thumb CMC implants? Comparison of conical versus spherical cups

M. Marks[1], D. Herren[2], S. Schindele[1], V. Reischenböck[1], K. Mathis[1] ([1]Schulthess Klinik, Zürich; [2]Schulthess Klinik, Zurich)

Background. The cup of the Touch® implant (Keri Medical) for the thumb carpometacarpal (CMC) joint is available in two shapes: A conical and a spherical cup.

Aim. The aim was to investigate whether complications differed up to 1 year after implantation of the conical or spherical cup. Furthermore, we analysed 1-year clinical, radiological and patient-reported outcomes.

Methods. Data from our registry, which prospectively documents all patients with a Touch® implant, were used. For the first 3 years, we only implanted spherical cups, as the conical was introduced later. Now, we routinely use the conical cup, as we believe it provides more intraoperative stability. For this analysis, each patient with a conical cup was matched based on their baseline characteristics with 3 patients with a spherical cup using propensity score matching. Data are shown as mean and standard deviations. Complication rates were compared using Fisher's Exact test. One-year outcomes of pain during daily activities (0-10, 0=best), brief Michigan Hand Outcomes (MHQ) questionnaire (0-100, 100=best) and key pinch strength between the 2 groups were compared using the Mann-Whitney U test.

Results. Of 304 patients operated between May 2018 and March 2023, 72 had a conical and 232 a spherical cup. Revision surgery was done in 1 patient with a conical (1.4%) and 4 patients with a spherical cup (1.7 %, p=1.0). Intraoperative trapezium fracture did not occur during conical cup implantation but in 3 spherical cup implantations (1.3%, p=1.0). All fractures were successfully treated with a suture cerclage.

266 patients were available for the 1-year follow-up and 55 patients with a conical cup were matched to 165 patients with a spherical cup. Implant migration rates were 1.8% for both conical and spherical cups (p=1.0) and de Quervain's tenosynovitis rates were 3.6% and 4.8% for patients with conical and spherical cups, respectively (p=1.0). There were no differences in the 1-year outcomes of pain during activities (2.0±2.6 vs. 1.6±2.0), brief MHQ (84±20 vs. 85±17) and key pinch (6.2kg±1.8 vs. 6.4kg±2.0) for the conical and spherical cups, respectively (all p>0.3).

Conclusion. Complications, radiological and patient-reported outcomes at 1 year did not differ between patients with a conical or spherical cup. Therefore, we recommend use of either cup, depending on the surgeon's preference.

FM7
Bone scintigraphic appearance of asymptomatic cementless thumb CMC total joint arthroplasty

J. Duerinckx[1], T. Philips[1], L. van Melkebeke[1], P. Caekebeke[1] ([1]ZOL, Genk BE)

Implantation of an uncemented total joint replacement requires osseo-integration for long-term stability. This process is dependent on increased bone metabolism with simultaneous bone absorption and new bone deposition around the implant. Depending on the transmitted load of the joint, this process may vary in time. Most studies describe normalization of bone metabolic activity on scintigraphy in asymptomatic cementless hip and shoulder joint arthroplasties between one and three years postoperatively. The normal evolution of bone scintigraphy after thumb CMC total joint arthroplasty is not known. To examine this, we performed a mono-centric study that included all patients who received a thumb CMC total joint arthroplasty between 2010 and 2022 and who had a bone scintigraphy postoperatively for another reason than pain in the operated hand. The time interval between surgery and scintigraphy and the amount of scintigraphic activity around the thumb implant were assessed for all patients. Knowing the normal evolution of bone scintigraphic appearance after thumb CMC total joint replacement is essential to allow correct interpretation of the results of this technical examination.

FM8
The early complication rate of single versus dual mobility joint replacement of the thumb TMC joint

F. Verstreken[1], P. Reyniers[1], D. Verrewaere[1] ([1]AZ Monica, Antwerp BE)

Trapezometacarpal (TMC) joint arthroplasty is becoming increasingly popular as a treatment option for thumb base osteoarthritis. Since its introduction by De la Caffinière in 1974, the design has evolved significantly, with a cementless, modular, ball-in-socket prosthesis now considered the gold standard. Good long-term survival rates have been reported with a single mobility, metal-on-polyethylene design, but the procedure is complicated by a relatively high complication rate, attributed to the learning curve and the high risk of dislocation. To address this issue, a newer dual-mobility design has been proposed, theoretically reducing the risk of dislocation. This study aimed to evaluate and compare the early (1-year) complication rates and outcomes of single-mobility (Arpe) versus dual-mobility (Touch) TMC joint prostheses.

We conducted a retrospective review of patients who underwent TMC joint arthroplasty at our hospital between January 2018 and December 2022, including 336 procedures (168 Arpe and 168 Touch), all performed by a single surgeon. We recorded age, gender, occupation, and hand dominance. Patient satisfaction was investigated, as well as all complications that occurred in the first postoperative year. Preliminary data show that patient satisfaction is very high and similar in both groups. The most common complications in the Arpe group were instability with seven dislocations (4.2%), two trapezial fractures (1.2%), one cup loosening (0.6%), and one revision due to heterotopic ossification (0.6%). Five dislocations were reduced (one closed and four open); the other two required revision (head, and head and stem). All dislocations occurred within three months post-surgery. A much lower complication rate was found in the Touch group, with one dislocation (0.6%), successfully treated by closed reduction, one case of De Quervain tenosynovitis (0.6%), and one case of sensory radial nerve entrapment (0.6%).

These results confirm the high early satisfaction rate of TMC joint replacement and the significantly decreased risk of early complications with the dual mobility design. Longer-term outcome studies will be necessary to confirm the long-term survival of these dual mobility design arthroplasties.

FM9
Results of up to 2 years follow-up for Maïa™ dual mobility trapeziometacarpal joint prosthesis

M. Scholtes[1], M. Fischer[2], E. Winand[1], S. Hediger[1] ([1]Spital Thurgau AG, Frauenfeld; [2]Spital Thurgau AG, Münsterlingen)

Introduction. Total joint replacement for trapeziometacarpal osteoarthritis (TMC-OA) is gaining popularity due to encouraging short and medium term results with high implant survival rates and excellent clinical outcomes. We report our short term outcomes and complications for the Maïa™ dual mobility TMC joint prosthesis.

Materials/Methods. All patients undergoing total joint replacement for TMC-OA from 02/2021 on were included in an ongoing patient register and examined preoperatively, at 6 and 12 weeks postoperatively and yearly thereafter. Parameters evaluated were patient demographics, TMC-OA stage (Eaton/Littler), thumb opposition (Kapandji

score), grip and key pinch strength, pain score at activities of daily living ADL on visual analogue scale (VAS) and brief Michigan hand outcomes questionnaire (bMHQ). Complications and subsequent interventions including revision surgery were noted.

Results. From 02/2021 until 04/2024, 34 patients were included, mean age was 62.7 years (range 40-81), 10 male and 24 female, 6 white collar, 14 blue collar and 14 retired. There were 9 patients with Eaton/Littler stage 2, 23 with stage 3 and 2 with stage 4. 34, 22, 23, 14, and 3 patients were available for preoperative examination, follow-up of 6 and 12 weeks and 1 and 2 years, respectively. Kapandji score was mean 8.9 (standard deviation SD 1.5) preoperatively, 9.3 (SD 1.0) at 12 weeks and 9.6 (SD 0.6) at 1 year. Grip strength was mean 22.2 (SD 10.7) preoperatively, 26.0 (SD 7.7) at 12 weeks and 26.8 (7.5) at 1 year. Key pinch strength was mean 5.2 (SD 2.6) preoperatively, 5.9 (SD 2.4) at 12 weeks and 6.3 (SD 1.5) at 1 year. Pain level at ADL was mean 8.2 (SD 1.5) preoperatively, 2.4 (SD 2.4) at 6 weeks and 0.8 (SD 1.9) at 1 year follow-up. BMHQ was mean 41.8 (SD 13.5) preoperatively, 84.1 (SD 22.0) at 12 weeks and 90.4 (SD 11.9) at 1 year. There was no dislocation or implant loosening. No prosthesis revision surgery was performed. Complications included one trigger thumb, one de Quervain's tenosynovitis, one cup subsidence without loosening and one tendon adhesion, the latter three were treated surgically.

Discussion. Treatment of TMC-OA with Maïa™ dual mobility TMC joint prosthesis shows excellent clinical short term results with low complication rates. Our data are comparable to the current literature on other dual mobility TMC joint prostheses. Short term outcomes for the Maïa™ dual mobility TMC joint prosthesis have not been published in Pubmed yet.

FM10
What would you choose again - Thumb carpometacarpal implant or RSI arthroplasty?

M. Marks[1], D. Herren[1], L. Bandzaite[1], V. Nietlispach[1], T. Pudic[1], S. Schindele[1] ([1]Schulthess Klinik, Zürich)

Aim. The aim was to determine whether a thumb carpometacarpal (CMC) implant arthroplasty leads to higher patient satisfaction compared to RSI arthroplasty in the same patient.

Methods. Patients who had undergone implant arthroplasty (Touch®, KeriMedical) in one thumb and RSI arthroplasty in the other thumb were invited to a follow-up visit. Patients completed a questionnaire including a satisfaction question, pain and the brief Michigan Hand Outcomes Questionnaire (MHQ). Key pinch and grip strength, range of motion and radiographic implant loosening were assessed at follow-up. Post-operative complications were extracted from medical records. Differences between the 2 hands were analysed using the Wilcoxon signed-rank test (continuous data) and Fisher's exact test (nominal data). Data were presented as median.

Results. Fourteen women with bilateral surgery were examined at 2.2 and 6.2 years after implant and RSI arthroplasty, respectively. Ten patients would choose an implant again, 1 patient would choose RSI and 3 patients were undecided ($p \leq 0.01$). Twelve patients were satisfied or very satisfied with the outcome after implant arthroplasty, while 8 patients reported this level of satisfaction for RSI ($p=0.41$). Brief MHQ scores were higher in the hand with an implant arthroplasty compared to that with a RSI arthroplasty, as indicated by the respective scores of 81 and 71 ($p=0.05$). Key pinch (6.0kg) and grip strength (22kg) were significantly higher for the implant arthroplasty hands compared to the respective values of 4.5kg and 20kg for the RSI arthroplasty hands ($p \leq 0.05$). The other clinical and patient-reported outcomes did not differ significantly between the two hands at follow-up. Seven patients reported faster postoperative rehabilitation after implant arthroplasty than after RSI ($p \leq 0.01$). There were no complications or radiological loosening after implant arthroplasty, but two revision surgeries 1.5 years after RSI.

Conclusion. Patients were satisfied with both procedures, but if they had to choose again, they would prefer implant arthroplasty. Implant arthroplasty provides at least similar medium-term outcomes to RSI, with faster rehabilitation, better hand function, greater strength and fewer complications after implant arthroplasty.

FM11
Thumb CMC implant saves CHF 7'000 in lost productivity costs compared to RSI arthroplasty.

K. Mathis[1], D. B. Herren[1], S. Schindele[1], M. Marks[1] ([1]Schulthess Klinik, Zürich)

Background. Productivity loss measures the degree of work impairment due to health conditions, with its score ranging from 0% (no loss) to 100% (maximum loss).

Aim. The aim was to investigate if patients treated with thumb carpometacarpal (CMC) implant arthroplasty have lower costs due to loss of productivity after surgery compared to patients with resection-suspension-interposition (RSI) arthroplasty.

Methods. We used data from two prospective clinical trials and included employed patients who were treated with thumb CMC implant arthroplasty (Touch®, KeriMedical) or with RSI arthroplasty. Patients completed the Work Productivity and Activity Impairment Questionnaire to assess loss of productivity at baseline, and after 3, 6, and 12 months. Costs due to productivity loss were calculated by multiplying the productivity loss score by the monthly wage. Outcomes were compared between groups using an independent t-test and results are reported with mean and 95% CI (Confidence Interval).

Results. 69 patients with implant arthroplasty and 46 patients with RSI arthroplasty were included. After implant arthroplasty, patients returned to work significantly faster, with a mean time of 51 days (43-59) compared to 84 days (50-117) for RSI arthroplasty patients ($p<0.05$). Productivity loss at baseline was 54% (48-60) and 47% (36-57) for implant and RSI patients, respectively and decreased to 10% (6-15) and 25% (15-35) one year after surgery ($p<0.01$, figure 1). The costs associated with lost productivity were significantly lower for implant arthroplasty patients over a one-year period, with CHF 15'781 (12'897-18'665) compared to CHF 22'707 (15'382-30'032) for RSI arthroplasty patients ($p<0.05$).

Conclusion. Patients after thumb CMC implant arthroplasty returned faster to work and therefore, costs due to loss of productivity were significantly lower than after RSI arthroplasty. These findings are important in demonstrating that implant arthroplasty not only provides good treatment outcomes, but also has lower costs for the society. In negotiations with health insurers, these data can support the reimbursement of the cost of the implant.

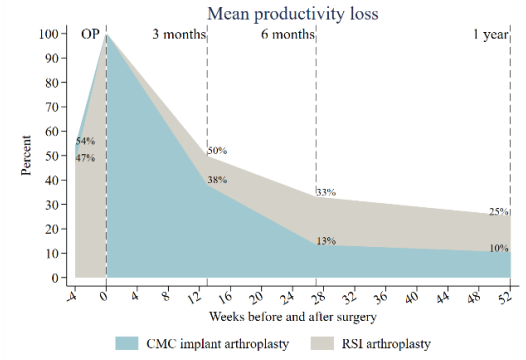


Figure 1: Productivity loss in percent for patients with thumb CMC implant arthroplasty versus patients with RSI arthroplasty over a one-year period. CMC: carpometacarpal; RSI: resection-suspension-interposition; OP: operation.

Freie Mitteilungen / Communications libres II: Distale Radius und DRUG

FM12
Correlation Between Sigmoid Notch Morphology and TFCC Lesion in Distal Radioulnar Joint Instability

F. Mauler[1], J. Billy[1], J. Y. Beaulieu[2] ([1]Clinique de la Main - Genève, Genève; [2]Hôpitaux Universitaires Genève, Genève)

Introduction. The stability of the distal radioulnar joint (DRUJ) depends, among other factors, on the morphology of the sigmoid notch. While variations in morphology have been relatively well described, specific data evaluating the correlation between the type of TFCC lesion and the morphology of the sigmoid notch are scarce. This study aims to describe the morphology of the sigmoid notch in patients treated for DRUJ instability and evaluate the correlation between joint morphology and TFCC lesion type.

Methods. Fifty-four patients treated for unstable DRUJ, who underwent preoperative arthro-MRI, were retrospectively included. The sigmoid notch was analyzed on T1-weighted MRI axial planes and categorized into four groups according to the classification of Tolat. This subjective classification was complemented with objective measurements and correlated with the shape of the radius and the curvature of the ulnar head. TFCC lesions were evaluated using preoperative arthro-MRI and arthroscopy. Spearman's correlation coefficients were used to assess the relationship between sigmoid notch morphology and TFCC lesion type.

Results. The morphology of the sigmoid notch in DRUJ instability was analyzed according to Tolat's classification. Objective measurements of the various morphology variations and their correlation with the type of TFCC lesion were assessed.

Conclusion. The shape of the sigmoid notch is a factor influencing the stability of the DRUJ. Correlation with the type of instability and TFCC lesion, as well as valuable insights for the surgical treatment of DRUJ instability are discussed.

FM13
Ausmass einer Malunion des distalen Radius und Indikationsstellung für eine Korrekturosteotomie

Y. Waser[1], L. Estermann[1], L. Reissner[2] ([1]Universitätsspital Balgrist, Zürich; [2]Zurich)

Einleitung. In Fehlstellung verheilte, distale Radiusfrakturen sind oft mit einer Bewegungseinschränkungen oder einer Instabilität im DRUG einhergehend. Das DRUG ist an den Umwendbewegungen aber auch an der Kraftübertragung beteiligt, daher ist die Wiederherstellung der Gelenkskongruenz von Bedeutung. Dabei ist die Korrekturosteotomie die Therapie der Wahl.

Mehrere Studien zeigten, dass mit 3D geplanten Korrekturosteotomien annähernd eine anatomische Rekonstruktion möglich ist. Bisher ist unbekannt, welches Ausmass an Korrektur (Achsabweichung und Translation) eine klinische Relevanz bzgl. Bewegungseinschränkung oder DRUG-Instabilität hat. Ziel dieser Arbeit ist, zu bestimmen, welches Ausmass an Fehlstellung notwendig ist, um postoperativ einen verbesserten postoperativen Outcome zu erreichen.

Methodik. Alle Patienten zwischen 2017 und 2023, die an unserer Klinik eine Korrekturosteotomie bei einer fehlverheilter, distaler Radiusfraktur erhielten und ein Follow-up von mind. 6 Monaten hatten, wurden eingeschlossen. Die klinischen Daten wurden aus den prä- und postoperativen Routinekontrollen gewonnen. Der Fokus wurde auf die prä- und postoperative ROM, die klinisch getestete DRUG-Stabilität, die Faustschlusskraft sowie das Vorhandensein einer ulnaren Impaktionssymptomatik gelegt. Die Fehlstellungsanalysen und 3D Planung der Korrekturosteotomie wurden routinemässig erhoben und stammen aus der Spital-Plattform für medizinische Bildgebungen.

Resultate. Insgesamt wurden 129 Patienten mit einem mittleren Alter 45 Jahren eingeschlossen, 82 Frauen und 47 Männer.

Die mittlere Abweichung der Malunion in der Flexions-Extension-Achse betrug 14.67°(SD 10.95), radial/ulnar 7.04°(SD 5.34) und in Pro-/Supination 8.03°(SD 7.54). Eine durchschnittliche Verkürzung von 4.97mm(SD 2.67) wurde gemessen.

Bei den bisher untersuchten 129 mittels Korrekturosteotomie operierten Fällen wurde bei 19 eine extraartikuläre Korrekturosteotomie mit einer Gradkorrektur von weniger als 10° in allen Ebenen durchgeführt und gute Ergebnisse bezüglich der ROM, klinisch geprüften Stabilität, der Faustschlusskraft oder der ulnaren Impaktionssymptomatik erreicht.

Diskussion/Schlussfolgerung. Unser Patientenkollektiv weist mehrheitlich Fehlstellungen mit einer dorsalen Abkippung von über 10° auf. Jeoch zeigt sich, dass bei entsprechender Symptomatik durch eine geringe Korrektur bereits eine substanzielle Beschwerdebesserung erreicht werden kann. Eine ausführliche Korrelationsanalyse wird am Kongress präsentiert.

FM14
Stability of the distal radioulnar joint before and after corrective osteotomy of the distal radius

L. Reissner[1], A. Schweizer[1], D. Zobrist[1], L. Reissner[1], D. Zobrist[1] ([1]Universitätsklinik Balgrist, Zürich)

Malunion of the distal radius with dorsal angulation increases instability of the distal radioulnar joint.

The aim of the study was to sonographically quantify the instability of the distal radioulnar joint in 20 patients following corrective osteotomy of the distal radius and to investigate the subjective, clinical results preoperative, three and twelve months postoperative. Sonographically measured dorsovolar ulnar head translation relative to the distal radius was significant higher (3.6 mm) preoperative compared to 2.9 mm three months postoperative. Twelve months postoperative the result was 3.2 mm, similar to the contralateral side (3.3 mm). Pain, Disability of the Arm, Shoulder and Hand questionnaire and Patient-Reported Wrist Evaluations, wrist flexion, radial and ulnar inclination, grip strength and pronation and supination torque improved significantly.

Corrective osteotomy of the distal radius shows good subjective and clinical results and a stable radioulnar joint sonographically measured.

FM15
Dynamic Palmar Instability of the Distal Radioulnar Joint after Radius Shaft Malunion

S. Schmitt[1], J. Radosavljevic[2], A. Eisa[2], J. van Schoonhoven[2] ([1]Klinikum-Mittelbaden, Büh[1]/Kantonsspital Luzern, Bühl/Luzern DE; [2]Rhoen Klinikum, Bad Neustadt/Saale DE)

Introduction. Palmar instability of the distal radioulnar joint (DRUJ) is a rare condition, which is, in contrast to the dorsal dislocation, scarcely represented in the literature. This palmar instability can result from a dorsally angulated malunion of

the radial shaft after forearm fracture in childhood. Treating such a condition is controversial in the literature and was described in small case series. This study represents the largest case series in the literature that dealt with this condition.

Material and Methods. This is a retrospective case series. Ten patients were operated between 2007 and 2014. Six patients could be followed up clinically and radiologically after radius corrective osteotomy at the site of malunion with a mean time of 5.6 years. Patient history revealed a conservatively treated forearm fracture in childhood, a symptom-free period of several years [mean of 21.5 (min–max: 9.4–26.5) years] and a minor trauma as a trigger for clinical symptoms. All patients had clinically a DRUJ instability with palmar luxation of the ulnar head at supination. A diagnostic key feature was a radiograph of the whole forearm, revealing malunion of the radius at shaft level. Retrospective patient history, diagnostic imaging, operative technique and clinical results (DASH, modifed Mayo Wrist Score, pain, grip strength, range of motion) were analyzed.

Results. Four patients were lost to follow-up. In all patients, a radius corrective osteotomy could stabilize the DRUJ. In all of the six patients, bony union of the osteotomy was achieved. In one patient, the osteosynthesis was revised due to metal failure after one month. In another patient, an additional ulnar shortening osteotomy was done one year later due to a positive ulnar variance. Postoperative range of motion of the wrist had an average of 136° in extension/fexion and 149° in pronation/ supination, and grip strength was 89% of the opposite side. With an average of 12.5 points at the DASH score and 82 at the modifed Mayo Wrist Score, patients rated their hand function as good.

Conclusion. Dynamic palmar instability of the DRUJ is a rare and late complication after forearm fracture in childhood. A simple corrective osteotomy of the radial shaft was adequate to treat the complex pathology of a dynamic palmar instability of the DRUJ. A soft tissue procedure was not required. Medical history and a whole forearm radiograph were the key diagnostic features to detect and understand this rare pathology.

FM16
Improving Measurement Accuracy of Pronation/ Supination using Inertial Measurement Units

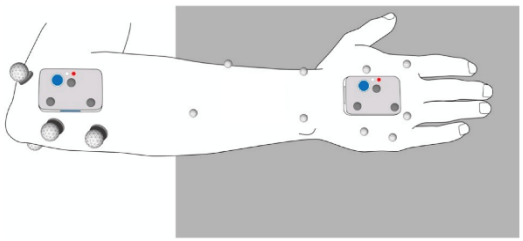
M. Wirth[1], G. Fischer[1], M. Calcagni[1]
([1]UniversitätsSpital Zürich, Zürich)

Introduction. Pronation and Supination in the forearm occur during rotation of the radius over the fixed ulna in the proximal and distal radioulnar joint. The assessment of Pronation/ Supination range of motion (ROM) is difficult with a goniometer, so often it is simply estimated in clinical practice. Exact measurement is possible with an optoelectronic motion capture system (OMC) but due to its complex and time-consuming use, no clinical application is possible. Inertial measurement units (IMU) are accurate in flexion/ extension and radial/ ulnar deviation assessment and suitable for clinical use. We now tested a modified setup for Pronation/ Supination.

Methods. Ten subjects with healthy right dominant hands were included and equipped with skin marker clusters for the OMC and with IMU sensors on hand and lateral epicondyle shown in Figure 1. IMU sensors were also equipped with OMC markers for direct comparison. Maximum ROM of five different trials and mean absolute difference between the two systems and between IMU and markers on the IMU sensors were calculated. The kinematic evaluation of the OMC was calculated according to an established protocol. The evaluation of the IMU was done by the manufacturer's software.

Results. The mean absolute difference of the ROM between the IMU and the OMC was 13 ° ± 8° and 7 ° ± 5 ° between IMU and OMC markers directly on the IMU sensors. The mean pronation/ supination ROM amounts to 145° when measured with the IMU, 157 ° with the OMC and 141° with OMC markers on the IMU sensors.

Discussion. The observed differences between the IMU and the OMC show a systematic ROM underestimation by the IMU in the tested setup but high agreement between IMU and OMC markers on the IMU sensors, possibly due to skin movement over the lateral epicondyle during Pronation/ Supination. This hints to the need for an even more proximal sensor positioning. The study still shows the potential of IMU in measuring the complex Pronation/ Supination movement with high agreement between its results and the OMC markers directly on the sensors.



IMU sensor and OMC marker positions

FM17
Minimalinvasive distale Radiusosteosynthese bei intraartikulären Radiusfrakturen (AO 23B1 – C3)

D. Spühler[1], J. Fuchs[1], S. Luz[2], V. Schmidt[3], J. Hainich[4] ([1]Spital Thurgau AG, Frauenfeld; [2]Spital Grabs, Grabs; [3]Kantonsspital Sankt Gallen, Sankt Gallen; [4]Ostschweizer Handzentrum, Sankt Gallen)

Einführung. Distale Radiusfrakturen gehören zu den häufigsten Frakturen und machen 12-17% aller Frakturen aus. Die Ergebnisse sind abhängig vom Schweregrad und Frakturmuster sowie der Therapiewahl. In den letzten 15 – 20 Jahren hat sich ein starker Trend hin zur operativen Versorgung mittels Plattenosteosynthese abgezeichnet, die eine frühfunktionelle Nachbehandlung mit sehr guten Ergebnissen ermöglicht hat. Die überwiegende Mehrheit der Frakturen kann mit einer winkelstabilen Platte von palmar versorgt werden. Jüngere Daten aus der Literatur deuten auf ein geringeres Komplikationsrisiko und ein besseres frühfunktionelles Outcome hin. Das Ziel dieser Studie ist es zu zeigen, dass der minimalinvasive Zugang auch bei komplexen Frakturen ausgezeichnete Ergebnisse liefert.

Material & Methoden. In die Studie haben wir Patienten/Innen eingeschlossen, welche von Januar bis April 2023 eine Osteosynthese am distalen Radius erhalten haben und folgende Einschlusskriterien erfüllen: minimalinvasiver palmarer Zugang von 1.5cm, distale fehlangulierte intraartikuläre Radiusfraktur und eine unterzeichnete Einverständniserklärung.

Ausgeschlossen wurden Patienten mit Kombinationsverletzungen am ipsilateralen Handgelenk, extraartikuläre und konservativ therapierte distale Radiusfrakturen. Die primären Endpunkte waren der QuickDASH Score, die Kraftgrade im Seitenvergleich in Kilogramm (Jammar 2) und folgende radiologischen Parameter, welche anhand der konventionellen Röntgenbilder 6 Wochen und 3 Monate postoperativ gemessen wurden: palmare Inklination [°], Radiale Inklination [°], Ulnavarianz [mm] und Radiushöhe [mm].

Resultate. Von Januar bis April 2023 wurden 52 distale intraartikuläre Radiusfrakturen (AO 23B1 – AO 23C3) operativ mittels palmarer Plattenosteosynthese minimalinvasiv über einen Flexor carpi radialis Zugang versorgt. Radiologisch zeigte sich eine anatomische Wiederherstellung des palmaren Tilts von 7° (0 - 15°), der radialen Inklination von 21° (10 - 32°) sowie der radialen Höhe von 10.5mm (7 – 13mm). Es zeigte sich eine neutrale Ulnavarianz. Der QuickDASH betrug 3 Monate postoperativ 21 und die Griffkraft erreichte 74% der gesunden Gegenseite.

Konklusion. Funktionell und radiologisch zeigen sich gleichwertige Resultate wie bei einem erweiterten modifizierten Zugang nach Henry. Die Osteosynthese der distalen Radiusfraktur über einen minimalinvasiven Zugang ist zuverlässig, komplikationsarm und zeigt kosmetisch ausgezeichnete Ergebnisse.

FM18
WRIST – a stepwise intraoperative protocol to minimize complications in distal radial fracture osteosynthesis using a volar locking plate

C. K. Goorens[1], N. Debaenst[2], G. van Eetvelde[3], K. van Royen[4] ([1]International Wrist Center Tienen, Regionaal Ziekenhuis Heilig Hart Tienen, Tienen BE; [2]UZ Gasthuisberg, KULeuven, Leuven BE; [3]AZ Sint-Lucas Gent, Gent BE; [4]OLV Aalst, Aalst BE)

Although outcome of volar plating is generally good, care should be taken to avoid specific iatrogenic and preventable complications, with an incidence reporting averaging 15%. Flexor tendon rupture due to a prominent plate, extensor tendon rupture due to a dorsal protruding screw tips, cartilage lesions due to intra-articular screw placement, loss of reduction due to insufficient stability, and persisting ulnar pain with distal radioulnar joint instability due to unstable triangular fibrocartilaginous complex lesions or unstable ulnar styloid base fractures all have been described.

We believe that a majority of these complications can be prevented by meticulous assessment of several intraoperative parameters during volar plating. Therefore, we introduce the “WRIST” protocol, a stepwise manual that combines multiple fluoroscopic measurements to guide intraoperative decision making. The “WRIST” approach that comprises “*w*rist anatomy,” “*r*ange of motion,” “*i*nstability,” “*S*oong classification,” and “*T*FCC” is easy to remember. The “WRIST” checklist in OR theatre may avoid many complications of volar locking plating for distal radius fractures.

In conclusion, large prospective studies of the "WRIST" protocol are needed for validation. But we believe that it may help surgeons to optimize surgical technique. functional and radiographic outcome, and prevent complications when treating distal radial fractures.

A Stepwise Intraoperative Protocol to Minimize Complications after Volar Plating.
Goorens CK, Eetvelde GV, Debaenst N, Royen KV.

J Wrist Surg. 2023 Feb 9;12(5):384-389. doi: 10.1055/s-0043-1760736.

Summary of the "WRIST" protocol

WRIST	Point of interest	Measurements
Wrist	Check wrist anatomy	Volar tilt, ulnar variance, articular step off
Range of motion	Perform full range of motion	Articular congruency, intra-articular screw tips
Instability	Check the fracture stability during provocative maneuvers	Volar rim, dorsal rim, capsuloligamentous lesions
Soong	Check the plate protrusion according to the Soong classification	Volar plate protrusion
TFCC	Check DRUJ ballottement stability and ulna	TFCC, ulnar styloid, and other associated lesions

Summary wrist protocol

FM19
A series of 15 total wrist implants for acute distal radius fractures in elderly patients

I. Tami[1], M. Sammons[1] ([1]Centro manoegomito, Gravesano)

Introduction. Despite advancements in surgical techniques and materials, we must acknowledge that we still encounter fractures that cannot be adequately addressed with a "standard" approach. Osteoporosis and diminished bone density can further complicate stable osteosynthesis. Here we present our experience with a series of 15 total wrist implants for acute complex distal radius fractures in elderly patients.

Materials and Methods. Between September 2020 and March 2024, we treated 15 patients with complex DRF, comprising 3 males and 12 females, with an average age of 75 years (range: 63-83 years). Upon admission to the emergency room, patients underwent assessments, including radiographic (RX) and computed tomography (CT) scans. Utilizing the AO and Fernandez classifications, fractures were meticulously categorized, and associated lesions were identified. Following our algorithm for comprehensive fracture evaluation, we determined the most suitable treatment for each patient. Patients meeting study criteria underwent total wrist arthroplasty and received routine follow-ups at 6-week, 3-month, and 6-month intervals, during which X-rays were performed to monitor implant position, fracture healing, and osseointegration. Subsequently, patients completed the Disabilities of the Arm, Shoulder, and Hand (DASH) score and the Patient-Rated Wrist Evaluation (PRWE) test. The study spanned an average follow-up duration of 13 months, ranging from 6 to 31 months.

Results. Our study reports satisfactory restoration of wrist mobility and grip strength (assessed using the Jamar dynamometer, averaging 16kg). At 6 months, the DASH score was 25.2, and PRWE was 15.

Conclusions. In summary, it appears that this new implant can yield favorable functional outcomes. The prosthesis likely represents a viable option for managing complex distal radius fractures in a select patient population. However, confirmation of the indication for total wrist prosthesis requires a larger patient cohort and longer follow-up periods. While arthroplasty is one of the treatment options for wrist osteoarthritis, its role in wrist fracture management remains an evolving field.

MOTEC ABSTRACT

FM20
Outcomes of Radius Lengthening Osteotomy for Management of Premature Posttraumatic Radius Growth Arrest

P. Alt[1], A. Kämpfen[1], K. Mende[1] ([1]Universitätsspital Basel, Basel)

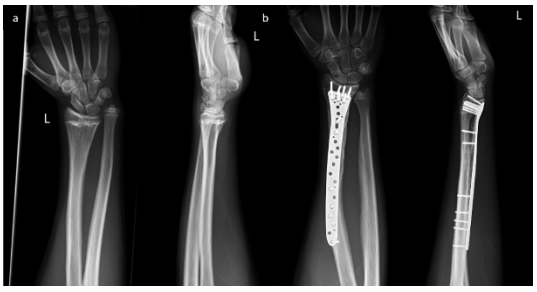
Background. Distal radius fractures are one of the most common injuries in children leading to posttraumatic radius growth arrest in 1-7%. Growth arrests can result in length discrepancy with ulnar overgrowth and functional impairment. Treatment options depend on length discrepancy, angular deformity and expected remaining growth. This study presents a case series of four teenage patients who underwent a radius lengthening osteotomy to

manage posttraumatic radius growth arrest. We hypothesize that a good and painless range of motion and adequate length of the radius is achievable by radial lengthening if otherwise a length discrepancy of two or more centimeters between forearms is expected.

Methods. We conducted a retrospective analysis of four teenage patients aged 14 ± 1.4 years with post-traumatic radius growth arrest secondary to distal radius fracture. All patients underwent radius lengthening osteotomy followed by external fixator distraction and subsequent plate fixation with iliac bone graft. One patient did not receive external distraction prior to plate fixation. Clinical and radiographic assessments were performed preoperatively, postoperatively, and at follow-up visits. Outcome measures included correction of radio-ulnar length discrepancy, improvement in range of motion, and assessment of complications.

Results. Mean external distraction time was 8 ± 1.7 weeks, mean consolidation time was 13 ± 6 weeks until weight bearing commenced. All four patients demonstrated significant improvement in radio-ulnar length equality and range of motion following surgical intervention at the latest follow-up, which occurred at 20 ± 6 months. The mean radio-ulnar length discrepancy was reduced from 7 ± 5 mm preoperatively to -5 ± 3.5 mm postoperatively. Postoperative extension/flexion measured 75/0/70°, and pronation/supination measured 85/0/80°. Radiographic evaluation revealed successful correction of angular growth arrest deformity and restoration of radial length with no signs of ulno-carpal impaction. As complication we saw one delayed union leading to a reoperation without long-term impact on joint function.

Conclusion. Radius lengthening osteotomy effectively restores radio-ulnar length discrepancy and improves functional outcomes in wrist joint mechanics without lasting complications if a length discrepancy of more than 2 cm is expected.



Radiographic imaging of (a) preoperative x-ray: premature posttraumatic radius growth arrest (b) postoperative x-ray: radius lengthening osteotomy with plate fixation

Freie Mitteilungen / Communications libres III: Finger Joints

FM22
Treatment of skier's thumb without transection of the adductor aponeurosis

Y. Goubau[1], R. Balcaen[1], W. van Hove[2] ([1]ASZ, Aalst BE; [2]UZ, Gent BE)

Introduction. An injury to the ulnar collateral ligament (UCL) of the metacarpophalangeal (MCP) joint of thumb is a common injury, widely referred to as a skier's thumb. The rupture usually occurs at the distal insertion. When the torn ligament displaces proximally, the aponeurosis of the adductor pollicis muscle can lie in the defect. Without anatomical reposition, the ligament cannot heal, and chronic instability will follow. In the classical technique, the adductor aponeurosis must be cut to repair the ligament to its insertion on the first phalanx, after which the aponeurosis is sutured back.

Methods. We describe a technique to repair the UCL without transection of the adductor aponeurosis. We will provide professional artwork and video's. This technique might reduce articular stiffness and EPL tenodesis. We describe the use of this technique in 9 patients.

Results. Mean active range of motion (ROM) in the MCP joint of the thumb was 52° of flexion and 4° of hyperextension. Resulting in a total arc of motion of 56 degrees, compared to 72° (59° flexion and 13° hyperextension) in the in the contralateral MCP joint. The median Kapanji score was 9/10 (range 8-10/10), in comparison, the median score at the non-operated thumb was 10/10 (range 9-10/10). Mean key pinch value came out at 6.67 kg (range 2-12 kg), on average of only 0.89 kg less than the contralateral side.

Conclusions. Surgical repair of a UCL injury, with a Stener lesion, without transection of the adductor aponeurosis shows excellent clinical outcome both subjectively and objectively. When we compare our results to the literature, a tendency to better range of motion can be appreciated.

Discussion. This technique is safe and relieable to repair a skier's thumb, and might reduce articular stiffness and EPL tenodesis. A prospective comparative study is needed to further investigate this.

FM23
Aspects of therapeutic decision-making in bony skier's thumb injuries

A. Strohmaier[1], C. Wirtz[1], L. Krafft[2], P. Schanen[1], C. P. Born[1], M. Häfeli[1] ([1]Kantonsspital Graubünden, Chur; [2]Chur)

Introduction. Acute tears of the ulnar collateral ligament (UCL) of the first metacarpophalangeal joint (MCPj) are common sports injuries. They are categorized into different types based on bony lesions, joint instability, and tear configuration (e.g. Stener lesion). Beside clinical examination, X-rays are standard to identify avulsion fractures. Dislocated fractures are often considered an indication for surgery. However, current literature lacks criteria to classify a fragment as dislocated and the factors that influence the surgeon's decision in these cases remain unclear. This observer trial aimed to identify aspects of therapeutic decision-making based on bony lesions in skier`s thumb injuries.

Methods. 75 X-rays of thumbs with bone fragments on the ulnar MCPj were evaluated by 6 observers (2 experienced and 2 resident hand surgeons, 2 radiologists). They determined whether the injury was osseous, dislocated, and recommended surgery or conservative treatment. The maximum fragment size, rotation, and the maximum/minimum distances to the proximal phalanx base were measured and correlated with the observer's decisions. The inter-observer reliability was assessed by Cohen's Kappa coefficient.

Results. Inter-observer agreement was substantial to identify bony lesions (0.71) and moderate for dislocation (0.51) and indication for surgery (0.49). Multilevel regression analysis showed that minimum distance and fracture fragment rotation significantly influenced the decision to classify a fracture as dislocated. Surgery was indicated more frequently with larger minimum distance or fragment rotation as well as when the lesion was categorized as dislocated.

Conclusion. Classification of UCL injuries includes joint stability, bony lesions, and tear configurations to determine the most suitable treatment for patients. Dislocation of bony fragments is often considered a therapy-decisive factor, although no clear definition of dislocation exists. If only X-ray were available, in our study dislocation of the bony UCL lesions was the major factor that indicated surgery. Minimum distance of the fragment to the phalanx base and the grade of rotation were important factors in categorizing it as dislocated. However, our findings indicate only moderate observer agreement in categorizing bony fragments as dislocated. Therefore, dislocation alone may not be an appropriate decision criterion and inclusion of joint instability and tear configuration is crucial when advising patients.

FM24
Improving patient information and decision making in management of stiff finger – a multimodal approach

A. Gübeli[1], T. Coli[2], C. Fernandes Da Cunha[2], A. Poirier[2], A. Bouchet[2], M. Giroud[2], P. Latière[2], F. Senot[2], J. Y. Beaulieu[2] ([1]Hopitaux Universitaires Genève, Genève; [2]Hôpitaux Universitaires Genève, Genève)

Introduction. After trauma or surgical procedures, many patients encounter digital stiffness, a common complication that severely disrupts both function and quality of life. The necessity of a surgical release of the finger and the postoperative outcome depends on numerous factors. We propose a multimodal approach with extensive pre-and postoperative assessment of the patients function and Patient Reported Outcome Measures (PROM) as a tool for decision-making, patient information and legal documentation, and present our clinical outcomes since 2022.

Methods. In 2022, our institution implemented a protocol for assessing patients with stiff fingers due to trauma, infection, or surgery. It included evaluation of pain, range of motion (ROM), hand function and grip strength. Following surgery, patients received intensive physiotherapy, with frequency gradually decreasing over time, and re-assessments at 3- and 6-months post-surgery. We conducted a retrospective analysis on patients who underwent this protocol.

Results. Between March 2022 and April 2024 above mentioned assessment was conducted on 27 patients who presented a stiff finger. Of these, 23 underwent surgical treatment. In four cases, conservative treatment was continued.

Our analysis included 18 of the 23 patients who underwent surgery, with a follow-up assessment at minimum 3 months postoperatively. Their mean age was 43 years, 11 were female (61.1%), in 12 cases the dominant hand was affected. 12 patients unterwent tenoarthrolysis and 6 tenolysis. A palmar and dorsal approach was chosen for 12 patients, while 6 underwent a palmar approach only. In total, 24 fingers were operated, with 5 patients suffering from multidigital stiffness. The most commonly affected finger was the ring finger (33.3%), followed by middle (29.2%) and small finger (25%). At 6 months postoperative, there was a mean increase of total ROM of 39.7° per finger, a decrease of 11.9 points in the DASH score, an increase of 19.5% in the 400-point Hand Assessment, an increase of 10.3% in grip strength

compared to the contralateral side and a decrease of 1.7 points in the Visual Analogue Scale.

Conclusion. Thorough preoperative assessment of hand function including PROM in cases of stiff finger is invaluable for decision-making, patient education, and legal documentation. Our approach enhances collaboration with hand therapists, improves communication with patients, and ultimately aims to enhance clinical outcomes following tenoarthrolysis.

FM25
Treatment of swan neck deformity after implantation of CapFlex prosthesis

S. Kerler[1], P. D. m. J. Grünert[2], D. m. S. Christen[3] ([1]Berit Klinik AG, Goldach; [2]Berit Klinik Goldach, Hand und Plastische Chirurgie, Goldach; [3]Hand und Plastische Chirurgie, Goldach)

Swan neck deformity is a rare complication after implantation of a CapFlex prosthesis. In the literature, its occurrence is known as a rare complication of the Chamay approach. We report on 4 patients who developed a swan neck deformity after implantation of a CapFlex prosthesis with a dorsal approach using the tendon splitting technique. As conservative treatment with splinting did not lead to improvement, surgical treatment was indicated.

Different tenodesis techniques exist to correct swan neck deformity. We prefer a volar tenodesis using a FDS tendon slip as described by Bossé in 1981. According to his technique one slip of the flexor digitorum tendon is detached distally and passed through a drill hole in the proximal phalanx. After adjustment of the tension it is sutured to itself and the A2 pully. In contrast to the well-known tenodesis techniques described by Swanson or Tubiana, the Bossé tenodesis has a static and a dynamic effect at the same time: it serves as a pulley for the flexor digitorum profundus tendon and as a tenodesis for the proximal interphalangeal joint. Hyperextension in the PIP joint can thus be prevented without significantly impairing flexion.

An early active rehabilitation program was started a few days postoperatively with dynamic splinting (Murphy ring). 6 weeks postoperatively all patients presented painfree and without functional restrictions. The PIP joint was stable in all cases. No recurrence of swan neck deformity occured so far.

Swan neck deformity after implantation of a CapFlex prosthesis is rare and it can occur even years after the initial surgery. According to our experience, the tenodesis technique by Bossé is a simple and a biomechanically effective method when conservative treatment fails.

FM26
Osteochondral autografts for PIP joint reconstruction in children with osteochondromas

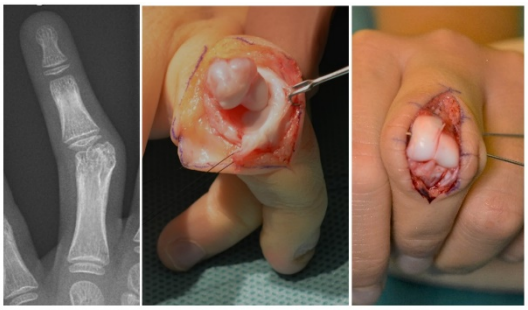
D. Weber[1], W. Hülsemann[2] ([1]University Children's Hospital Zurich, Zurich; [2]Children's Hospital Wilhelmstift, Hamburg DE)

Introduction. Osteochondromas are common bone tumors in children's hands. Complete resection is indicated due to angular deformity or restricted joint mobility. This destroys the articular congruity if the osteochondroma includes the articular surface. Primary reconstructions are controversial. The aim is to analyze a case series with primary joint reconstructions in children to report surgical outcomes and identify optimal autografts.

Methods. This retrospective case series includes six children from two centers with a mean age of 7.2 (4 to 10.8) years with solitary osteochondromas of the phalangeal head of the proximal phalanx which were operated due to articular incongruity between 2015 and 2023.

Results. All patients were reconstructed primarily with avascular osteochondral autografts, two from the base of the Vth metacarpal, two from the phalangeal head of proximal toe phalanx, and two from the hemimetatarsal head of the second toe. No recurrences were found during the follow up of 2.8 (0.3-8.5) years. All grafts integrated well with no signs of resorption. Patients did not complain about donor site defects or pain. All PIP joints were clinically stable and the active postoperative range of motion (ROM) [WD1] was 60 (25-90). All postoperative ROMs were equal or superior to the preoperative ROMs.

Conclusions. Osteochondromas have a characteristic clinical and radiological presentation, allowing for primary reconstruction without prior biopsy in typical cases. Osteochondral autografts integrate well into the PIP with no bone resorption observed in the present series. All autografts resulted in stable PIP joints and the preoperative range of motion was restored or improved. However, the grafts from the base of the 5th metacarpal had the best congruity and did not need additional tailoring. Together with a minimal donor site defect and easy harvesting within the operative field, the 5th metacarpal base can therefore be recommended as a primary donor site.



Resection of osteochondroma and primary reconstruction with osteochondral autograft from hemimetatarsal in a child

Abstract Osteochondroma SGH

FM27
Finger kinematics and joint stiffness after treatment of intra-articular PIP joint fractures

G. Fischer[1], L. Reissner[2], M. Calcagni[3], E. Rothenfluh[4] ([1]Universitätsspital Zürich, Zurich; [2]Balgrist, Zürich; [3]Universitätsspital Zürich, Zürich; [4]Inselspital Bern, Bern)

Introduction. The aim of this study was to quantify PIP joint stiffness in patients after different treatment of intra-articular PIP fractures and to assess the relationship to finger kinematics.

Methods. Twenty-seven patients with intra-articular PIP joint fractures and a minimum follow-up time of 2 years were included and assigned to three different treatment groups: conservative, dynamic external fixation (DEF) or open surgical procedures (OSP, such as ORIF, arthroplasty, corrective osteotomy).

Motion analysis was used to measure the range of motion (ROM) during dynamic finger flexion-extension. The stiffness of the affected PIP joint and the contralateral healthy side was measured using a newly developed finger stiffness measurement device. Axis deviation in the PIP joint was determined radiologically. PIP joint stiffness and ROM difference to the contralateral healthy side was compared between the different treatment groups (Kruskal-Wallis test, alpha=0.05). Pearson correlation was calculated.

Results. Median stiffness of the PIP joint was 0.0029Nm [0.0016-0.0066Nm] for the healthy and 0.0037Nm [0.0018-0.0057Nm], 0.0044Nm [0.0020-0.0055Nm] and 0.0049Nm [0.0028-0.0077Nm] in the DEF, conservative or OSP group, respectively. PIP joints were significantly stiffer after OSP, compared to healthy joints.

Median ROM restriction of the PIP joint was significantly larger after DEF (82°) and OSP (79°), compared to conservative treatment (104°). In addition, a significant reduction of the DIP ROM (48°) and compensatory increase in movement of the MCP (113°) was observed after OSP, compared to the conservatively treated group (DIP 79°, MCP 103°).

A significant correlation was found between increased PIP joint stiffness and PIP ROM (R=0.45, p=0.013) as well as DIP ROM (R=0.54, p=0.002), whereas MCP ROM correlated negatively with PIP joint stiffness (R=-0.44, p=0.016). Axis deviation tended to correlate with PIP joint stiffness (R=0.36, p=0.067).

Discussion. The ROM of the PIP joint was more restricted after surgical intervention (DEF and OSP) compared to the conservatively treated joints, while open surgical procedures additionally affected DIP ROM. Compensatory movements in the MCP >10° were observed in ~1/3 of the surgically treated fingers, but not after conservative treatment. However, different indications and a large inter-subject variability need to be considered. Overall, increased PIP joint stiffness correlates with restricted ROM in the PIP and DIP joint and with compensatory movement of the MCP.

FM28
Reliable prediction of true metacarpal bone length - a novel approach

S. Wangler[1], D. Gehrig[1], R. Liechti[1], E. Vögelin[1] ([1]Inselspital Bern, Bern)

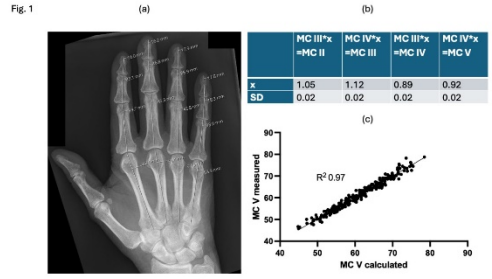
Introduction. Metacarpal (MC) fractures represent the most common fractures of the hand. Shortening can lead to active range of motion impairments of the metacarpophalangeal joints. The present study investigates the interobserver reliability of bone length measurements and presents a novel calculation method for predicting the correct length of metacarpal bones.

Methods. A total of 60 X-rays of uninjured hands were identified. MC and phalangeal lengths of the index, long, ring, and little fingers were measured by three blinded observers using a clinical imaging system (Fig. 1a). Interobserver reliability of all measurements was calculated. Linear regression was used to identify the most significant correlation between the MC bone of interest and all other bones measured. The length of the strongest correlating bone was divided by the length of the MC of interest to identify a multiplication factor (x). As a proof of concept, the true length of all measured MC's was compared to the calculated length by simple linear regression.

Results. The mean age of the patient cohort was 54 ± 14 years, with 50% female. The interobserver reliability for all applied measurements was excellent (ICC 0.99, 95% CI: 0.99-1). The ulnarly neighboring MC was the most correlating bone for MC II-IV and the MC IV for MC V ($p < 0.0001$).

Fig. 1b reports the multiplication factor x ± standard deviation (SD) for the identified correlations. A significant correlation between the measured and calculated MC V length was observed (p = <0.0001, R^2 0.97) (Fig. 1c)

Conclusion. The results of this study demonstrate excellent interrater reliability in the measurement of MC length in conventional X-rays. The ratios provided allow for a precise calculation of the true bone length, accurate to within 1.3 mm SD, based on adjacent MC's. This approach may help to improve preoperative planning and intraoperative decision-making for surgeons treating metacarpal fractures or shortened fracture malunions. We plan to verify the concept and its clinical relevance in a prospective cohort study by standardized assessments of patients with MC fractures.



SGH2024

FM29
Determination of the Internal Loads in a Metacarpal Osteosynthesis during Rehabilitation Exercises

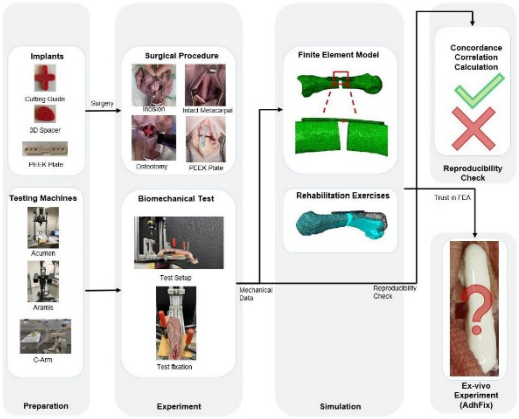
T. Pastor[1] (1AO Research Institut, Davos Platz)

Background. Metal plates used for metacarpal fracture fixation often lead to tendon adhesions and thus to an impairment in movement of the injured finger. To avoid tendon adhesion a new osteosynthesis material (AdhFix) has been developed. However, this new material has not been tested biomechanically in the metacarpal. Study aim: to investigate in a human cadaveric model the biomechanical potential of AdhFix used for fixation of metacarpal comminuted shaft fractures.

Methods. The second, third, and fourth metacarpals in five cadaveric hands were instrumented using four stainless-steel cortical screws and a polyether ether kotone (PEEK) plate for treatment of an unstable metacarpal shaft fracture simulated by means of a 3mm osteotomy gap. A custom 3D printed cutting and drilling guide assured accurate screw placement and osteotomy cuts. The hand was stabilized in a supine position, and each digit's flexor digitorum profundus (FDP) tendon was extracted and connected to an electrodynamic testing apparatus (Acumen, MTS) via a steel cable. In order to replicate postoperative rehabilitation exercises after metacarpal fracture treatment, each tendon was pulled until the fingertip met the palm in its maximum flexion. Then, repeating the procedure with the flexor carpi radialis (FCR) and ulnaris (FCU) tendon, the wrist was flexed until a force of 100 N was reached. These tests were repeated 5 times each. The displacement of each PEEK plate was tracked with a stereographic camera system (Aramis SRX, GOM) throughout the tests. Finite element modeling (FEM) was employed to calculate the internal bending moment in the PEEK plate's midline during full finger or wrist flexion. Finally, AdhFix was applied after removal of the PEEK plate and the tests were repeated.

Results. The maximum internal bending moments applied to the osteosynthesis during rehabilitation exercises were 6.14 ± 2.03 Nmm for fingertip to palm and 3.37 ± 1.64 Nmm for wrist flexion exercises as calculated by FEM. Additionally, the AdhFix fixations demonstrated resilience during these non-load bearing rehabilitation exercises on the metacarpal bone with no failures during the five of loading trials in the presented cadaver model.

Conclusions. This biomechanical investigation combined with a subsequent finite element analysis, imparts a profound understanding of internal loads in metacarpal bones during non-weight bearing postoperative rehabilitation exercises, which AdhFix can withstand.



SGH

FM30
Ultrasound-based measure of dorsal scaphoid displacement during Watson test in SL ligament lesion

N. Huber[1], L. Reissner[1], A. Schweizer[1] ([1]Balgrist, Zürich)

Scapholunate ligament lesion (SLL) is the most common ligament lesion in the wrist. We assessed the reliability of sonography during Watson test

(WT) in detecting SLL. 20 patients with MRI and intraoperatively confirmed SLL were assessed preoperatively between July 2020 and April 2023. Sonography was performed on the scaphoid dorsal subluxation (DS) in wrist neutral and during WT and compared with the healthy contralateral side. The DS was measured by two independent investigators and intra- and interobserver reliability were assessed. We found a statistically significant difference between DS of the scaphoid of the healthy (0.89 mm, SD 0.67 mm) compared to the pathological side (1.67 mm, SD 0.95 mm). Reliability was very good and SEM was lower than 0.4 mm for all measurements. Sonographic measurement during WT showed promising results with very good reliability; this method could be routinely adopted for the detection of SLL.

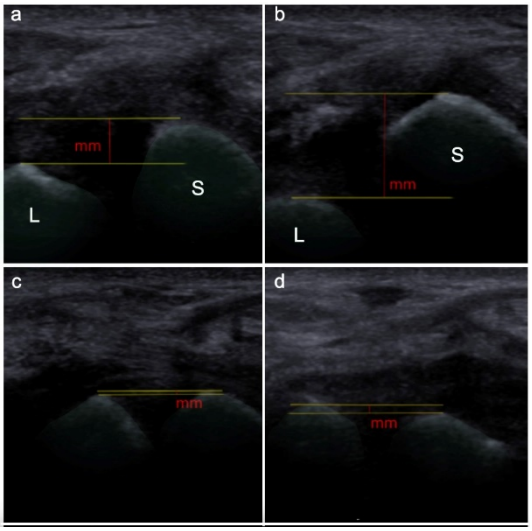


Figure 1: Measurements (mm) of the displacement of the scaphoid (S) in relation to the lunatum (L) while holding the pathological wrist in a neutral position (a) and while performing the Watson test (b). The same is repeated on the healthy wrist in neutral position

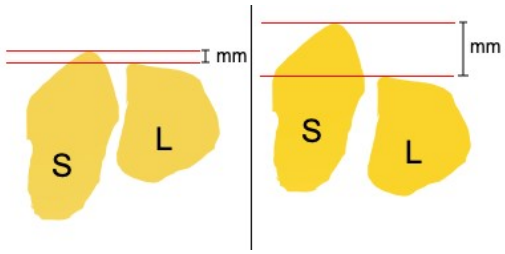


Figure 2: Schematic representation of the measurement of displacement of the scaphoid (S) in relation to the lunatum (L).

Freie Mitteilungen / Communications libres IV: Miscellanea

FM31
AI-assisted literature screening: Simplifying systematic reviews in hand surgery

M. Marks[1], D. Herren[1], M. Oyewale[1], R. Selles[2], H. Slijper[2] ([1]Schulthess Klinikk, Zürich; [2]Erasmus MC - University Medical Center, Rotterdam NL)

Aim. The aim is to report our experiences using ASReview, an open-source software using machine learning techniques to conduct a systematic review. We explored the effectiveness of ASReview to enhance the efficiency of the abstract screening.

Methods. ASReview utilizes active reinforcement learning techniques, where a machine learning algorithm iteratively learns from the user's decisions on a subset of papers to prioritize relevant studies for inclusion in a review. This human-in-the-loop machine learning application drastically reduces the amount of manual screening required. We applied ASReview to the abstract screening phase of an ongoing systematic review about prognostic factors of persistent pain following total joint arthroplasty.

Results. The literature search retrieved 15'832 studies. We only needed to screen 1'654 abstracts to reach the pre-defined stopping criteria (‘review at least 10% of literature and reach a sequence of 50 irrelevant abstracts’). This finding aligns with literature on ASReview, reporting that ASReview markedly reduces the workload in systematic reviews. By using active reinforcement learning, the tool can decrease manual screening efforts by up to 92% without sacrificing accuracy. In simulation studies, ASReview achieved a work reduction ranging from 67% to 92% at 95% recall, meaning that 95% of relevant studies were identified after screening only 8% to 33% of the total studies (van de Schoot et al., 2020). This contrasts sharply with traditional manual screening methods, where researchers typically need to screen a much larger percentage of studies to achieve the same level of recall.

Conclusions. ASReview marks a vital development in AI-supported literature research. Its capability to process vast amounts of literature data both efficiently and accurately makes it an indispensable tool for researchers. The application of active learning in ASReview not only saves time but also maintains the quality of systematic reviews, making it a reliable alternative to manual screening methods. Lastly, as this field rapidly advances, we

expect AI tools such as ASReview to evolve quickly, offering increasingly efficient research solutions.

Reference: van de Schoot R, de Bruin J, Schram R, Zahedi P, de Boer J, Weijdema F, et al. An open source machine learning framework for efficient and transparent systematic reviews. Nature Machine Intelligence. 2021;3(2):125-33

FM32
Differential Compliance of Patient Reported Outcomes in a Hand and Wrist Registry in Switzerland

M. Gunning[1], M. Calcagni[2], I. Besmens[3], O. Politikou[3] ([1]Universität Zürich, Zürich; [2]Handpraxis, Zürich; [3]Universitätsspital Zürich, Zürich)

Hypothesis. We hypothesize that within a structured hand and wrist surgery outcomes registry, questionnaire completion compliance will vary at different time points, distinguished by age and gender demographics.

Methods. Adopting the International Consortium for Health Outcomes Measurement (ICHOM) guidelines for Hand and Wrist Surgery, we initiated a multi-center registry in Switzerland in 2020. This registry collects both patient-reported outcome measures (PROMs) and clinician-reported outcome measures (CROMs), tracking adherence at baseline, 3 months, and 12 months post-treatment across multiple centers.

Results. Compliance rates for PROMs declined across all age groups from intake to the 12-month follow-up. The most significant decrease occurred in the youngest participants (18-30 years), where compliance plummeted by over 90% by the 12-month mark. In contrast, participants aged 61-70 began with the highest compliance rates and displayed the smallest decline, indicating stronger adherence over time. Females consistently maintained higher compliance rates than males throughout the study, with their initial advantage decreasing slightly but still evident at 12 months.

Summary. Compliance is high at the outset but decreases over time, a trend consistent across all demographic groups. Older participants, specifically those aged 61-70, consistently exhibit higher compliance rates throughout the 12-month period compared to younger cohorts. Female participants demonstrate greater compliance than males at each evaluation point. The 18-30 age group shows the most pronounced compliance decline by the end of the 12 months, underscoring the need for targeted strategies to improve compliance, especially among younger and male patients.

Conclusions. The study highlights the importance of patient and surgeon engagement in outcome registries and underscores the necessity for tailored strategies to address compliance challenges, particularly in younger populations and among men. The findings advocate for enhanced registry management, information technology improvements, and overall compliance strategies in the long-term management of hand and wrist surgery outcomes.

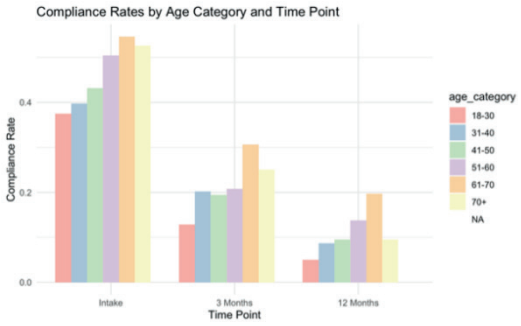


Figure 1: Compliance rates by age category and time point

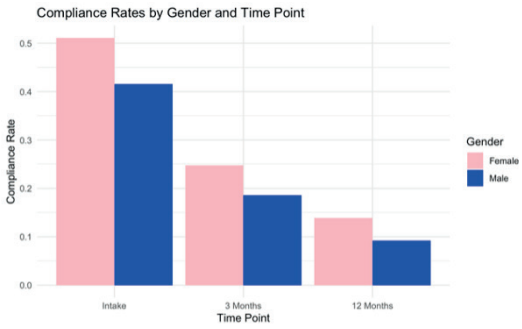


Figure 2: Compliance rates by gender and time point

FM33
Achieving Outcomes with the Hand and Wrist Standard Set in Multi-Center Settings

M. Gunning[1], M. Calcagni[2], I. Besmens[3], O. Politikou[3] ([1]Universität Zürich, Zürich; [2]Handpraxis, Zürich; [3]Universitätsspital Zürich, Zürich)

Hypothesis. Implementing the Hand and Wrist Standard Set by the International Consortium for Health Outcomes Measurements (ICHOM) in multiple centers across Switzerland aims to enhance patient care quality and offer insights into hand and wrist condition outcomes. We posit that utilizing patient-reported (PROMs) and clinician-reported outcomes measures (CROMs) will improve treatment strategies and patient satisfaction.

Methods. In 2020, a comprehensive registry was initiated to integrate the Hand and Wrist Standard

Set in routine practice across various Swiss centers, encompassing a wide array of conditions. A hybrid data collection approach using PROMs and CROMs was employed to capture both patient experiences and clinical outcomes comprehensively. Challenges in administration, IT logistics, and compliance were tackled by forming a dedicated support team, optimizing user interfaces for efficient data management, and promoting compliance through educational efforts and ongoing communication.

Results. Initial findings from the implementation show a successful integration of the Standard Set in Switzerland, with extensive data collection offering valuable insights into hand and wrist condition outcomes. The combined use of PROMs and CROMs has effectively generated a rich dataset reflecting both patient and clinical perspectives, allowing for cross-center outcome comparisons and identification of treatment variability.

Summary. The project has streamlined administrative procedures and IT logistics, enhancing compliance through educational outreach. Early results indicate a significant collection of comprehensive data. This hybrid data approach provides a well-rounded understanding of treatment impacts, supporting ongoing improvements in hand surgery practices and patient care quality. The initiative lays a robust foundation for outcome measurement and continuous care enhancement in the field.

FM34
Protocole de mobilisation Manchester modifié pour les sutures de tendons fléchisseurs : résultats.

M. Péclard[1], M. Giroud[1], C. S. Fernandes Da Cunha[1], J. Y. Beaulieu[1] ([1]Hôpitaux Universitaires de Genève (HUG), Geneve)

Introduction. Les lésions des tendons fléchisseurs sont des lésions traumatiques fréquentes de la main. Leur prise en charge représente un challenge thérapeutique, aussi bien en termes de techniques chirurgicales qu'en termes de réhabilitation. Depuis 1970 et l'apparition des premiers protocoles de mobilisation semi-active, la rééducation a progressé vers une mobilité de plus en plus libre. Décrit dans les années 1990, le protocole Manchester offre une plus grande liberté de mobilité active contrôlée par la libération du poignet, permettant une rééducation basée sur la mobilisation synergique poignet/doigts.

Objectif. Dans ce contexte, nous présentons nos résultats du protocole de mobilisation Manchester, utilisé depuis 2015 dans notre unité.

Méthode. Nous avons mené une étude rétrospective, incluant 130 patients, pris en charge entre février 2015 et octobre 2023. Tous les patients ont bénéficié d'une rééducation selon protocole de Manchester, avec mise en place d'une attelle courte dès le 4ème ou 5ème jours post-opératoire. Les séances de physiothérapie sont quotidiennes durant le premier mois, et incluent une mobilisation passive, une mobilisation en flexion/extension active protégée, puis un travail synergique poignet/main.

Résultats. L'âge moyen est de 35.6 ans, avec un ratio homme/femme de 76.1/23.8%. 15,3% des cas concernent des lésions pluridigitales. 58,6% des patients présentaient des lésions associées sous forme de lésions nerveuses ou artérielles. 60% des lésions se trouvaient en zone 2 de Verdan, 27,8% en zone 1. Le score de Strickland moyen en fin de protocole pour les lésions isolées est de 132,6°, soit un résultat excellent, contre 130,8° pour les lésions pluridigitales. Le score de Strickland moyen en cas de lésion associée est de 131 degrés. 13 patients ont développé un CRPS (10%), 4 ruptures ont été observées (3%), et 8 patients ont nécessité une reprise chirurgicale pour adhérences (6,1%).

Conclusion. Par sa mobilisation synergique poignet/doigt, l'utilisation du protocole Manchester offre des résultats prometteurs en termes de mobilité, avec un faible taux de complication et de reprises chirurgicales, et un taux de rupture comparable aux autres protocoles.

FM35
Shear wave elastography of flexor tendons of the hand

J. Mercier[1], S. Durand[2], M. Moser[2] ([1]Centre hospitalier universitaire vaudois CHUV, Lausanne; [2]Centre hospitalier universitaire vaudois (CHUV), Lausanne)

Introduction. Shear wave elastography (SWE) is a non-invasive method to measure the stiffness of the tissue. Decreased stiffness in tendon injury has been demonstrated. SWE could be helpful for diagnostic of tendon rupture and in the early post-operative period. The aim of this study was to quantify stiffness of the flexor tendons of the hand in physiologic conditions and compared results to a short series of flexor tendon injuries after failed tendon repair.

Materials/Methods. 22 healthy volunteers were included in this study. Using SWE, the quantitative values of elasticity of the flexor tendons were obtained for the dominant and non-dominant hand in 3 different positions. Effects of dominance, fingers, age and gender were studied. 8 patients with failed primary repair of the flexor tendon were also examined and compared with healthy volunteers. An inter-observer study was also carried out.

Results. We could observe significant differences between rest and extension values and between rest and flexion values. There were no significant correlations between SWE values of the tendons and age, dominance or gender of the volunteers. Also, we found a significative correlation between the size of the tendons and the elastographic values. Finally, we observed higher values of SWS in healthy tendons and noticed a diminution of the elasticity of ruptured tendons.

Discussion. Our study showed interesting results regarding the elastographic parameters of tendons of the hand in different positions. Knowledge of SWS in different position could be interesting for the diagnostic and evaluation of different clinical features (tendon rupture, spasticity, paralysis) and to improve treatment for example in tendon transfer surgery. Our results showing a significative difference between the elastographic values of ruptured tendon and the contralateral healthy fingers agree with in vitro study and demonstrates the use of elastography to detect ruptured tendon in vivo. With the growing interest of developing new elastography applications, one should keep in mind technical limitations concerning reproducibility and repeatability. Indeed, protocol must be standardized.

In conclusion, our study suggest that SWE could be an important tool for diagnosis of partial or complete rupture or re-rupture of the tendon of the hand but also for rehabilitation and evaluation of stiffness modifications after repair. However, standardized protocol is required for its reliability and repeatability.

FM36
Added value of a HFF procedure over open release in revision of recurrent CTS? A systematic review

A. Decramer[1], I. Degreef[2], J. Coppens[2] ([1]AZ Delta Roeselare, Roeselare BE; [2]KULeuven, Leuven BE)

Carpal tunnel syndrome (CTS) is a common health issue and can be treated with a surgical carpal tunnel release (CTR) providing mainly lasting clinical relieve. However, in some patients, symptoms recur after a variable period. Redo surgery can be considered and different techniques have been propagated. This systematic review aims to investigate whether a hypothenar fat pad flap (HFF) technique provides better clinical outcomes than a second open CTR as revision surgery in these cases.

Nine articles from four databases were, after systematic search and screening, included. We reported following outcomes: Tinel sign, pain score, sensibility, grip- and pinch strength, (q)DASH (Disabilities of the Arm, Shoulder and Hand) score, BCTQ (Boston Carpal Tunnel Questionnaire) and/or satisfaction.

Both open CTR as HFF are likely to improve post-surgical pain and sensibility, moreover patients score better on the (q)DASH and BCTQ after the intervention. A HFF provides a significant post-surgical amelioration on both grip- and pinch strength tests and shows a clear trend towards decreased post-interventional present Tinel sign. However, for these outcomes, no data considering open CTR was available.

When interpreting the results, it is important to keep in mind the limitations of this resume. Most importantly, there were no directly comparative studies available for the selected outcomes. This means data from different studies reporting outcomes after either HFF or CTR were compared. Furthermore, the included studies have all quite small populations and some of them did not even do statistical analysis on their data. Although we have been very strict in selecting only patients with recurrent symptoms, there is a wide variety of definitions used to describe recurrence.

In our knowledge, this is the first systematic review with a single focus on these two procedures in a well-defined population with recurrent carpal tunnel symptoms reporting this extensive amount of outcomes. As reported outcome studies on revision carpal tunnel surgery are very heterogeneous and data are difficult to compare, no superiority of either one technique can be concluded.

We believe this review is important to highlight the lack of comparative studies in this orthopedic area and may serve as a matrix for a qualitative (randomised) controlled trial to further investigate superiority of one of both revision techniques.

FM37
Tenodesis of FDP and FDS to proximal phalanx due to multiple frostbite finger amputations

C. Wanivenhaus[1], A. Schweizer[1] ([1]Universitätsklinik Balgrist, Zürich)

Introduction. Amputation at or proximal to the proximal interphalangeal (PIP) joint typically limits the metacarpophalangeal (MP) joint's flexion range to 45°, adequate for daily activities but not for activities requiring greater strength and range of motion. This case report describes the treatment of a rock climber who experienced a severe grade IV frostbite, necessitating the amputation of four digits at the neck of the proximal phalanges. The primary treatment goal was to maximize finger flexion strength to facilitate the climber's return to the sport.

Materials/Methods. The treatment included the amputation of digits II-V at the neck of the proximal phalanges, followed by tenodesis of the FDS and FDP tendons to the proximal phalanges using transosseous sutures. The skin was sutured in a position that supported pulp stability. Post-operatively, the fingers were gradually mobilized, and thererafter the patient underwent extensive rehabilitation focusing on climbing-specific tasks. Additional surgeries to remove bony spurs and improve web spaces were necessary, culminating in the fitting of a mechanical 4-finger prosthesis.

Results. The climber regained significant finger flexion and strength, allowing him to resume high-level climbing activities. Two years post-operation, he demonstrated a range of motion in the MP joints of 10-0-100°. He successfully performs full body-weight pull-ups on 1 cm deep holds, lifts 50 kg on a 2 cm hold, climbs up to F7a routes, and handles climbing gear proficiently. Comparative strength measurements showed the injured hand outperforming the unaffected hand.

Conclusion. The implementation of FDS and FDP tenodesis to the proximal phalanges significantly improved the flexion strength and range of motion of the MP joints. This approach enabled the climber to achieve pre-injury climbing abilities, highlighting the potential of tailored reconstructive strategies.

FM38
Ulnar Longitudinal Deficiency Type 0 – an underreported entity?

A. Weber[1], D. Weber[2], C. Gaffney[3] ([1]University Children's Hospital Zürich, Zürich, Switzerland, Zürich; [2]University Children's Hospital Zürich, Zürich; [3]Harvard University DCE, Cambridge, MA US)

Introduction. Ulnar Longitudinal Deficiency (ULD) is a non-inherited, congenital condition that usually presents as a unilateral, abnormal development or absence of the ulnar structures of the elbow, forearm, and hand. ULD occurs in approximately 1 in 25,000 live births. Several classification systems for ULD have been described in the published literature, notably the Bayne and Manske classification. Havenhill et al. (2005) expanded upon Bayne's work by adding a Type 0 ULD, which is defined by an ulnar-sided hand anomaly and normal length ulna.

Aim. To describe the characteristics and prevalence of Ulnar Longitudinal Deficiencies seen at our institution. Specifically, we delineate ULD Type 0 compared to other sub-types.

Material/Methods. A retrospective chart review was completed for all patients who were seen at our institution between 2003 and 2023 with a diagnosis of ectrodactyly, oligodactyly, hand hypoplasia, or ulnar longitudinal deficiency of the upper extremity. The patients' radiographs and clinical information were reviewed to determine the appropriateness for inclusion. Demographic, medical comorbidities, and musculoskeletal conditions were also extracted and reported. Each applicable patient record was classified based on the Havenhill classification.

Results. We identified 32 patients that were ultimately determined to have a diagnosis of ULD. Of those, 66% were male. Unilateral involvement was found in 25 individuals, whereas 7 patients showed bilateral involvement for a total of 39 evaluable limbs.

Using the Havenhill/Goldfarb classification, patients were most likely to have a ULD Type 0 (n=22, 56%). Nine patients had associated musculoskeletal conditions (lower limb differences and/or scoliosis), and one patient was diagnosed with Cornelia de Lange syndrome.

Conclusions. Differentiating between the various types of Ulnar Longitudinal Deficiency remains challenging, even for the experienced hand surgeon, given the rarity of this patient presentation. In our retrospectively reviewed cohort of individuals over 20 years, ULD Type 0 was the most commonly encountered form at our institution. This is a considerably higher rate than has been demonstrated in the published literature to date. Therefore, while some cases continue to be challenging to diagnose and classify (particularly amongst clinical presentations that closely resemble cleft hands), it appears as though Type 0 ULD may be an under-reported entity.

FM39
Importance of motor reeducation in nerve transfer surgery

A. Pallaver[1], S. Schibli[1], S. Koch[1] ([1]Schweizer Paraplegikerzentrum Nottwil, Nottwil)

Introduction. During the past years, nerve transfers have gained much popularity to restore function in peripheral nerve injury, cervical spine injury and even spasticity. Different rehabilitation protocols after nerve transfer surgery are reported and aim to facilitate cortical reorganization. Nonetheless, it seems that many patients do not receive an appropriate training program after nerve transfer. To prove the effectiveness of our training program after nerve transfer surgery, we analyzed our results after nerve transfer in patients with and without receiving motor reeducation.

Method. We propose a retrospective analysis of our patients with cervical spine injury undergoing nerve

transfer of the supinator branches to the posterior interosseous nerve (S-PIN) between 2013 and 2021. Patients are allocated into two groups receiving either no motor reeducation or performing a 3-stage motor learning program adapted from Hahn et al. (2016). Muscle strength testing (Medical Research Council Scale, MRC) of the extensor digitorum communis (EDC) was performed pre-surgery and 6 ,12 and 24 months post-surgery. A linear model to analyze the difference in motor strength of the EDC between the two groups pre-surgery and post-surgery (at the above-mentioned intervals) was performed.

Results. 35 S-PIN nerve transfers between 2013 and 2021 were included in our data analyses. Spinal cord injury was C4-C7 AIS A-C. Mean age was 27 years. 21 cases performed the 3-stage program for motor reeducation. Muscle strength of the EDC improved in both groups. The group with the motor reeducation program improved significantly in comparison to the group with no motor reeducation. Both 6 and 12 and even 24 months after surgery.

Conclusion. Motor reeducation is important to emphasize volitional control and cortical reorganization in nerve transfer surgery. Beside patient selection (patient age; location, type and timing of nerve transfer), a structured rehabilitation program improves outcome after nerve transfer surgery and should therefore be strongly recommended by the treating surgeon.

FM40
Intrinsic tightness – diagnosis and treatment algorithm

S. Schibli[1], A. Pallaver[1] ([1]Schweizer Paraplegiker Zentrum, Nottwil)

Introduction. Intrinsic tightness is a disabling condition resulting from spastic or contracted interosseous and lumbrical muscles with various degrees of severity. The most severe manifestation presents as lumbrical plus hand with flexed MCP joints while the PIP joints are extended, leading to loss of grasp and inability to open the hand. Additionally, intrinsic tightness can manifest as swan neck deformity. Etiologies of intrinsic tightness include not only spastic conditions due to upper motor neuron lesion but also longstanding oedema or haematoma, trauma, infection, burns or neurological diseases. Diagnosis can often be challenging, particularly when intrinsic tightness is obscured by other spastic deformities. We report about our intrinsic tightness cases, different surgical options and the treatment algorithm we have developed.

Methods and Results. Between 2012 and 2024, we performed 140 corrections of spastic upper limbs with 22 patients undergoing surgical correction of intrinsic tightness. Among these patients, 19 underwent a distal intrinsic release, while 2 patients were treated with neurectomy of the deep branch of the ulnar nerve and in one patient, both techniques were combined. In 8 patients, correction of intrinsic tightness was done as revision surgery on average 33 months (range 13-72 months) after lengthening of finger flexor tendons as primary correction. All 22 patients improved hand posture at 6-month follow-up and in functional hands, grasp and release improved. None of our patients undergoing intrinsic release developed intrinsic minus-position after surgery.

Conclusion. Our treatment algorithm for intrinsic tightness distinguishes between functional and non-functional hands and tailors surgical interventions based on the degree of tightness. Recognizing that intrinsic tightness may be obscured by finger flexor spasticity, we advocate for combining finger flexor lengthening with intrinsic release as the primary procedure for severe finger flexion contractures.

FM41
Treatment of spastic forelimb hypertonia with contralateral nerve transfer in a stroke rat model.

O. Politikou[1], L. Harnoncourt[2], F. Jaklin[2], O. Aszmann[2] ([1]UniversitätsSpital Zürich, Zürich; [2]Medizinische Universität Wien, Wien AT)

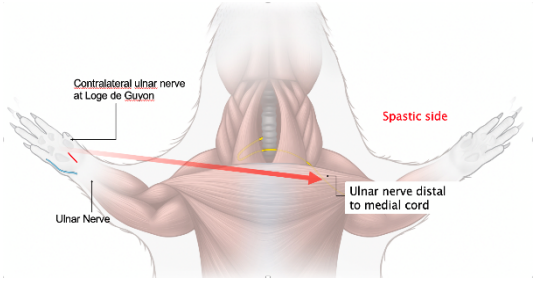
Introduction. Development of limb spasticity is one of the “positive” features of upper motor neuron syndrome (UMNS). A novel approach to reduce spasticity and increase functionality through contralateral C7 nerve root transfer has been recently published. However, the effect of distal nerve transfers on spasticity has never been explored. We established a new animal model to investigate the electrophysiological, molecular-biological and histological outcomes of denervation-cognitive reinnervation of spastic muscles in the rat's forelimb.

Materials-Methods. We perform unilateral pyramidotomy on the brainstem level to create spastic hemiplegia in the rat. In the therapy group, we carry out a transfer of the contralateral ulnar nerve to the pathological median nerve of the spastic side. Final experiments are conducted 12 weeks after spasticity induction. Electrophysiological assessments to the flexor carpi ulnaris and pronator teres muscle evaluate changes in muscle excitability, while biopsies from spastic and reinnervated muscles are obtained for histomorphological studies. The contralateral side serves as internal control.

Expected results. Spasticity may lead to fibrotic changes in muscle and switch the muscle fiber type. Early cognitive reinnervation may protect the

muscle against these adverse events and reverse the pathological muscle hyperexcitability.

Conclusions. This animal model introduces a surgical treatment of UMNS spasticity encompassing the concept of cognitive nerve transfers. This study will broaden our understanding of spasticity pathophysiology in UMNS and help us to better predict, prevent, diagnose and treat this disabling stroke sequela.



Contralateral Nerve Transfer

Freie Mitteilungen / Communications libres V: Handgelenk

FM42
Short-term results after patient specific lunate replacement with perilunate ligament reconstruction

M. Häfeli[1], G. Streekstra[2], I. Dobbe[2], P. Honigmann[3] ([1]Kantonsspital Graubünden, Chur; [2]Amsterdam UMC, University of Amsterdam, Department of Biomedical Engineering and Physics, Amsterdam Movement Sciences, Amsterdam, Netherlands., Amsterdam NL; [3]Kantonsspital Baselland, Bruderholz)

Introduction. Lunate replacement in stage 3 Kienbock disease has never become a standard treatment due to persisting instability with carpal collapse, implant dislocation and non-anatomical implant design. However, as often young, and active patients are affected an as anatomic and functional reconstruction as possible is desirable. Our previous experiments with a patient-specific lunate prosthesis and perilunate ligament reconstruction showed favorable restoration of carpal kinematics in cadavers. We present the short-term results of the first 4 patients operated with this technique.

Material/Methods. 2 female (27/55y) and 2 male (25/52y) patients suffering from symptomatic stage 3C Kienbock disease underwent patient-specific lunate replacement and reconstruction of the dorsal scapho-lunate, palmar luno-triquetral and long radio-lunate ligaments. ROM, grip strength and PROM's according to the Swiss Upper Extremity Outcome Registry (SUPEXOR) were assessed preoperatively, and 3 and 12 months after surgery. Beside standard X-rays, 4D-CT scans of the healthy and the affected wrist were obtained preoperatively and of the operated wrist at 12 months to compare wrist kinematics before and after lunate replacement.

Results. At time of abstract submission patients 1 & 2 had 1 year follow-up. Patients 3 & 4 had 6 months and will reach 1 year in October and November. At latest follow-up all implants showed unchanged position compared to intraoperatively. Two patients had slight widening of the SL-interval at 6 weeks postop which remained stable thereafter. All showed restoration of ROM and strength to at least preoperative levels at 6 months. PRWE total scores dropped from 55.5 and 60.5 preop to 4 and 17 at 1year (patients 1&2) and from 88.5 to 67.5 at 3 months in patient 4. Patient 3 showed an increase from 32.5 to 46.5 at 3 months. Pain was reduced in

all patients at latest follow-up. The 1-year results of patients 3&4 will be presented at the congress.

Discussion/Conclusion. The short-term results of patient-specific lunate replacement and ligament reconstruction in these first 4 patients are promising. Proper patient selection, compliance and meticulous surgical technique are crucial for good outcomes. Long-term follow-up will reveal how the procedure performs over time and whether it will become a valuable treatment option. Further clinical follow-up and in detail analyses of carpal kinematics are ongoing projects.

FM43
Treatment of end stage Kienbocks disease with a 3D printed titanium patient matched implant

F. Verstreken[1], D. Verrewaere[1], M. Vanhees[1] ([1]AZ Monica, Antwerp BE)

Kienböck disease is a relatively common wrist problem that results in avascular necrosis and fragmentation with the collapse of the lunate bone, causing chronic pain and loss of function.

Treatment options depend on the stage of the disease, severity of symptoms, and patient factors such as age and activity level. For end-stage disease, salvage procedures are often the preferred treatment option. To avoid or at least delay the need for these procedures, replacing the lunate with a 3D-printed implant in titanium may be an option. Advances in 3D technology allow the production of a patient-matched implant that adapts perfectly to the local anatomy and can be stabilized by ligament reconstruction. We present our results with this procedure in five patients with a minimum follow-up of one year.

The results confirm a significant improvement in pain (VAS score) and function (PRWE) with a stable prosthesis on radiographs and no further degenerative changes.

FM44
Arthroscopic round-block capsulo-ligamentoplasty for dynamic scapholunate instability: clinical results after at least 12 months

c. k. Goorens[1], K. van Royen[2], G. van Eetvelde[3], N. Debaenst[4], A. Atzei[5] ([1]International Wrist Center Tienen, Regionaal Ziekenhuis Heilig Hart Tienen, Tienen BE; [2]OLV Aalst, Aalst BE; [3]AZ Sint-Lucas Gent, Gent BE; [4]UZ Gasthuisberg, KULeuven, Leuven BE; [5]Pro-Mano, Treviso, Treviso IT)

Several treatment options exist for the management of symptomatic dynamic scapholunate (SL) instability. Arthroscopic techniques are gaining more interest.

We evaluated the results of a series of patients treated with the arthroscopic dorsal DICL "round-block" capsulo-ligamentoplasty technique, developed by the senior author (AA).

Technique: in order to stabilize the SL interval, a Fiberwire is used to create a purse-string suture around the dorsal aspect of the proximal row, following the course of dorsal intercarpal ligament (DICL). The suture tightening produces also an extension lever correcting the scaphoid flexion.

In a clinical prospective setting, 29 patients were selected, 7 male/ 22 female, mean age 41,9 years (range 23-69 years) with dynamic SL instability, which was diagnosed with normal and stress radiographs and MRI.

Mean onset of symptoms was 10,5 months (range 3-36 months). Arthroscopy revealed 2 EWAS type 2, 7 EWAS type 3B and 20 EWAS type 3C, which were all treated. Mean follow-up after surgery was 17,3 months (range 12-23 months) and was at least one year. Mean VAS pain decreased by 87%, mean flexion by 19%, mean extension by 17%, mean quickDASH by 84%. Mean grip strength increased by 5%. Mean satisfaction was 9/10 and 96% would do the procedure again. Normal activities were restarted after mean 2,7 months (range 2-5 months). No major complications occurred. Mean preoperative SL distance was 2,2 mm on normal radiograph and 3,2 mm on clenched fist radiograph. Mean SL distance after surgery was 1,9 mm. Arthroscopically, SL stability improved to EWAS 1 in 21 patients or 2 in 8 patients. Mean SL angle reduced minimally from 55° to 53°, while the radiolunate (6°) and capitolunate (6°) angle remained unchanged.

Compared to other capsulodesis technique, the all-inside suturing, without additional damage to the SL complex, is theoretically likely to produce less stiffness. In higher grade of SL instability, other arthroscopic techniques like the ADCLR or variants can possibly be added to achieve sufficient SL stability, or it may be converted into more invasive techniques. Finally, the wrist remains practically undamaged after surgery: no bone tunnels, bone anchors or tendon grafts are required, thus enabling all possible secondary procedures.

In conclusion, the "round-block" technique resulted in a satisfactory outcome. This technique may also serve as complement to other arthroscopic capsular sutures in more complex instabilities.

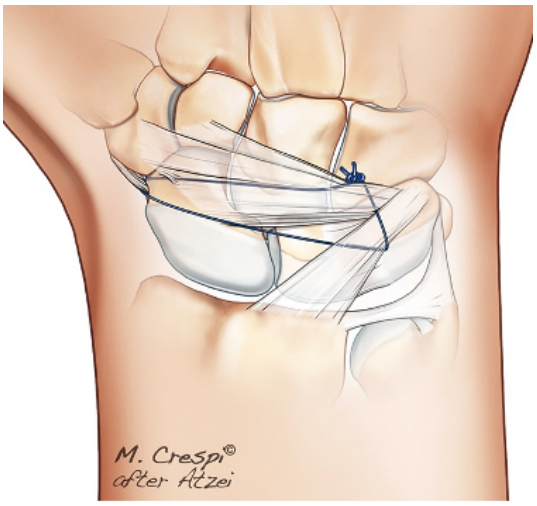


Figure 1: Dorsal DICL round-block

Figure 2: Dynamic scapholunate instability

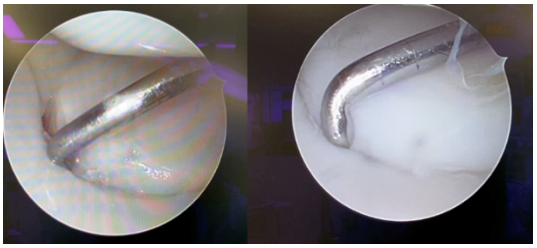


Figure 3: Pre round-block EWAS 3, post round-block EWAS 1 with no tip probe passage

FM45
Morbidity of surgical techniques for midcarpal fusion in SLAC and SNAC wrists

A. Gübeli[1], N. Idris[2], J. Y. Beaulieu[2] ([1]Hopitaux Universitaires Genève, Genève; [2]Hôpitaux Universitaires Genève, Genève)

Introduction. Scapholunate Advanced Collapse (SLAC) and Scaphoid Non-union Advanced Collapse (SNAC) are degenerative wrist disorders resulting from scapholunate ligament ruptures and scaphoid non-union respectively. Midcarpal fusion is typically performed for stage 2 and 3 SLAC or SNAC and can be achieved by various techniques such as fixation by K-wires, staples, plates and screws, with no standard fixation technique currently established. We performed a retrospective analysis of patients treated with midcarpal fusion in our institution to analyze the morbidity of the different surgical techniques.

Method. We performed a retrospective data analysis of patients treated with midcarpal fusion for SLAC or SNAC wrist in our institution between 2013 and 2023.

Results. 25 patients underwent midcarpal fusion with scaphoidectomy for SNAC or SLAC wrist, including 2 patients who had bilateral operation. Of the 27 operated wrists 12 (44.4%) suffered from SLAC, 15 (55.6%) from SNAC wrist. Two- (14 wrists, 51.9%) and three- (4 wrists, 14.8%) corner fusion were performed using headless compression screws, k-wires were never used as sole fixation method. Four-corner fusion (9 wrists, 33.3%) was performed using dorsal plate fixation, one patient was treated with staples and k-wires. We found an overall complication rate of 48% (13 patients), with totally 27 complications. The most common complication was radiocarpal osteoarthritis (6 cases, 22.2%) followed by screw migration (5 cases, 18.5%), and non-union (4 cases, 14.8%). Two of the non-union cases progressed to pancarpal arthritis despite revision surgery. The number of complications in two-corner fusion was nearly twice as high as in four-corner fusion (55.5% vs 29.6%) and the severity of the complication was higher in the two-corner fusion group. Overall, 10 patients (40%) had to be reoperated with totally 16 revision surgeries, 42.8% of patients in the two-corner fusion group needed to be reoperated.

Conclusion. Screw migration, radiocarpal osteoarthritis and non-union remain the main problems in midcarpal fusion. We found a higher number and more severe complications, especially a higher non-union rate, in the two-corner fusion group compared to three- and four-corner fusion group. We have therefore decided to no longer perform two-corner fusions, but to choose four-corner fusion with plate fixation as preferred surgical technique.

FM46
Correlation Between Distal Radius Angulation and Carpal Alignment: Implications in Wrist Arthroplasty

F. Mauler[1], C. Duda[2], J. Y. Beaulieu[2] ([1]Clinique de la Main - Genève, Genève; [2]Hôpitaux Universitaires Genève, Genève)

Introduction. Total wrist prosthesis implantation focuses on the axis of the diaphysis of the third metacarpal and the radius. Based on our experience, certain wrists appear to have different axes, resulting in non-physiological placement and stresses on the implants. This hypothesis is supported by studies demonstrating variations in

axes among patients, both in the anteroposterior and lateral planes. The aim of the study was to radiographically determine associations between the angulation of the distal radius and carpal alignment in order to improve the positioning or design of the implant components.

Methods. Standard radiographs of 100 healthy wrists of patients referred to our outpatient clinic presenting wrist pain were retrospectively reviewed for distal radius angulation (palmar tilt and radial inclination), as well as ulnar and palmar translation of the carpus. Pearson's correlation coefficients were used to assess the relationship between these measurements.

Results. 100 wrists were included. Fifty-seven percent were female. The mean age of the patients was 47 years (range 18-82). There was a statistically significant correlation between the palmar translation of the carpus and palmar tilt of the distal radius ($r = -0.58$; $p < 0.001$). No significant correlation could be found between the ulnar translation and the radial inclination of the radius.

Conclusions. Our study reveals a significant correlation between the augmented palmar tilt of the radius and the corresponding increase in palmar translation of the carpus, which has to be considered in planning the position and angle of prosthesis component implantation.

FM47
Rethinking Systematic Implant Removal in Hand Surgery: A Critical Outcomes Registry Analysis

M. Gunning[1], I. Besmens[2], M. Calcagni[3], O. Politikou[2] ([1]Universität Zürich, Zürich; [2]Universitätsspital Zürich, Zürich; [3]Handpraxis, Zürich)

Hypothesis. This study, conducted using an outcomes registry in accordance with international guidelines, examines the hypothesis that systematic implant removal after osteosynthesis is frequently unwarranted, because only a minority of patients exhibit clinical signs necessitating such interventions.

Methods. A retrospective analysis was conducted on a cohort of patients who underwent hand surgery with screw or plate implantation over a three-year period. An outcomes registry, following the Hand and wrist standard set, established by the International Consortium for Health Outcomes Measurements (ICHOM), was used to collect both patient-reported outcome measures (PROMs) and clinician-reported outcome measures (CROMs). Medical records, radiologic assessments, and clinical follow-up data were systematically reviewed to identify cases in which implant removal was performed.

Results. In the total cohort, only 25% of patients demonstrated clinical signs that could be attributed to the presence of implants. The majority of these signs were related to localized discomfort or mild limitation of hand function. 92% of patients displaying clinical signs after osteosynthesis had a complete resolution of clinical signs after hardware removal. PROMs and CROMs collected through the outcomes registry supported these findings, highlighting both subjective and objective aspects of patient outcomes.

Summary. 1. Systematic implant removal in hand surgery should be avoided, as evidenced by both clinical indications and outcomes registry data. 2. This study argues for a more selective approach based on international guidelines and evidence-based decision making. 3. By rethinking the criteria for implant removal, we aim to optimize patient outcomes, minimize unnecessary surgery, and reduce associated complications. 4. This research has implications for refining guidelines in hand surgery, promoting evidence-based decisionmaking, and improving the overall quality of patient care.

FM48
How to diagnose and treat recurrent or persistent symptoms after trapeziectomy: a Delphi study

M. Marks[1], M. Boeckstyns[2], J. B. Tang[3], S. Farnebo[4], E. Hagert[5], A. Lluch[6], K. Chung[7], A. Schweizer[8], F. Verstreken[9], D. Herren[10] ([1]Schulthess Klinikk, Zürich; [2]Capio Private Hospital, Hellerup DK; [3]Affiliated Hospital of Nantong University, Nantong CN; [4]Linköping University, Linköping SE; [5]Aspetar Orthopedic and Sports Medicine Hospital, Doha QA; [6]Vall d'Hebron Hospital and Institut Kaplan, Barcelona ES; [7]University of Michigan Medical School, Ann Arbor US; [8]Universitätsklinik Balgrist, Zürich; [9]AZ Monica Hospital, Antwerp BE; [10]Schulthess Klinikk, Zurich)

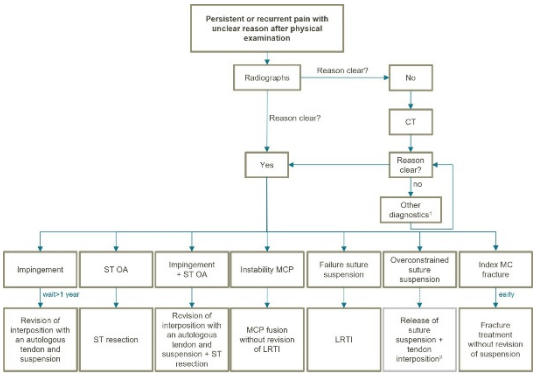
Aim. The aim of this study was to provide a diagnostic and treatment algorithm for patients with persistent or recurrent symptoms after trapeziometacarpal joint (TMJ) resection arthroplasty.

Methods. The project was directed by a steering committee consisting of nine hand surgeons from Europe, America, and Asia as well as two methodologists. Three Delphi rounds were conducted in which surveys were sent to 182 experienced hand surgeons worldwide. Clinical cases were presented including diagnostics and treatment strategies for persistent or recurrent

symptoms after TMJ resection arthroplasty. For each case, the participants were asked to rate whether a given treatment was appropriate or not. Consensus was reached at 67% agreement.

Results. Responses were received from 140 (77%) participants with an average of 22 years of experience as a hand surgeon. Diagnostic tools and treatment approaches for six common revision scenarios achieved consensus. Radiographs are appropriate as primary (97%) and CT scans as secondary (76%) diagnostic tools (figure 1). For scaphometacarpal impingement, 67% of respondents agreed that revision interposition is appropriate, with 93% recommending autologous tendon for the interposition. Additional suspension was considered appropriate by 68% of the participants (figure 1). In this case, it was agreed to wait for at least one year before considering revision surgery.

Conclusions. The diagnostic and treatment algorithm can help the surgeon to identify the reason for persistent symptoms after TMJ resection arthroplasty and to choose an appropriate treatment strategy.



Diagnostic and treatment algorithm for persistent/recurrent symptoms after trapeziometacarpal joint resection arthroplasty. 1 MRI or diagnostic infiltration, 2 highest agreement but no consensus.

Freie Mitteilungen / Communications libres VI: Nerven und Mikrochirurgie

FM49
Long term outcome after endoscopic assisted release of the ulnar nerve for cubital tunnel syndrome

C. Spies[1], C. Engler[1] ([1]Spital Langenthal, Langenthal)

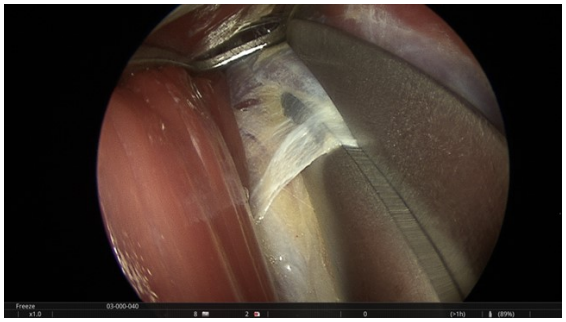
Aim of the study. The aim of the study was to investigate functional and patient-rated outcome parameters after endoscopic assisted release of the ulnar nerve for cubital tunnel syndrome.

Methods. Thirty-two patients were recruited and evaluated clinically and by questionnaire testing retrospectively after a mean follow-up of 144 months (range: 120–180).

Results. Neurological parameters (two-point-discrimination, application of Semmes-Weinstein monofilaments, Tinel's test), grip, and three-point pinch strength were not significantly different from the contralateral extremity at the time of examination, whereas key pinch strength was significantly weaker. Mean Disabilities of the Arm, Shoulder, and Hand score was below 20. Patients' overall opinion was good/excellent for over 80% of the study population.

Discussion. The examined surgical procedure proved to be as efficacious as open in-situ decompression regarding functional outcome with fewer post-operative complications. Regarding the results it might be postulated that grip strength and three-point pinch strength determination is not necessarily relevant for ulnar nerve evaluation.

Conclusion. Endoscopic assisted release of the ulnar nerve is a reliable and safe treatment option for cubital tunnel syndrome with satisfactory long term functional and patient-rated outcomes.



FM50
Retrospective analysis on implementation of the Buncke technique in replantation/revascularization

F. Fiumedinisi[1], H. Klein[1], B. Safa[2], J. Plock[1], F. Früh[1] ([1]Kantonsspital Aarau, Aarau; [2]The Buncke Clinic, San Francisco US)

Introduction. In Switzerland, the overall exposure towards digital replantation/revascularization is low because of well-established safety measurements for manual workers and a high density of hand surgeons. To enhance efficiency and success rates of these cases, we have implemented technical tricks taught at the Buncke Clinic (San Francisco, USA). The use of a backtable to assess amputated parts under the microscope for tagging and debriding microvascular structures is essential. Furthermore, microsurgery under brachial tourniquet allows more reliable vessel debridement with fast and save anastomosis or reconstruction. Surgeons and OR staff were instructed, and hands-on training was offered by a Buncke-trained surgeon.

Material and methods. A retrospective chart review was performed to analyze cases of replantation and revascularization from January 2023 onwards. Overall survival and revision rates, mean surgery time and mean tourniquet time as well as the rate of vein grafts were evaluated. From January 2023 to April 2024 a total of 22 patients with 31 devascularizing injuries (including 1 foot and 1 arm) was treated in our hospital. Mean follow-up time was 173 (range, 23-446) days and mean age was 45 (range 3 - 85) years.

Results. Twelve patients needed revascularization with 2 macro-revascularizations. Fifteen replantations and 4 artery-only replantations were performed. Overall survival rate was 87% for replantation/revascularization and 50% for artery-only replantation. Mean surgery time was 220 ± 51 min and 155 ± 44 min with 115 ± 21 min and 81 ± 27 min of tourniquet time for replantation/revascularization as well as 155 ± 37 min and 66 ± 31 min for artery-only replantation, respectively. In general, 1 artery and 1 vein per digit were anastomosed or reconstructed with a total of 13 vein grafts. Six patients needed revision due to vessel occlusion. Revision amputation was only done twice. Time to union after osteosynthesis was approximately 90 days.

Discussion. The implementation of the microsurgical Buncke technique requires a structured teaching and hands-on training. Once established, the technical refinements are very rewarding because they come along with shorter surgery time and help protecting resources of hand surgeons dealing with replantation and revascularization.

FM51
Success rates after digital replantation: Results of a systematic review and meta-analysis

C. Baesu[1], J. Plock[1], S. Bauback[2], F. Früh[1], H. Klein[1] ([1]Klinik für Hand und Plastische Chirurgie Kantonsspital Aarau, Aarau; [2]The Bunke Clinic, San Francisco US)

Purpose. Advances in microsurgery have made salvage of amputated fingers a commonly performed procedure. Survival of replanted digits has become fairly reliable with survival rates estimated to be 80 – 90 percent in the literature. The aim of this review was to systematically assess the outcomes after replantation of digital amputation, particularly focusing on the failure of crush / avulsion amputations.

Methods. A systematic review according to the PRISMA guidelines was performed without time or language restriction. Studies with at least five cases with digital amputations (sharp and crush/avulsion injuries) at or distal to the metacarpophalangeal joint were included. The methodological quality of studies included for final analysis was assessed using the Methodologic Index for Non-randomized Studies (MINORS) criteria

Results. The systematic search of 3 electronic libraries (Medline, Embase, Cochrane) yielded 22868 articles based on the original search criteria. Of 784 articles included on basis of title, 722 were excluded after abstract review. After full-text review of 46 articles, 15 were excluded due to

different clinical topic. After bibliography research were included 3 new articles.

Consequently 31 articles were included in the final analysis. Overall, the methodological quality of the analyzed studies was average with a mean MINORS score of 9.9 ± 2.3.

There was a total of 2930 long fingers and 150 thumbs undergoing replantation.

In the long fingers group we had 1241 sharp and 1689 crush/avulsion injuries. The mean survival rate was 88% for sharp amputations (n=149 failures) and 90 for crush/avulsion injuries (n=171 failures). In the thumb group we had 43 sharp and 107 crush/avulsion injuries. The mean survival rate was 95.35% for sharp amputations (n=2) and 87.86% for crush/avulsion injuries (n= 13 failures

Conclusions. This systematic review and preliminary meta-analysis reveal a surprisingly high success rate following replantation of crush/avulsion amputations of the long fingers and thumbs. It was previously assumed that the mechanism of injury plays an essential role in the success of finger replantation. However, our preliminary analyses could not confirm this statement. Since the methodological quality of the studies investigated in this systematic review is moderate, prospective investigations comparing the outcome of sharp and crush/avulsion replantation should be designed.

FM52
Combining free VB grafting with 3D analysis to optimize outcome after subtotal forearm amputation

A. Decramer[1], K. van Royen[2], B. Vanmierlo[3] ([1]AZ Delta Roeselare, Roeselare BE; [2]OLV Ziekenhuis, Aalst BE; [3]AZ Delta, Roeselare BE)

Managing mangled upper extremity injuries is challenging because multiple tissue components are involved. Common complications are failing soft-tissue coverage, deficient fracture healing, arthritis, and infection. In the more complex cases, combinations of these problems need to be addressed simultaneously.

28-year-old women was admitted with a complex supracondylar humeral fracture right side and a subtotal forearm amputation left side in a wood chopper accident. According to the MUES scoring system (7 out of 8 points) an amputation would have been eligible. Since the patient suffered bilateral trauma, the left forearm was submitted to a limb-salvage procedure: revascularization, nerve sutures, and osteosynthesis of radius and ulna were performed. Soft tissue necrosis necessitated free flap coverage. 8 months after admission, she was diagnosed with an infected osteonecrosis of the ulnar diaphysis and derangement of the distal radio-ulnar joint (DRUJ). 3D-analysis of the forearm malunion was performed and patient specific instruments were designed (Materialise®) to perform a reconstruction of the ulna and a corrective osteotomy of the radius. By addressing both forearm bones, functional rearrangement of the DRUJ joint was feasible. Finally, an anterior interosseous nerve to the motor component of the ulnar nerve transfer was performed.

Intensive revalidation started short after surgery and at one year post-operatively, elbow flexion increased with 30°, pronation-supination increased from 0° to 50°. The QDASH score diminished from 75 preoperatively, to 52 at 1 year postoperatively. Grip strength and key-pinch strength increased with 200% and 400% respectively. EMG clearly demonstrated motor unit recruitment of the previously denervated interosseous muscles of the left hand. A CT scan confirmed osseous consolidation at 9 months after surgery

Since more than a decade, CT and 3D-analysis of forearm malunions, is the most accurate method to correct anatomical length and orientation of malunited forearm bones. Furthermore, to reconstruct critical length defects of radius or ulna, the vascularized fibula graft is the reconstructive method of choice. Combining both techniques to correct length and orientation of a single forearm bone has been well described. Introducing a vascularized fibula graft and performing an osteotomy of both forearm bones, is the logical next step to reconstruct and to improve functional outcome in a severely mangled upper extremity.

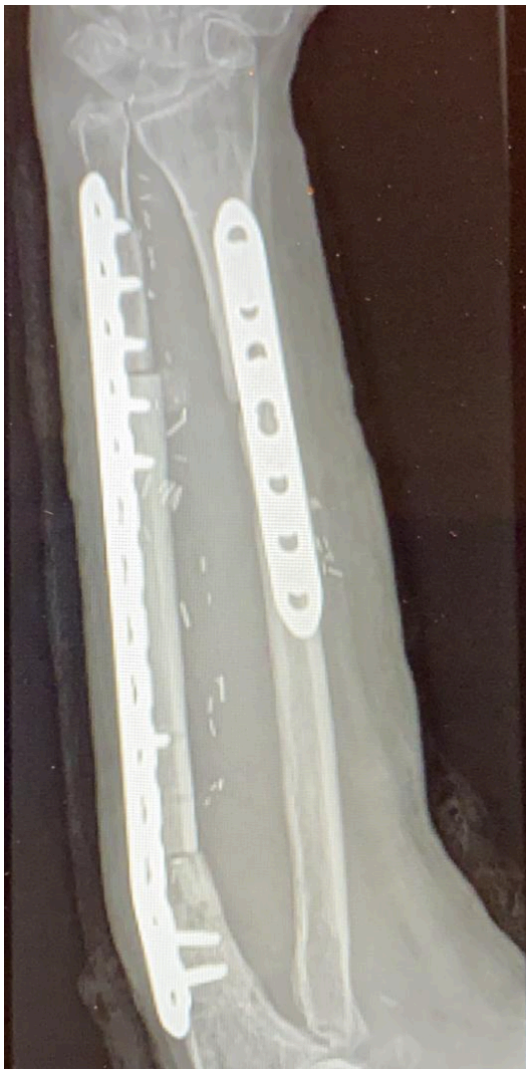


Figure 1: RX postop

Figure 2: 3D

FM53
Axon count of nerves of the brachial plexus: A systemic review of the literature

M. Maniglio[1], H. Baltzer[2], N. Haydon[3] ([1]Uniklinik Balgrist, Zürich; [2]Toronto Western Hospital, TORONTO CA; [3]Royal North Shore Hospital, Sydney AU)

Introduction. An important factor in planning nerve transfers is the axon count matching of the donor and recipient nerves. In the literature, axon counts are obtained from various sources, using different methods. A single source who summarizes all nerves of the brachial plexus is lacking. The aim of this review is to summarize all axon counts in a single article and access the comparability between different studies.

Methods. A systemic review of the literature was conducted according to the PRISMA guidelines. The databases pubmed, Medline, Ovid and Embase were assessed in “human only” using all different variations of the terms "nerve axon count* AND upper extremity"; inter-changing the first term with “axon count*; myelinated fibres count*; nerve transfer and the second term with brachial plexus and arm.

A total of 539 articles were found and screened from two authors independently. After exclusion of duplicates and assessing the articles titles and abstracts a total of 57 articles were selected and 19 articles were added through the reference list for a full text assessment, after which we retained 54 articles.

The methods of axon count were assessed for these articles and the axon counts, SD, and ranges collected for all upper extremities’ nerves. A metanalysis was performed, if more than one article counted the axons of a specific nerve, if the difference between the counts were less than 100%.

Results. In the 54 articles a total of 12 nerves and 44 muscle branches were assessed. Axon counts of 4 nerves and 14 branches were done only in a single study (Table 1). Comparing axon counts of different studies, the difference excided 100% between the highest and lowest value in 4 nerves and 16 nerve branches (Table 2.). For 5 nerves and 11 branches a metanalysis could been performed (Table 3).

Discussion. Our study revealed a significant contrast in nerve axon counts across various studies, with differences reaching up to a factor of 87 in between the averages. Additionally, the quality of these studies varies, with poorly described methods, particularly since axon count is frequently reported as a secondary or tertiary outcome.

Conclusions. Apart from describing the axon counts of the upper limb, the authors have found that the comparability between different studies is low. This insight, should warn the surgeons for using values of axon counts from different studies, with different methodologies to match the axon counts in planning nerve transfers.

Nerve/Branch	Subclavius	Pectoralis	Ulnar (at Guyon lodge)	Radial	TD med. branch	Teres major	Infra Spinatus	Lat. Pectoral	Ant. Axillaris
Average Axons	ca. 3000	5876	10243	19859	974	1160	830	1561	4052
Min.			6238	10029			413		1541
Max.			13870	32210			1123		5768
SD	1024					506	241	379	

Nerve/Branch	Coracobrachialis	ADQ	1st palm IOM	1st lumbrical PIN	APL	EPB	EPL	EIP
Average Axons	773	676	385	1411	2990	591	305	436	267
Min.						402	301	275	173
Max.						717	442	621	380
SD	75	176		824	592	108	57	100	80

Table 1

Nerve/Branch	Axillary	MusculoCutaneous	Supra Scap	Biceps	Pronator teres	PL	FDS	FPL	AIN	FDP
Min. Average	1835	6061	1558	882	962	285	933	480	600	832
Max. Average	6700	15915	6004	1826	2178	755	2929	962	25288	2122
Factor	3.7	2.6	3.8	2.1	6	2.7	3.3	2	42	2.6

Nerve/Branch	Thenar branch	FCU	Ulnar Deep motor	Triceps	Long H	Med. H	ECRB	Supinator	ECU	EDM
Min. Average	356	372	1090	2569	544	818	183	398	515	329
Max. Average	30960	1430	35426	5962	2302	2198	745	32426	7355	5931
Factor	87	3.8	33	2.3	4	2.7	4	82	14	18

Table 2

Nerve/Branch	SAN	Long Thoracic	Levator Scapulae	Dorsal Thoracic	DT lateral branch	Teres minor	Axillaris post branch	Brachialis
Average	1650	1468	1241	2188	1765	1072	1106	1282
Min. Average	1021	1135	1114	1887	1453	961	937	944
Max. Average	1950	1746	1335	2789	1843	1161	1242	1840
SD			447	676				

Nerve/Branch	Median	FCR	PQ	Ulnar	Triceps lat. Head BR	ECRL	EDC
Average	16131	1057	757	13346	1228	400	603	495
Min. Average	15915	746	670	10280	994	341	484	401
Max. Average	18288	1472	912	16412	1462	550	704	560
SD			143			95		

Table 3

FM54
The versatile vascularized second metacarpal base bone graft

C. Cottier[1], T. Christen[2], S. Durand[2] ([1]Hôpital du Valais, Sion; [2]Centre de la main, CHUV, Lausanne)

Introduction. Vascularized bone graft can be required in a wide variety of indications ranging from segmental bone defect after trauma to recalcitrant nonunion. Various local pedicled bone flaps are available in the wrist (for instance from the dorsal or palmar distal radius, the first metacarpal and the pisiform). The reach of these flaps is often limited because of a short pedicle length. The second metacarpal base can also provide a vascularized bone flap. The pedicle is either retrograde through the second dorsal metacarpal artery, or antegrade on the radial or ulnar aspect of the dorsal intercarpal arch. The use of the flap is usually limited to scaphoid nonunion management however, its pedicle can provide a much wider arc of rotation. Most hand surgeons are not familiar with the versatility of this technique.

Methodology. The charts of patients having undergone a second metacarpal base flap from 2017 to 2021 were reviewed. The flap was raised with a proximal pedicle based either on the radial or ulnar side of the dorsal carpal arch, or distally on the second intermetacarpal artery through the penetrating branch of the deep palmar artery. To illustrate the versatility of the technique, we chose to focus on three cases excluding the typical indication of scaphoid nonunion. We recorded union rates and time to union and complications.

Results. Three females (30, 53 and 73 years old) were included. The indication for surgery was respectively lunotriquetral arthritis, nonunion of the ring finger proximal phalanx and scaphotrapeziotrapezoidal arthritis. All cases achieved union between 10 and 12 weeks. No complications were reported.

Discussion and conclusions. The base of the second metacarpal is a convenient bone flap site for multiple reasons: a relatively straightforward dissection, the lack of impairment of the hand vascularization, sufficient bone stock for small joint fusion or nonunion management and a robust blood supply. The greatest advantage of this flap might be that it may reach any wrist joint or the proximal phalanx of any finger by wisely choosing its pedicle. The reliable vascularization of the flap allows for consistent healing. We performed this technique in various clinical settings, in addition to the three presented cases, all of them showing complete union in less than three months without complications.

FM55
US follow-up of median nerve position after volar plate fixation for distal radius fractures

S. Lucchina[1], G. Famiglietti[2], A. Sangiorgio[2], G. Filardo[2], C. Candrian[2] ([1]Service of Orthopaedics and Traumatology EOC, Locarno's Regional Hospital, Locarno; [2]Service of Orthopaedics and Traumatology, Department of Surgery, EOC, Lugano)

Purpose. The aim of this study was to document, with the use of ultrasound (US) examination, changes in position, characteristics and cross-sectional area (CSA) of the median nerve (MN) at the wrist after volar locking plate (VLP) fixation, comparing the operated wrist with the contralateral one, confirming the US examination as a useful tool to reduce the incidence of secondary nerve damages in case of VLP removal.

Materiel and methods. We enrolled 50 consecutive patients that were previously operated for a unilateral distal radius fracture (DRF) with VLP fixation with a minimum follow-up of 6 months in a prospective cohort study. The median nerve CSA and the distance between the epineurium of the MN and the flexor pollicis longus (FPL) synovial sheath (NTD) was calculated on the operated side and contralateral one.

A clinical evaluation was performed and a questionnaire about the pain Visual Analogic Scale (VAS) was given. A statistical analysis was assessed by and independent statistician using the Shapiro Wilks, The Levene, the OneWay ANOVA,the Pearson chi square test to investigate the variables.

Results. Mean MN-FPL distance was 2.43 ± 2.62 (range 0.63-19) mm in the operated side and 3.17 ± 1.66 (range 1.1-8.7) mm in the non-operated side. The difference between groups was statistically significant.

Mean CSA values were 9.17 ± 2.62 (range 1.3-16.0) mm2 in the operated side and 9.68 ± 2.48 (range 1.9-17.0) mm2 in the non-operated side. The comparison between groups showed no statistical differences.

In more than 96% of patients both Tinel and Phalen tests were both negative.

The Spearman Rho test showed a significant inverse correlation between age and Dynamometer values for both the operated and the non-operated side (p=0.004 and <0.001, respectively).

Patients aged <65 years and with a follow-up longer that 24 months showed statistically higher dynamometer results compared to patients over 65 years old and with shorter follow-up.

Discussion. These findings corroborate the hypothesis of an MN-FPL neurodesis and traction model with a radial shift of the MN at the distal radius but no changes in CSA after VLP fixation.

FM56
Simultaneous bilateral carpal tunnel release: is it appropriate?

J. Billy[1], M. Papaloïzos[2] ([1]Clinique de la main Genève, Genève; [2]Clinique de la main Genève, Rue des bains 35)

Introduction. It is commonly considered that operating on both hands in one step is "not practical", to such a point that it is almost always even not offered as an option by the surgeon. Beyond this usual way of dismissing this possibility, some patients – also for "practical reasons" – do ask whether or not both their carpal tunnels could be operated at the same time, rather than waiting weeks or months in between. The literature does not speak against simultaneous carpal tunnel release (CTR), most papers indicate a shorter work leave, less costs and no more complications than stepwise operations. Should we change our mind and propose simultaneous bilateral release for selected patients?

Patients and methods. From 2022 four patients (2 F, 2 M) age 37 to 85 (mean 57) were operated in one step and bilateral peripheral block by an open technique. One doctor (pregnant), 1 engineer, 1 housekeeper, 1 painter artist. All were fully active and voted for a one step surgery to gain time. A short wrist cast was bilaterally applied for 4 days. FU range was 4-22 months (median 10.5). More patients will be included prospectively until time of the congress.

Results. There were no complications of any kind, healing and recovery was surprisingly short in all cases with a high degree of satisfaction. Return to previous professional and recreational activities was shorter than expected.

Discussion. Carpal tunnel syndrome is commonly bilateral. Patients operated on one side have to wait for partial or complete healing before being operated on the other side. Studies comparing simultaneous versus staged CTR show that recovery is quick, usually less than 5 days until daily activities in self-reliance. Complication rate is not higher neither. Well tolerated with a high rate of satisfaction by patients, simultaneous CTR was shown to be associated with lower direct and indirect costs. Our short experience is in line with the literature.

Conclusion. Simultaneous bilateral CTR is possible for selected patients with at least equal satisfaction and lower costs than staged release.

FM57
Comparison of WALANT technique versus locoregional nerve block in patients undergoing staged bilateral endoscopic carpal tunnel release

D. Verrewaere[1], P. Reyniers[2], H. Vandevivere[3], F. Stockmans[4], B. Berghs[4], F. Bonte[4] ([1]AZ Sint-Jan Brugge, Gent BE; [2]AZ Sint-Jan Brugge, Bruges BE; [3]AZ Sint-Jan, Bruges BE; [4]AZ Sint-Jan, Brugge BE)

Background. A carpal tunnel release can be performed using the open (OCTR) or the endoscopic technique (ECTR). In WALANT anesthesia, epinephrine is combined with a local anesthetic. Therefore, a tourniquet is not necessary, providing less discomfort for the patient. In a locoregional distal nerve block, a tourniquet is needed, this can be perceived painful. This raised the question which method of anesthesia is truly preferred for the patient and the surgeon. Patients who will be undergoing staged bilateral carpal tunnel release present a unique opportunity to this study question.

Methods. A total of 15 patients were included in this prospective study. The primary outcome measure was to determine the preference of anesthesia type in patients and surgeon. Surgeon preference was based on the visibility and the fluency of the procedure. Secondary outcomes for the patients included the pain scores of performing surgery and anesthesia and the pain caused by the tourniquet (used in the distal nerve block).

Results. Two patients were excluded during this stud due to xylocaine allergy or simultaneous trigger finger release. Baseline demographic and clinical information was collected. Regarding the pain of performing local anesthesia and performing the ECTR, there was no significant difference. Surgeons may find that performing ECTR using WALANT is more challenging, as visibility tends to be significantly compromised. The mean pain caused by the tourniquet used during the wrist block procedure was 3,6. After both surgeries, 77% (10/13) of the patients preferred the WALANT anesthesia.

Conclusion. In general, we may conclude that ECTR under WALANT was better tolerated by the patient, compared to locoregional surgery. However, from the surgeon's view, ECTR under WALANT was less favorable, because of technical drawbacks. This limitation arises from the suspension fluid, particularly noticeable after cutting the transverse carpal ligament, and bleeding, which can further impair visualization. Although ECTR under WALANT is the preferred technique for the patient, we advise to give preference to locoregional anesthesia to diminish the risk to harm any neurovascular structures.

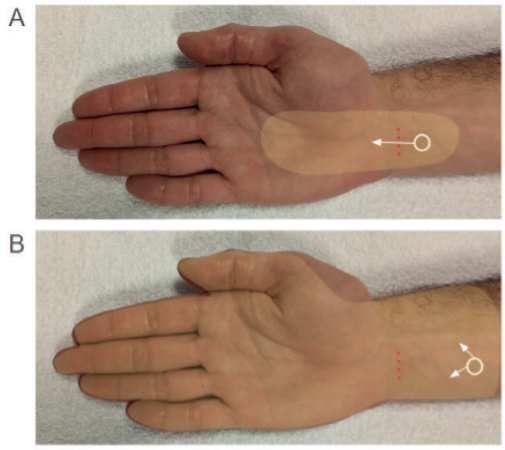


Figure 1: Distribution anesthesized area

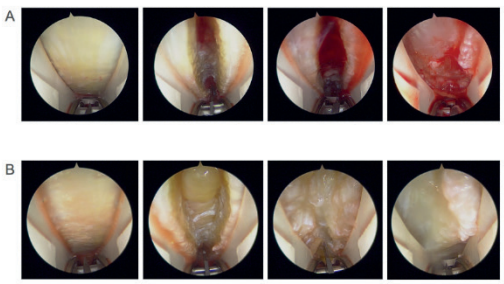


Figure 2: View during ECTR

FM58
Ultrasound-Guided Percutaneous trigger finger release using a minimal invasive knife.

M. Cromheecke[1], P. B. de Keyzer[2], J. Goubau[2], O. Mares[3], J. M. Cognet[4] ([1]AZ Maria Middelares Ghent, Ghent BE; [2]AZ Maria Middelares, Ghent BE; [3]Orthopedic Surgery Unit, CHU Caremeaux, Nîmes FR; [4]SOS Mains Champagne Ardenne/Medipole, Reims FR)

Introduction. Ultrasound surgery, a rapidly growing field, is gaining significant attention within the hand surgery community for its minimally invasive approach. Building upon our previously established technique using an ultrasound-guided percutaneous method with a minimally invasive surgical knife for trigger finger release, this study expands our research to a larger patient cohort, reflecting the increasing interest and application of such innovative techniques in hand surgery.

Aim. This presentation aims to overview the technique and to report the effectiveness and safety of this minimally invasive technique in a larger patient population, and document the incidence of complications.

Material & Methods. A retrospective analysis of 272 trigger finger releases in 217 patients, average age of 62.5 years, was conducted. Assessments for residual triggering and postoperative complications were made at 6 weeks and 3 months.

Results. None of the patients reported residual triggering. Major complications were absent, including tendon rupture, bowstringing, or neurovascular issues. 26 patients encountered minor complications such as residual pain, extension deficit, or incomplete flexion. These were resolved with additional infiltration, extension splinting, and/or physiotherapy. 1 patient reported prolonged wound draining. 1 patient was converted to open surgery.

Conclusions. This study reinforces the safety and high efficacy of this minimally invasive ultrasound-guided.

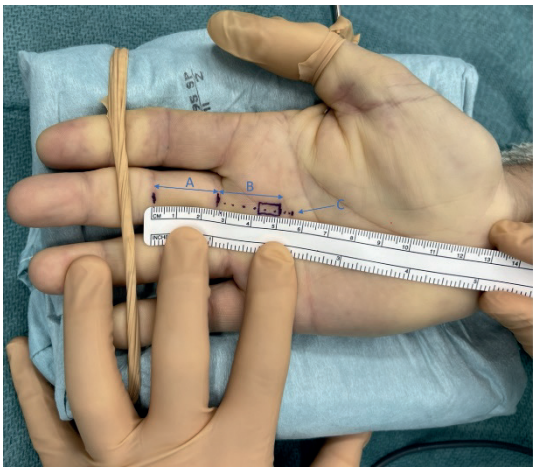


Figure 1

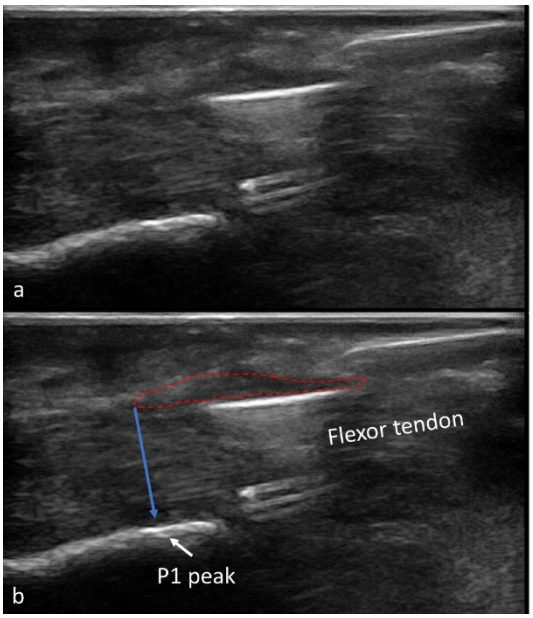


Figure 2

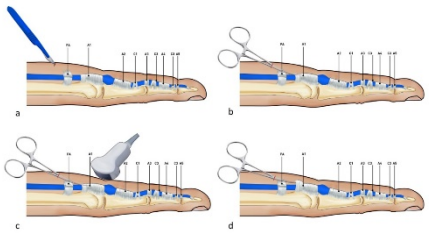


Figure 3

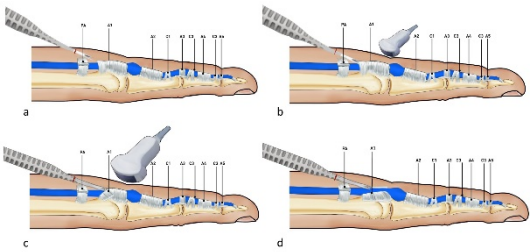


Figure 4

FM59
Surgery for thoracic outlet syndrome (TOS): length of posterior rib remnant and outcome

C. Bauer[1] ([1]Universitätsspital Basel, Basel)

Background. Thoracic Outlet Syndrome (TOS) remains a controversially disputed clinical entity. There is ongoing debate wether length of the posterior rib remnant after first rib resection for TOS affects outcome of surgery.

Material and Methods. In a prospective observational study all patients undergoing supraclavicular first rib resection for TOS since 2016 have been enrolled. Patients had to complete CBSQ (Cervical Brachial Symptom Questionnaire) and QuickDASH before and 4 to 24 months after operation and report the percentage of improvement after operation. Length of rib remnant was measured on postoperative routine thorax x-ray from costotransversal joint to resection margin in mm.

Results. From 2016 to 2023 a total of 124 supraclavicular first rib resections for TOS have been perfomed in 103 patients (17% bilateral). 76% were female, average age was 38 years (18-69). Mean observation period was 13 months postoperatively (4-24 months). Patients assessed the postoperative outcome as average 75 % improvement. 6 patients were unable to rate the postoperative outcome, 6 were lost to follow-up. CBSQ scores showed an improvement of 69 % (88 preoperative vs. 27 postoperative) and QuickDASH 64% respectively (66 vs. 23). Average length of rib remnant was 21 mm (8 to 38mm). Analysis of subgroups revealed no correlation of length of rib remnant with postoperative CBSQ and QuickDASH scores but good correlation of self rated improvement in percent and improvement of postoperative scores respectively.

Conclusions. CBSQ and QuickDASH are reliable tools in evaluating outcome after surgery for TOS and show good correlation with patient-rated improvement. Subgroup analysis revealed no correlation of length of posterior rib remnant with postoperative outcome. More important factors for postoperative outcome are pre-existing chronic pain conditions, multiple crush situations, and preexisting peripheral atrophy with functional loss.

Gong Show

FMG1
Mold osteomyelitis: A challenge between reconstruction and amputation in immunocompromised patients

C. Bo[1], H. Klein[1], A. Conen[1], R. Marti[1], H. Seeger[2], J. Plock[1], F. Früh1 ([1]Kantonspital Aarau, Aarau; [2]Kantonspital Baden, Baden)

Fungal infections causing osteomyelitis are rare but can lead to significant morbidity. Candida species are the most common fungus, with spinal involvement being frequent. Scedosporium (S.) apiospermum, a mold found in soil, and polluted waters, is exceedingly rare in human infections of the upper extremity with singular reports in immunocompromised hosts. This case reports a 68-year-old male presenting with S. apiospermum wrist osteomyelitis, highlighting the diagnostic and therapeutic journey.

The patient presented in early 2023 with a painful, red, and swollen left wrist. His medical history included a combined kidney-pancreas transplant, for which he was under immunosuppressive medication. Magnetic resonance imaging showed a severe wrist arthritis and suspected carpal bone osteomyelitis.
After referral to our hand surgery center, a proximal row carpectomy was performed and a vancomycin and gentamicin-loaded cement spacer was implanted. Histology confirmed a chronic destructive osteomyelitis and microbiology detected *S. apiospermum*. Antifungal treatment with voriconazole was started. Six debridements were necessary to obtain an *in sano* resection, leaving the patient with an 11 cm defect including the carpus and the distal forearm as well as external fixation.

While trans-radial forearm amputation was recommended, the patient insisted on preservation of the wrist. The patient's situation was complicated by severe upper extremity arteriosclerosis and an anatomical variant on the right lower leg with a peronea magna artery supplying the foot. Despite these challenges, a radio-metacarpal reconstruction using a free osteocutaneous triangular fibula flap was performed, with concurrent foot revascularization using a basilic vein graft. However, postoperative complications occurred, including a congested skin island treated with leaching. Unfortunately, leaching led to a severe soft tissue infection and necrosis of the fibula flap, with isolation of multidrug-resistant bacteria, necessitating forearm amputation nine days after reconstruction.

Destructive fungal osteomyelitis in immunocompromised hosts is a challenge for reconstructive surgeons. Importantly, eradication of mold infections is only possible by a combined surgical and antimicrobial approach. Compared with potentially complicated microvascular reconstructions, an amputation may be the straight-forward and potentially life-saving strategy and should always be considered in critically ill patients.

FMG2
Treating mycobacteria tenosynovitis with heat pads: Bactericidal effect on mycobacterium chelonae

E. Akyildiz[1], M. Greminger[2], I. Besmens[3], O. Politikou[3], M. Calcagni[4] ([1]Universitätsspital Zürich, Dübendorf; [2]Kantonsspital St. Gallen, St. Gallen; [3]Universitätsspital Zürich, Zürich; [4]Praxis für Handchirurgie, Zürich)

A 72 yo patient suffered a minor injury to the fingertip of the right index finger in August 2022. Swelling and pain then occurred, so external empirical antibiotic therapy was initially carried out, which did not lead to any improvement in the findings. Diffuse panniculitis with edema and also contrast medium uptake, especially of the dorsal soft tissues and extensor tendons, were described using MR tomography.

As a result, the patient presented to our department by the end of November 2022, where surgical exploration for debridement and microbiological sampling was recommended. Acid-fast rods were detected, which were molecularly identified as a Mycobacterium chelonae/abscessus complex. Due to persistent signs of infection, renewed and extended debridements were necessary in the following weeks. Antibiotic treatment with several antibiotics (Augmentin, Amikacin, Clarithromycin, Moxifloxacin, Imipenem and Clofazimin) at different intervals and detachments for a total of 6 months was applied. Despite antibiotic treatment, the finger showed persistent signs of severe infection and the follw-up MRI showed findings of an osteomyelitis adjacent to the PIP joint. Amputation of the index finger was proposed but refused by the patient. Overall progression was slow with continued secreting and open wound conditions. Mycobacterium chelonae was detected to be heat-sensitive and bactericidal effect on temperatures above 40° Celsius was proven in-vitro. Therefore, we started heat therapy with heat pads for constant heat applications. The patient measured the temperature using a flexible thermometer, with temperatures between 42° at the beginning of the heat pad application and 37.5° at the end of the usage. This resulted in a drastic improvement over the next two months. The

patients needed no further surgery and the wound healed completely.

We conclude that heat therapy can play a crucial role in mycobacteria chelonae therapy.

FMG3
Capnocytophaga canimorsus sepsis - a complication of a dog bite every hand surgeon must consider

A. Gohritz[1], N. Grünberger[1], D. J. Schaefer[1], A. Kämpfen[1] ([1]Universitätspital Basel, Basel)

Introduction. Capnocytophaga canimorsus is a negative gram pathogen of the oral flora of dogs and also cats that can cause fulminant sepsis, particularly in patients with immunosuppression, especially due to asplenia or liver dysfunction (alcoholism, cirrhosis).

Purpose. This case report aims at increasing the awareness regarding this rare complication, which typically occur safter contact of persons at risk with pet saliva, either by a bite injury, but also, for example, the licking of an open wound may be sufficient.

Case presentation. We report on a 44-year-old female patient who developed fulminant sepsis with multi-organ failure (CNS, cardiovascular system, lungs, kidneys, adrenal glands, coagulation) 3 days after a dog bite on her left index finger (without local infection, lymphangitis or arthritis) treated by wound excision. Due to Waterhouse-Friedrichsen syndrome, a total of 5 fingers on both hands and both lower legs had to be amputated. The patient had a history of functional asplenia following hemapoietic stem cell transplantation for B-cell lymphoma 13 years previously and additional immunosuppression due to hepatitis C following drug abuse. Because of shock-induced renal failure, the patient received a cadaveric kidney transplant 3 years after her sepsis. One year later, a Swanson spacer was implanted in the metacarpophalangeal joint of the only remaining finger of the left hand for asepetic bone necrosis.

Conclusions. Capnocytophaga canimorsus can cause catastrophic sepsis in individuals with risk factors, such as (functional) asplenia, liver cirrhosis and/or severe alcohol abuse, but also without relevant medical history. Patients at risk should be treated consistently with beta-lactam-betalactamase inhibitor combinations, cephalosporins or carbapenems beside surgery. However, no animal bite is required for the transmission of an infection with Capnocytophaga canimorsus; saliva contact with non-intact skin is sufficient to trigger fulminant sepsis. Every hand surgeon should be aware of this rare complication and its potentially catastrophic consequences.

FMG4
Two long-term results after relocation nerve allografting – From disability insurance back to life

A. Schiffmann[1], L. Batel[1], C. Preschke[2], J. Plock[1], F. Früh[1] ([1]Kantonsspital Aarau, Aarau; [2]Ergotherapie Süssbach, Brugg)

Introduction. Chronic neuropathic pain resulting from peripheral nerve injuries remains challenging to treat. Traditional treatment approaches often yield suboptimal outcomes, leading to decreased quality of life. We report our first long-term outcomes of relocation nerve allografting for the treatment of chronic neuropathic pain in two cases. This approach involves neurotomy of the affected nerve and relocation from the injured area through long allografts, presumably resulting in "silencing" of the problematic axons.

Case Report

Case 1

A 32-year-old patient with severe neuropathic pain following a milling injury underwent N1-3 allograft reconstruction of the median nerve branches in 2018. However, the patient developed invalidating neuropathic pain despite multiple revision surgeries and multimodal pain therapy. In March 2023, a relocation nerve allograft was performed, resulting in significant improvement in hand function and quality of life, illustrated by a Michigan Hand Questionnaire score increase from 475 to 1000, and improved key-pinch strength from 0 kg to 7 kg and JAMAR from 0 to 34 Position II postoperatively. One year following surgery, the patient is now about to resume work in construction, avoiding disability insurance.

Case 2

A 49-year-old patient with an old and painful injury of the superficial branch of the radial nerve underwent the same procedure, experiencing notable improvements in grip strength and pain levels postoperatively (see images). The patient returned to work within two months of surgery.

Discussion. In our hands, relocation nerve allografting is a highly promising novel technique to address chronic neuropathic pain. This technique can improve hand function, quality of life, and is cost-effective since it can help bringing patients back to work and life. Prospective clinical investigations will be necessary to validate its efficacy and broaden its application in clinical practice.

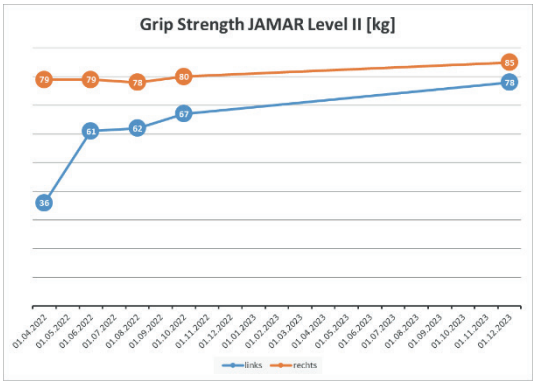


Figure 1: JAMAR

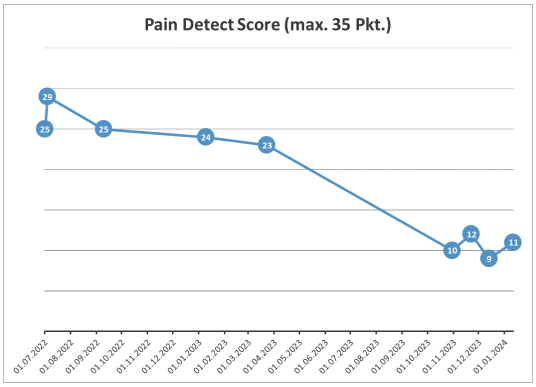


Figure 2: Pain Detect

FMG5
Targeted muscle reinnervation into omohyoid muscle for iatrogenic neuroma of supraclavicular nerve

G. Lautenbach[1], I. Besmens[1], M. Calcagni[1], O. Politikou[1] ([1]UniversitätsSpital Zürich, Zürich)

Background. Iatrogenic symptomatic neuromas of the supraclavicular nerves following surgery in the supraclavicular area, such as internal fixation of clavicle fractures, are not rare. Recently, targeted muscle reinnervation into expendable muscles for treatment of painful neuromas has gained ground and shown superiority over passive procedures, such as neuroma resection and relocation. We performed targeted muscle reinnervation of a supraclavicular nerve neuroma into the nerve of the omohyoid muscle and present the surgical steps and clinical outcome.

Methods. A young colleague orthopedic surgeon presented with burning pain in the supraclavicular area following plate fixation of a clavicle fracture. The pain was triggered during chewing movements and head inclination into the opposite side and irradiated into the cervical area. Clinically, she presented a positive Tinel's sign one cm proximal to the middle clavicle and the blocking test with lidocaïn 1% was immediately positive with complete pain relief. We treated the painful supraclavicular nerve neuroma with targeted muscle reinnervation into the omohyoid muscle. Through a vertical supraclavicular, incision we exposed the supraclavicular nerves and noticed an end-neuroma of two terminal branches. We excised the neuromas and shortened the nerves up to their common trunk. Followingly, through standard supraclavicular approach we exposed the omohyoid muscle with its tendinous part. The nerve enters the muscle at the posterior medial aspect of the muscle belly, medially to the tendinous part. Using handheld electrical stimulation we confirmed muscle contraction. We dissected the nerve to omohyoid muscle at the level of motor entry point and performed an end-to-end epineural coaptation with the trunk of the supraclavicular nerve.

Results. The patient reported complete pain relief following the procedure, no pain triggering with head movements and no pain migration to a more proximal area. Clinically, there was no Tinel's sign anymore at one year follow-up and the patient remained completely pain-free.

Conclusion. Treatment of symptomatic supraclavicular nerve neuromas with targeted muscle reinnervation into the nerve of the omohyoid muscle is a safe, anatomically straightforward and reliable procedure. Comparative studies with treatment using passive procedures, such as simple nerve shortening and relocation are needed in order to examine superiority of the targeted muscle reinnervation over simpler techniques.

FMG6
Use of arterial grafts in revision surgery for hypothenar hammer syndrome

B. Jochum[1], J. Hainich[2], I. Käch[1], V. Schmidt[1], M. Greminger[1] ([1]Kantonsspital St. Gallen, St. Gallen; [2]Ostschweizer Handzentrum, St. Gallen)

Background. Hypothenar hammer syndrome (HHS) is a condition characterized by occlusion or pseudoaneurysm of the ulnar artery (UA) at the wrist level leading to digital ischemia, cold intolerance and possibly ulnar nerve dysfunction. The etiology is usually repetitive trauma to the vessel at the hook of the hamate, although fibrous dysplasia has also been implicated. If medical management fails, treatment options are either resection of the diseased vessel segment or reconstruction using a venous or arterial graft. Arterial grafts have shown superior patency rates but are associated with a more substantial donor site morbidity. Symptoms and patient reported outcomes are improved with sustained graft patency.

Case. A 42-year-old male manual laborer presented to our clinic complaining of pain, cold intolerance and cyanosis of the middle and ring finger of his

right dominant hand. He reported habitually using his palm for striking objects while working. The diagnosis of hypothenar hammer syndrome was confirmed using sonography and MRI. Initial treatment consisted of resection of the vessel and reconstruction with a venous graft from the forearm. After initial complete relief of symptoms, the patient presented few years later with recurrent pain and swelling of the ulnar palm. Clinical examination demonstrated a large pulsating mass. Sonography and MRI showed massive dilation of the venous graft. Since a venous graft had already failed, the patient was offered a choice of either graft ligation and excision or reconstruction using the descending branch of the lateral circumflex femoral artery. Reconstruction using an arterial graft was chosen and carried out uneventfully. The symptoms resolved completely, but the patient complained of minor sensory disturbances at the donor site. Doppler sonography showed a patent vessel at the 3-month follow-up visit.

Conclusion. Venous grafts have been the gold standard for reconstruction of the UA although the long-term patency rates range between 22-88%. In cases of revision surgery or in young, high demand patients, arterial grafts should be considered as first choice for reconstruction.

FMG7
Trapezium Reconstruction and Re-Implantation of Trapeziometacarpal Prosthesis after Cup Loosening

R. Büchel[1], M. Greminger[1], J. Hainich[2]
([1]Cantonal Hospital St.Gallen, St. Gallen; [2]Ostschweizer Handzentrum, St. Gallen)

Introduction. Joint replacement of thumb carpometacarpal joint was proved to be an effective treatment option in patients with osteoarthritis. The use of implant arthroplasty increased since the dual-mobility concept was introduced with the newest generation of implants. The current literature shows promising results for these implants with low complication rates. However, failures due to cup migration and cup loosening were described in several outcome studies. Until now, only few revision techniques have been proposed.

Patients and Methods. We investigated more than 100 trapeziometacarpal joint replacements with the MAÏA implant (Lépine Institut, France) operated between 2017 and 2023 in our institution for radiologic outcomes. Aseptic cup loosening was observed in four cases. All four instances of loosening were attributable to postoperative trauma or early excessive loading. Affected patients were manual workers and exhibited reduced compliance regarding gradual load-bearing. Different treatment options, including trapeziectomy as a salvage procedure, were assessed. In three cases we aimed for re-implantation of the implant due to high demand for grip strength.

Results. A two-stage approach was employed: initially, prosthesis removal and reconstruction of the worn trapezium using a pelvic bone graft was performed. Three months after the first procedure radiographs showed well-integrated bone grafts in all cases. Thus, re-implantation of the prosthesis was performed. All cases were assessed by clinical and radiological examination three months after the second procedure. Two patients were free of complaints and not restricted in their daily activities, and the radiograph showed no recurrent loosening of the re-implanted cup. One patient experienced recurrent cup loosening and persistent pain.

Conclusion. Trapezium reconstruction and re-implantation of a thumb carpometacarpal joint prosthesis represents a feasible salvage option following cup loosening in patients with high mechanical demands. However, further investigations with a larger patient cohort are necessary to evaluate this technique.

FMG8
Déformation dynamique en col de cygne du pouce sur cal vicieux du premier métacarpien

D. Estoppey[1], Q. Schopfer[1], T. Christen[1] ([1]CHUV, Lausanne)

Introduction. La déformation du pouce en col de cygne est habituellement rencontrée dans la polyarthrite rhumatoïde et le lupus érythémateux disséminé. Dans ce cas, le traitement se concentre sur les tissus mous.

Nous rapportons un cas de cette déformation sur un cal vicieux du premier métacarpien associé à une lésion de la plaque palmaire de l'articulation métacarpo-phalangienne.

Notre hypothèse est que la seule la correction de la déformation osseuse, sans geste ligamentaire, suffit à la correction de la déformation en col de cygne.

Matériel et méthodes. Il s'agit d'un patient de 26 ans, travailleur de force, victime d'un double traumatisme du pouce gauche. Le premier, deux ans auparavant, ayant procuré une fracture de Winterstein qui a été négligée et a abouti à un cal vicieux en flexion et en raccourcissement. La fonction du pouce est restée normale. Le deuxième traumatisme a procuré une lésion de la plaque palmaire de l'articulation métacarpo-phalangienne qui a abouti à une déformation dynamique en col de cygne lors de la pince pouce-index (figure 1A).

Une ostéotomie de correction d'ouverture palmaire avec impaction palmaire d'un greffon cortico-

spongieux de crête iliaque sans geste sur la plaque palmaire a été réalisée. Elle été suivie d'immobilisation de 6 semaines.

Résultats. A 2 mois post-opératoires, le foyer d'ostéotomie était consolidé. La déformation en col de cygne s'est corrigée (figure 1B). La force aux Key et Tripod Pinch tests, comparée au côté contro-latéral, a passé de 40% en préopératoire à 75% à 4 mois post-opératoires.

Conclusion. La correction de la longueur et de l'axe du premier métacarpien dans les cals vicieux en flexion et en raccourcissement, augmentant ainsi la tension de la musculature thénarienne, permet de corriger une déformation dynamique en col de cygne, sans avoir à corriger l'insuffisance de la plaque palmaire de l'articulation métacarpo-phalangienne.

Figure 1

Figure 2

FMG9
Stabilized Arthroplasty of the Fifth Ray (Dubert-Procedure) with a Patient-Specific Implant

D. Tolnai-Szebeny[1], S. Schmitt[1], U. Hug[1]
([1]Kantonsspital Luzern, Luzern)

Introduction. Misjudgment of intra-articular fractures and fracture-dislocations of the carpometacarpal (CMC) V joint harbors the risk of posttraumatic osteoarthritis. Common treatments include CMC V arthrodesis (Joseph et al., 1981), partial resection arthroplasty (Black et al., 1987), silastic interposition arthroplasty (Green and Kilgore, 1981) and tendon interposition arthroplasty (Barry and Stark, 1991).

In 1994, Dubert introduced a technique known as "stabilized arthroplasty of the fifth ray", aiming to address hamate-metacarpal impingement, restore fifth ray length, and transfer mobility to the carpometacarpal joint of the fourth ray.

This case report details the treatment of a 40-year-old male patient which was managed using a 3D-designed patient-specific implant based on the Dubert procedure. A review of the sparse literature is given.

Method/Result. Five months after a skiing accident the patient presented to our hospital with severe ulnocarpal pain exacerbated by weight-bearing activities. Computed tomography (CT) showed a pseudarthrosis of the hamate and a palmar subluxation of the fifth metacarpal bone. Primary treatment was reconstruction of the hamate with a cancellous bone graft from the distal radius and a headless compression screw. After 6 months a pseudarthrosis of the hamate with ongoing pain persisted. As salvage procedure we proposed Dubert's procedure. To restore the perfect length and position of the fifth metacarpal, we used a 3D planning based on the opposite site (CT scan in "relaxed" position) and a patient-specific implant.

Postoperative results are promising in the short term. The patient has a normal mobility and no pain. We will show CT results, grip strength, pain on a visual analog scale and the wrist scores.

Conclusion. Pain related to posttraumatic CMC V arthropathy may be disabling, with a reduction in grip strength in almost 50% of patients. The advantages of the stabilized arthroplasty described by Dubert are preservation of length of the fifth ray, complete stability by intermetacarpal fusion IV/V with additional preservation of partial mobility of the fifth ray at the CMC IV joint. 3 D Planning in combination with a patient specific implant simplifies to set the perfect position of the fifth metacarpal, reduces the risk of pseudarthrosis, shortens the operating time and makes this procedure a reliable tool to preserve grip strength and eliminate pain.

FMG10
"Long-term Outcomes of Finger Fractures Fixed with Cannulated Screws: Predicting Satisfaction?"

I. Besmens[1], E. Wacker[2], S. Knipper[3], M. Gunning[2], M. Calcagni[4] ([1]Universitätsspital Zürich, Zürich; [2]UniversitätsSpital Zürich, Zürich; [3]Berlin DE; [4]Zürich)

Objective: This study aimed to evaluate the long-term outcomes of cannulated screw fixation in fractures of the metacarpals and phalanges. While previous research has demonstrated the success of this technique for fracture fixation, this study sought to assess the presence of predictors that could lead to higher patient satisfaction, as determined by patient-reported outcome measurements (PROMs).

Methods: The study assessed 69 patients with a median age of 44 years. We utilized both subjective and objective outcome measures, including the Michigan Hand Questionnaire (MHQ), Patient-Specific Functional Scale (PSFS), Visual Analogue Pain Scale, active range of motion (aROM), grip strength, and conventional x-ray imaging.

Results: Fracture consolidation was confirmed in all cases. The findings revealed a median MHQ score of 90% and a median PSFS score of 9, indicating generally high patient satisfaction. However, not all patients were satisfied with the postoperative outcomes, as indicated by MHQ scores as low as 50. Multivariable logistic regression analysis did not identify age, gender, smoking status, fracture location, presence of multiple fractures, or involvement of the dominant hand as predictors of higher patient satisfaction.

Conclusion: The long-term clinical outcomes suggest that intramedullary headless screw fixation is an effective treatment for fractures of the phalanges and metacarpals, providing good range of motion and grip strength. Predicting patient satisfaction with this treatment remains challenging. Although patients are generally satisfied with their outcomes, identifying specific patient and fracture characteristics that lead to less satisfaction requires further investigation.

Freie Mitteilungen SGHR Communications libres SSRM

Freie Mitteilungen / Communications libres I

FM60
Neue Wege in der Schmerztherapie – iPad-basierte Alternative zur Spiegeltherapie

Linda Meyer[1] ([1]Rehaklinik Bellikon, Aarau)

Die Handtherapie in Bellikon integriert die Spiegeltherapie in das multimodale Therapieschema für Personen mit chronischen Schmerzsyndromen oder Personen, die sich einer Amputation unterzogen. Dabei fiel mir bei der Evaluation auf, dass einige Klienten und Klientinnen die selbstständige Durchführung der Spiegeltherapie abbrachen. Auf Anfrage nannten sie folgende Faktoren: Probleme bei der exakten Platzierung des Spiegels entlang der Körpermittelachse sowie anhaltende rotierte Nacken – und Kopfposition für den Blick in den Spiegel. Folglich wurde von einer nachlassenden Fokussierung und der Unfähigkeit, die Illusion aufrechtzuerhalten, berichtet. Andere gaben an, ihnen fehle es an Motivation. Dies weckte das persönliche Bestreben, nach einer Alternative zur Spiegeltherapie zu suchen. Statt der konventionellen Spiegeltherapie, begann ich Videosequenzen von einfachen aktiven Bewegungen der nicht betroffenen Hand, mit dem iPad zu filmen. Diese Videos wurden mithilfe einer Bearbeitungsfunktion auf dem iPad gespiegelt, um die Illusion zu erzeugen, dass die betroffene Seite die Bewegungen ausführt. Es wurde eine kurze Testphase mit einem Klienten eingeleitet, der sich zunächst der konventionellen Spiegeltherapie unterzog und sich anschliessend alternativ die Videos ansah. Die positive Rückmeldung des Klienten sowie sein Interesse an einer ambulanten Weiterführung dieses Ansatzes, motivierte mich zur weiteren Erforschung dieser modifizierten Spiegeltherapie-Technik.

Zielsetzung. Dieses Konzept zur möglichen Alternative der Spiegeltherapie mit dem iPad soll mit Literatur untermauert werden. Durch die Kombination von Erkenntnissen in der Praxis und der Literatur, können Richtlinien für das iPad-gestützte Trainingsprogramm formuliert werden. Diese Leitlinien sollen die Grundlage für die Einleitung einer Fallstudie, nach Beendigung der Projektarbeit, bilden.

Methode. Als Grundlage diente eine Literaturrecherche, um Begründungen für den möglichen Effekt der Alternative der Spiegeltherapie zu finden sowie die Parameter des Therapieprogramms festlegen zu können. Die Recherche relevanter Literatur erfolgte in verschiedenen Datenbanken, darunter Medline/Pubmed, OTSeeker und der Cochrane Library.

Ergebnisse. Aus den gewonnen Praxiserkenntnissen und der dazu gezogenen Literatur entstand ein Erhebungsfragebogen, ein Evaluationsbogen, ein Merkblatt und ein Therapieprotokoll für Klienten und Klientinnen sowie die Therapieempfehlung für Therapeuten und Therapeutinnen.

FM60
Nouvelles voies dans le traitement de la douleur – alternative basée sur iPad pour remplacer la thérapie du miroir

Linda Meyer[1] ([1]Rehaklinik Bellikon, Aarau)

La thérapie de la main à Belllikon intègre la thérapie du miroir dans son schéma thérapeutique multimodal pour les personnes souffrant de syndromes douloureux chroniques ou les personnes ayant subi une amputation. Lors de l'évaluation dans ce contexte, j'ai remarqué que certains clients ont interrompu leur entraînement de la thérapie du miroir. En demandant pourquoi, les facteurs suivants étaient mentionnés : difficultés dans le placement correct du miroir sur la ligne corporelle médiane et dans le positionnement de la nuque et de la tête pour regarder dans le miroir. S'en suivait une baisse de concentration et l'incapacité à maintenir l'illusion. D'autres personnes ont indiqué un manque de motivation. Cela a suscité un désir personnel de chercher une alternative à la thérapie du miroir. Au lieu de la thérapie du miroir conventionnelle, j'ai commencé à filmer des séquences vidéo de mouvements actifs simples de la main non atteinte à l'aide d'un iPad. Ces vidéos ont été inversées grâce à une fonction d'édition de l'iPad afin de créer l'illusion que le côté atteint exécute les mouvements. Une courte phase d'essai a été réalisée avec un client qui a d'abord suivi la thérapie du miroir conventionnelle et a ensuite regardé les vidéos de façon alternative. La réaction positive du client ainsi que son intérêt pour une poursuite ambulatoire de cette approche m'ont motivée à continuer mes recherches sur cette technique modifiée de la thérapie du miroir.

Objectif. Ce concept d'une possible alternative à la thérapie du miroir basée sur iPad doit être étayé par la littérature. En combinant les connaissances acquises dans la pratique et la littérature, des lignes directrices pour un programme d'entraînement basé sur iPad ont pu être formulées. Ces lignes directrices doivent servir de base au lancement d'une étude de cas, une fois le projet terminé.

Méthode. Une revue de littérature a servi de base afin de trouver des justifications pour les effets possibles de l'alternative à la thérapie du miroir ainsi que pour déterminer les paramètres du programme thérapeutique. La recherche d'une littérature pertinente a été effectuée dans différentes bases de données, dont Medline/Pubmed, OTSeeker et Cochrane Library.

Résultats. Les connaissances pratiques acquises et la littérature consultée ont permis d'élaborer un questionnaire, une fiche d'évaluation, une feuille d'information et un protocole thérapeutique destinés aux clients ainsi que des recommandations thérapeutiques pour les professionnels.

FM61
Innovative Tools for Nerve Injury Rehabilitation: 3D-Printed Tactile Cube and Smart App Integration

Susann Pagella[1], Francesca Ferrario[1], Mario Gaetano Fioretti[1] ([1]Ergomano Rehab, Lugano)

Hypothesis: In the context of nerve injuries, therapists employ Sensory Reeducation, a gradual and progressive reprogramming process of the brain utilizing cognitive learning techniques in the early phase and graded tactile stimuli in the subsequent phase. Patients often struggle to remember the materials and procedures, leading to inaccuracies in exercise execution, including incorrect timing, repetitions, and frequency. To address this, we designed a 3D-printed cube with various surfaces and developed an application "SensiReEduCube" to remind patients when to perform exercises and for how long.

Methods: To encourage tactile stimulation in patients with nerve injuries, we designed a 3D-printed cube with each face featuring a different filigree. As therapists, we often lack information on whether patients have followed prescribed home exercises, particularly in cases where instructions vary based on pain levels. To ensure patient adherence and exercise accuracy, we created an application "SensiReEduCube" functioning as both a memo and an instructor. The application can be set as an alarm according to a therapist-determined schedule, with the therapist specifying the time the patient should spend on each face of the cube. The application guides the patient on when to rotate the cube, and a flag appears upon successful completion of each exercise.

Results: Providing patients with a tool that motivates exercise coupled with an application offering precise exercise customization significantly enhances patient adherence to the

treatment. The ability to monitor whether patients have completed exercises provides assurance regarding the effectiveness of our treatment instructions.

Summary Points: By utilizing the cube, patients possess a visual reminder to perform exercises. The associated application allows for detailed customization of home exercises and provides feedback on execution, enhancing overall treatment efficacy.

FM62
Implementierung von videobasierten Heimübungsprogramm-Apps in der Handtherapie

Michael Dieing[1], Eva Hege[2] ([1]Kantonsspital St. Gallen, Arbon; [2]Kantonsspital Münsterlingen, Arbon)

Hintergrund. Heimübungsprogramme (HÜP) sind ein wichtiger Bestandteil der Rehabilitation der oberen Extremität. Nur 35% der Patient*innen führen ihr HÜP konsequent durch. Angesichts dessen und durch zunehmenden Kostendruck der Versicherer ist es wichtig, ein attraktiveres HÜP zu gestalten, welches zu unserer modernen technologisierten Gesellschaft passt, um die Adhärenz der Patient*innen zu fördern.

Ziel. Gegenüberstellung von videobasierten HÜP-Apps und einer konventionellen Abgabe eines papierbasierten HÜP, im Hinblick auf die Durchführungsadhärenz und die Qualität der Übungsausführung. Zusätzlich den Anforderungsbedarf an die Einführung von videobasierten HÜP in der Praxis zu eruieren.

Methodik. Es wurde eine systematische Literaturrecherche durchgeführt. Zusätzlich wurden in unseren handtherapeutischen Abteilungen HÜP-Apps (Physiotec, Physitrack), am Beispiel der Nachbehandlung von Beugesehnenverletzungen eingeführt.

Resultate. Basierend auf der durchgeführten Recherche bevorzugen die meisten Patient*innen ein videobasiertes HÜP. Dies führt zu einem verbesserten Verständnis der Übungen und einer korrekteren Durchführung. Eine ansprechendere Gestaltung der Übungen ist für eine zunehmend technologisierte Gesellschaft von Vorteil, um eine höhere Übungsadhärenz zu erreichen. Die vorliegenden Studienergebnisse geben einen vielversprechenden Ausblick. Es besteht jedoch weiterer Forschungsbedarf.

Bei der Auswahl einer App ist es wichtig, den genauen Bedarf der Institution zu kennen und sich über die benötigten Funktionen zu informieren. Die Anpassung der Videos in den HÜP-Apps an die individuellen Nachbehandlungsprotokolle ist eine weitere Voraussetzung für eine erfolgsversprechende Nutzung in den Spitälern.

Implikationen für die Praxis. Die Ergebnisse unterstützen die weitere Implementierung von videobasierten HÜP-Apps für individuelle Nachbehandlungsschemata in der Handtherapie, um die Therapietreue und die Ausführungsqualität der Übungen zu verbessern.

Literaturverzeichnis. (weitere Literaturangaben in der Präsentation aufgeführt)

Sheerin, M., Morrissey, A., Galvin, R., Ryan, D., Carey, L. & Robinson, K. (2023). Effectiveness of occupational therapy-led computer-aided interventions on function among adults with conditions of the hand, wrist, and forearm: A systematic literature review and meta-analysis. *Hand Therapy (Online)*, *28*(4), 133–143. https://doi.org/10.1177/17589983231209678

FM62
Mise en place d'un programme d'exercices à domicile basé sur vidéo via une application en thérapie de la main

Michael Dieing[1], Eva Hege[2] ([1]Hôpital cantonal St-Gall, Arbon; [2]Hôpital cantonal, Arbon)

Contexte. Les programmes d'exercices à domicile sont un élément important de la rééducation du membre supérieur. Seuls 35% des patients effectuent leur programme d'exercices à domicile de manière systématique. Face à cette situation et à la pression croissante sur les coûts exercée par les assureurs, il est important de concevoir un programme d'exercices à domicile plus attractif, adapté à notre société moderne et technologique, afin d'encourager l'adhérence des patients.

Objectif. Comparaison d'un programme d'exercices à domicile basé sur video via une application et d'un programme d'exercices à domicile conventionnel basé sur papier concernant l'adhérence de mise en pratique et la qualité d'exécution des exercices. En outre, détermination des besoins en matière d'exigences pour l'introduction d'un programme d'exercices à domicile basé sur vidéo dans la pratique.

Méthodologie. Une revue systématique de la littérature a été menée. De plus, des programmes d'exercices à domicile via des applications (Physiotec, Physitrack), par exemple pour le traitement d'une lésion des tendons fléchisseurs, ont été introduits dans nos services de thérapie de la main.

Résultats. En se référant à la recherche menée, la plupart des patients préfèrent un programme d'exercices à domicile basé sur vidéo. Cela permet

une meilleure compréhension des exercices et une exécution plus correcte. Une présentation plus attrayante des exercices est un avantage pour une société de plus en plus technologique, afin d'obtenir une meilleure adhérence aux exercices. Les résultats de la présente étude offrent des perspectives prometteuses. Des recherches supplémentaires sont toutefois nécessaires.

Lors du choix d'une application, il est important de connaître les besoins exacts de l'institution et de s'informer sur les fonctions nécessaires. L'adaptation des vidéos d'un programme d'exercices à domicile via une application aux protocoles de traitement individualisés est une condition supplémentaire pour une utilisation prometteuse dans les hôpitaux.

Implication pour la pratique. Les résultats soutiennent la poursuite de l'implémentation de programmes d'exercices à domicile basés sur video via une application pour des schémas de traitement individualisés en thérapie de la main, afin d'améliorer l'observance du traitement et la qualité d'exécution des exercices.

Bibliographie (d'autres références bibliographiques seront mentionnées dans la présentation) :

Sheerin, M., Morrissey, A., Galvin, R., Ryan, D., Carey, L. & Robinson, K. (2023). Effectiveness of occupational therapy-led computer-aided interventions on function among adults with conditions of the hand, wrist, and forearm: A systematic literature review and meta-analysis. *Hand Therapy (Online)*, *28*(4), 133–143. https://doi.org/10.1177/17589983231209678

FM63
Brille der Zukunft - Virtual Reality in der Handrehabilitation

Nina Keller[1], Sharon Viliotti[2] ([1]Kantonsspital Winterthur, Zürich; [2]Hirslanden Klinik Birshof, Münchenstein)

Hintergrund. Der stetige Wandel der Medizin und der modernen Technik führen zu innovativen Entwicklungen. Virtual Reality (VR) hat die Chance, die medizinische Versorgung zu revolutionieren. Durch das Eintauchen in die virtuelle Welt können die Patientenversorgung verbessert, medizinische Ausbildungen gefördert und Therapien optimiert werden. CUREO® ist ein VR-Therapiesystem der Firma CUREosity, welches für die kognitive und sensomotorische Rehabilitation entwickelt wurde. Dadurch bietet es Potenzial für den Einsatz in der Handrehabilitation, welcher genauer untersucht werden soll.

Das **Ziel** des Projektes ist es, Stärken und Schwächen von CUREO® zu evaluieren und darauf aufbauend Entwicklungsvorschläge zu erarbeiten, damit VR in der Handtherapie etabliert werden kann.

Methodik. In einer zweimonatigen Testphase wurde CUREO® an 20 ausgewählten Patientinnen und Patienten getestet. Mittels eines strukturierten Evaluationsbogens wurden Beobachtungen festgehalten und Stärken und Schwächen des Therapieprogramms evaluiert. Daraus wurden Entwicklungsvorschläge mit Einbezug der aktuellen Evidenz erarbeitet, um CUREO® spezifisch für die Handrehabilitation zu erweitern. Diese wurden in einem anschliessenden Austausch mit dem Entwicklerteam von CUREosity diskutiert.

Resultate. CUREO® bietet vielfältige Möglichkeiten für die Handrehabilitation. Durch die realitätsgetreue Übertragung der Handbewegungen in die virtuelle Welt können in abwechslungsreichen Spielen Alltagshandlungen simuliert und Handfunktionen spielerisch trainiert werden. Bei Patientinnen und Patienten mit Schonhaltung und Bewegungsangst konnte ein gesteigerter Handeinsatz beobachtet werden. Die Spiele schöpfen jedoch oft nicht das volle Rehabilitationspotential aus. Für die breitere Anwendung von VR in der Handtherapie ist eine Weiterentwicklung der bestehenden Software erforderlich, damit spezifische Funktionsdefizite trainiert werden können. Ein Entwicklungsvorschlag wäre, ein Spiel anhand des aktuellen Bewegungsumfangs zu kalibrieren, um den Schwierigkeitsgrad entsprechend anzupassen und dadurch das Bewegungsausmass fördern zu können.

Zusammengefasst bietet CUREO® vielversprechende Ansätze für die Handrehabilitation, die jedoch noch weiterentwickelt werden können. Ein enger Austausch mit Handtherapeutinnen und -therapeuten könnte dabei hilfreich sein. Darüber hinaus ist es wichtig, die Wirksamkeit von VR in der Handrehabilitation weiter zu erforschen, um eine erfolgreiche Etablierung zu ermöglichen.

FM63
Lunettes du futur – réalité virtuelle en rééducation de la main

Nina Keller[1], Sharon Viliotti[2] ([1]Hôpital cantonal, Winterthour, Zurich; [2]Clinique Hirslanden Birshof, Münchenstein)

Contexte. L'évolution constante de la médecine et de la technologie moderne conduit à des développements innovants**. La réalité virtuelle (RV) a la possibilité de révolutionner les soins médicaux.** L'immersion dans le monde virtuel permet d'améliorer les soins aux patients, de promouvoir la formation médicale et d'optimiser les

thérapies**.** CUREO® est un système thérapeutique de RV de la société CUREosity, développé pour la rééducation cognitive et sensori-motrice. Il offre ainsi un potentiel d'utilisation dans la rééducation de la main, qui doit être examiné plus en détail.

L'**objectif** du projet est d'évaluer les forces et les faiblesses de CUREO® et, sur cette base, d'élaborer des propositions de développement afin que la RV puisse s'établir en thérapie de la main.

Méthodologie. CUREO® a été testé sur 20 patients sélectionnés au cours d'une phase d'essai de deux mois. Un questionnaire d'évaluation structuré a permis de consigner les observations et d'évaluer les forces et les faiblesses du programme thérapeutique. Sur cette base, des propositions de développement ont été élaborées en tenant compte des preuves actuelles afin d'étendre CUREO® spécifiquement à la rééducation de la main. Ces dernières ont été discutées lors d'un échange ultérieur avec l'équipe de développement de CUREosity**.**

Résultats. CUREO® offre de nombreuses possibilités pour la rééducation de la main. Grâce à la transmission fidèle à la réalité des mouvements de la main dans le monde virtuel, il est possible de simuler des actions quotidiennes dans des jeux variés et d'entraîner les fonctions de la main de manière ludique. Une utilisation augmentée de la main a pu être observée chez les patients ayant une posture de protection et une peur du mouvement. Cependant, les jeux n'exploitent souvent pas tout le potentiel de rééducation. Pour une utilisation élargie de la RV en thérapie de la main, un développement du logiciel existant est nécessaire afin que les déficits fonctionnels spécifiques puissent être entraînés. Une proposition de développement consisterait à calibrer un jeu en fonction de la mobilité actuelle possible, afin d'adapter le niveau de difficulté en conséquence et de pouvoir ainsi encourager l'amplitude des mouvements.

En résumé, CUREO® offre des approches prometteuses pour la rééducation de la main mais qui doivent encore être développées. Un échange étroit avec des thérapeutes de la main pourrait s'avérer utile à cet égard. Il est également important de poursuivre les recherches sur l'efficacité de la RV en rééducation de la main afin de permettre une implémentation réussie.

FM64
ChatGPT and hand therapy: how AI can help in the treatment of epicoldylitis

Fimke Gerbrandij[1], Martina Ganzerli[1], Anna Donati[1], Luisina Salcito[1], Angelica Maggisano[1], Anna Bertini[1] ([1]Ergocentro Sagl, Locarno)

Background. Epicondylitis is one of the most common overuse syndromes, it affects people in working age and represents an economic and social burden. Symptoms can last for several months, recurrence is frequent (1, 2). The literature doesn't offer well-defined protocols, but conservative treatment is considered the gold standard: adaptation of activities and physical therapy lead to significant improvements in pain, upper limb function and resolution of the problem in 90% of cases (1,3). Chatgpt, an artificial intelligence (ai)-based chatbot, can be used by the occupational therapist to create personalized rehabilitation programs for the patient using information such as age, job and functional limitations related to epicondylitis (4).

Objectives. The aim of this study is to evaluate the reliability of a rehabilitation program for epicondylitis proposed by chatgpt compared to the conservative treatments found in literature.

Methods. A literature review was conducted to reveal the best evidence for the treatment of epicondylitis. The results are compared with the ones produced by chat gpt by inserting the string "give me an occupational therapy conservative treatment protocol for epicondylitis".

Results. The treatment suggested by AI is comparable with evidence found in literature. ChatGPT can be used to give exercises specific for the patient's job. It's always needed the supervision of a therapist capable of critically evaluating the results and the collaboration with the patient to share the further objectives and outcomes. More studies are required.

1. Stegink-Jansen, C. W., Bynum, J. G., Lambropoulos, A. L., Patterson, R. M., & Cowan, A. C. (2021). Lateral epicondylosis: a literature review to link pathology and tendon function to tissue-level treatment and ergonomic interventions. Journal of Hand Therapy, 34(2), 263-297.

2. Karabinov, V., & Georgiev, G. P. (2022). Lateral epicondylitis: New trends and challenges in treatment. World Journal of Orthopedics, 13(4), 354.

3. Kim, Y. J., Wood, S. M., Yoon, A. P., Howard, J. C., Yang, L. Y., & Chung, K. C. (2021). Efficacy of nonoperative treatments for lateral epicondylitis: a systematic review and meta-analysis. Plastic and Reconstructive Surgery, 147(1), 112-125.

4. Mittal, K., & Dhar, M. (2023). Use of ChatGPT by physicians to build rehabilitation plans for the elderly: A mini-review of case studies. Journal of the Indian Academy of Geriatrics, 19(2), 86-93.

Freie Mitteilungen / Communications libres II

FM65
Relative Motion Orthosis bei Morbus Dupuytren - effektiv durch funktionellen Einsatz im Alltag

Manuela Schärer[1], Karin Szekeres[2] ([1]Schweizer Paraplegiker-Zentrum, Nottwil; [2]ZET - Zentrum für Ergotherapie, Bern)

Hintergrund. Nach Fasziektomie, der häufigsten chirurgischen Behandlungsmethode bei Morbus Dupuytren (MD) in der Schweiz, beeinträchtigen oft postoperative Defizite im proximalen Interphalangealgelenk (PIP) die Handfunktion von Patient:innen. Die kostengünstige Relative Motion Orthosis (RMO) wird unter Handtherapeut:innen zunehmend als wirksame alltagsbezogene Übungsschiene zur Verbesserung von PIP-Gelenkbeweglichkeiten betrachtet. Obwohl die Schienenversorgung nach Fasziektomie kontrovers diskutiert wird und neue Studien die Vorteile spannungsfreier Mobilisation für Wundheilung und Handfunktion aufzeigen, bleibt das Potenzial des früh funktionellen Einsatzes der RMO dazu in der Handtherapie unerforscht.

Ziel. Kann das konsequente Tragen einer alltagsbezogenen Übungs-RMO nach Fasziektomie zu einem möglichst frühen Zeitpunkt dazu beitragen PIP-Gelenkdefizite zu vermindern?

Methodik. In der kleinen Fallserie mit Patient:innen nach Fasziektomie bei MD wurde ergänzend zu anderen Interventionen die RMO im Alltag eingesetzt. Zu festgelegten Messzeitpunkten wurden Beweglichkeit, URAM und PSFS, MCP-Differenzialwinkel mittels Pencil-Tests, ein Trageprotokoll sowie eine Tragekomfort-Auswertung erhoben.

Resultate. Mit der RMO erreichten die Patient:innen 10 Wochen postoperativ eine Verbesserung der aktiven PIP-Beweglichkeit und Handfunktion. Aufgrund zusätzlicher Schienen ist die Zuordnung zur RMO nicht eindeutig. Der angenehme Tragekomfort und die einfache Alltagsintegration ermöglichen ein konstantes, nachhaltiges Beüben der PIP‘s.

Implikation für die Praxis. Wir empfehlen, die RMO als ergänzende Intervention bei aktiven PIP-Gelenkdefiziten nach Fasziektomie, frühzeitig zu berücksichtigen. Zum Erreichen statistischer Signifikanz ist eine umfangreichere Fallserie mit Kontrollgruppe und Langzeit-Nachuntersuchungen erforderlich.

Turesson, C. (2018b). The Role of Hand Therapy in Dupuytren Disease. *Hand Clinics*, *34*(3), 395–401. https://doi.org/10.1016/j.hcl.2018.03.008

Yates, S. E., Glinsky, J. V, Hirth, M. J., & Fuller, J. T. (2023). The use of exercise relative motion orthoses to improve proximal interphalangeal joint motion: A survey of Australian hand therapy practice. *Journal of Hand Therapy*, *36*, 414–424. https://doi.org/10.1016/j.jht.2022.12.002

FM65
Orthèse de mouvement relatif lors d’une maladie de Dupuytren – efficace grâce à une utilisation fonctionnelle au quotidien

Manuela Schärer1, Karin Szekeres2 ([1]Schweizer Paraplegiker-Zentrum, Nottwil; [2]ZET - Zentrum für Ergotherapie, Berne)

Contexte. Après une fasciectomie, la méthode chirurgicale la plus fréquente lors de la maladie de Dupuytren en Suisse, un déficit post-opératoire de l’articulation interphalangienne proximale (IPP) altère souvent la fonction de la main des patients. L'orthèse de mouvement relatif (OMR), peu coûteuse, est de plus en plus considérée par les thérapeutes de la main comme une attelle d'exercices quotidienne efficace pour améliorer la mobilité de l'articulation IPP. Bien que l’utilisation d’attelles après une fasciectomie fasse l'objet de controverses et que de nouvelles études montrent les avantages d’une mobilisation sans tension pour la cicatrisation et la fonction de la main, le potentiel d’utilisation fonctionnelle précoce de l’OMR à cet effet reste inexploré en thérapie de la main.

Objectif. Est-ce que le port systématique, le plus tôt possible, d’une OMR pour des exercices quotidiens après une fasciectomie peut contribuer à réduire le déficit articulaire d’IPP ?

Méthode. Dans la petite série de cas de patients ayant subi une fasciectomie lors d’une maladie de Dupuytren, une OMR a été utilisée quotidiennement en complément d’autres interventions. La mobilité, l’URAM et le PSFS, l’angle différentiel de la MCP au moyen du Pencil Test, un protocole de port ainsi qu’une évaluation du confort de port ont été relevés à des moments de mesure définis.

Résultats. Avec l’OMR, les patients ont obtenu une amélioration de la mobilité active de l’IPP et de la fonction de la main dix semaines après l’opération. En raison de l’utilisation d’attelles supplémentaires, l'attribution des résultats à l’OMR n'est pas claire. Le confort de port agréable et l’intégration facile dans la vie quotidienne permettent un entraînement constant et durable de l’IPP.

Implication pour la pratique. Nous recommandons d'envisager rapidement l'OMR comme intervention complémentaire en cas de déficit articulaire IPP actif après une fasciectomie. Pour obtenir une signification statistique, une série de cas plus importante avec un groupe contrôle et un suivi à long terme sont requis.

Turesson, C. (2018b). The Role of Hand Therapy in Dupuytren Disease. Hand Clinics, 34(3), 395–401. https://doi.org/10.1016/j.hcl.2018.03.008

Yates, S. E., Glinsky, J. V, Hirth, M. J., & Fuller, J. T. (2023). The use of exercise relative motion orthoses to improve proximal interphalangeal joint motion: A survey of Australian hand therapy practice. Journal of Hand Therapy, 36, 414–424. https://doi.org/10.1016/j.jht.2022.12.002

FM66
Welches ist das richtige Schienen-Design für Metacarpale-Frakturen?

Astrid Schmid[1], Bernadette Tobler[2] ([1]Ergotherapie Hand, Thun; [2]Ergotherapie Hand und Inselspital, Thun und Bern)

Hintergrund. Frakturen (Fx) der Metacarpalia (MCP) machen ca. 40% aller Knochenbrüche an der Hand aus (Häufigkeitsrate 13.6 pro 100‘000 Knochenbrüchen) (Keller 2024). Dabei kann der Knochen an der Basis, im Schaft, im Hals oder im Kopf brechen. Die Art der Fraktur (z.B. mehrfragmentär, Torsionsabweichung, Palmarverkippung, intraartikulär) hat einen grossen Einfluss auf die Wahl der Versorgung, wobei die Schienenanpassung eine zentrale Rolle in der Handtherapie spielt.

Ziel. Das Ziel dieser Präsentation ist es, den Behandlungspfad für MCP-Fx mit Fokus auf die Wahl der Schiene für MCP-Fx vorzustellen. Die verschiedenen Schienentypen werden diskutiert und vorgestellt.

Methode. Im März 2022 suchten wir nach aktueller Literatur zur therapeutischen Nachbehandlung von MCP-Fx. Diese wurde in einem aktualisierten Nachbehandlungsschema zusammengefasst und anschliessend mit den lokalen Zuweisern der Praxis besprochen, bis ein Konsens da war.

Ergebnisse. Das überarbeitete Nachbehandlungsschema dient als Nachschlagewerk, unter welchen Bedingungen welche Schiene angepasst werden soll. Für basisnahe MCP-Fx wird zum Beispiel eine vorderarmbasierte Handgelenkstütze aus thermoplastischem Material empfohlen, während die Schienenart bei den Schaft-Fx je nach Stabilität des Knochens variiert. Für Hals- und Kopf-Fx eignet sich eine handbasierte dorsale thermoplastische Schiene, welche das betroffene und benachbarte MCP-Gelenk sowie die Grundphalanx (P1) in 70° Flexion fixiert. Ein dazugehöriges Patienteninstruktionsblatt begleitet die Patienten während ihrer Genesung, so dass eine möglichst effiziente Nachbehandlung stattfinden kann.

Implikation für die Praxis. Ein klarer und aktueller Behandlungspfad für MCP-Fx hilft, evidenzbasierte Handtherapie anzubieten, die Kommunikation zwischen Arzt und Therapeut zu vereinfachen und somit den Patienten zielgerichteter nachzubehandeln. Nichtsdestotrotz sollte die Auswahl der Schiene auf einer klinischen Beurteilung beruhen und auf die spezifischen Bedürfnisse jedes Patienten abgestimmt werden.

Keller MM, Barnes R, Brandt C, Hepworth LM: Hand rehabilitation programmes for second to fifth metacarpal fractures: A systematic literature review. S Afr J Physiother 2021, 77(1):1536.

Midgley R, Toemen A: Evaluation of an evidence-based patient pathway for non-surgical and surgically managed metacarpal fractures. Hand therapy 2011, 16(1):19-25

FM66
Quel est le design d’attelle correct pour les fractures du métacarpe ?

Astrid Schmid[1], Bernadette Tobler[2] ([1]Ergotherapie Hand, Thoune; [2]Ergotherapie Hand et Hôpital de l’Ile, Thoune et Berne)

Contexte. Les fractures des métacarpiens représentent environ 40% de toutes les lésions osseuses de la main (taux d’incidence de 13.6 pour 100'000 fractures) (Keller 2024). Parmi celles-ci, l’os peut se briser à la base, dans la diaphyse, au niveau du col ou de la tête. Le type de fracture (par exemple plurifragmentaire, spiroïde, avec bascule palmaire, intra-articulaire) a une grande influence sur le choix du traitement, l’adaptation de l’attelle jouant un rôle central en thérapie de la main.

Objectif. L’objectif de cette présentation est de montrer le parcours de soins pour les fractures du métacarpe en se concentrant sur le choix de l’attelle. Les différents types d’attelles seront discutés et exposés.

Méthode. En mars 2022, nous avons fait une recherche de littérature actuelle sur le suivi thérapeutique des fractures du métacarpe. Celle-ci a été résumée dans un schéma de traitement actualisé, puis discutée avec les référents du cabinet jusqu’à ce qu’un consensus soit obtenu.

Résultats. Le schéma de traitement révisé sert d’outil de référence afin de savoir quel type d’attelle doit être réalisé selon des conditions définies. Par exemple, pour une fracture de la base

du métacarpe, un soutien du poignet partant de l'avant-bras en matériau thermoplastique sera recommandé, tandis que pour une fracture diaphysaire, la type d'attelle varie en fonction de la stabilité de l'os. Pour une fracture du col et de la tête, une attelle thermoplastique sur la face dorsale de la main, qui immobilise le métacarpe concerné et adjacent(s), ainsi que la phalange proximale à 70° de flexion, est appropriée.

Une fiche d'instruction pour les patients accompagne ces derniers durant leur convalescence afin d'obtenir un traitement aussi efficace que possible.

Implication pour la pratique. Un parcours de soins clair et actualisé pour les fractures du métacarpe permet de proposer une thérapie de la main basée sur des preuves, de simplifier la communication entre médecin et thérapeute et donc de mieux cibler le suivi du patient. Néanmoins, le choix de l'attelle doit être basé sur une évaluation clinique et adapté aux besoins spécifiques de chaque patient.

Keller MM, Barnes R, Brandt C, Hepworth LM: Hand rehabilitation programmes for second to fifth metacarpal fractures: A systematic literature review. S Afr J Physiother 2021, 77(1):1536.

Midgley R, Toemen A: Evaluation of an evidence-based patient pathway for non-surgical and surgically managed metacarpal fractures. Hand therapy 2011, 16(1):19-25

FM67
Splint Selection in Carpal Tunnel Syndrome: Evaluating Lumbrical Involvement in Ticino, Switzerland

Susann Pagella[1], Mario Gaetano Fioretti[1], Francesca Ferrario[1], Sara Ruscitti[2], Elena Guglielmetti Asmus[3], Regula Neunhoeffer Gomaa[4], Regula Neunhoeffer Gomaa[4], Regula Neunhoeffer Gomaa[4] ([1]Ergomano Rehab, Lugano; [2]Ergoterapia Obiettivo, Mendrisio; [3]Centro di Ergoterapia Malcantonese, Agno; [4]Prinzler Ergoterapia, Pregassona)

Background. Carpal Tunnel Syndrome (CTS) is highly prevalent in Southern Switzerland's Ticino Region. Physicians commonly recommend conservative treatments before surgery, including nerve gliding exercises, ergonomic adjustments, and nighttime splinting. Diagnostic tests include Phalen's Test, Reverse Phalen's Test, and Durkan's pressure-provoking test. Incorporating the Berger Test may reveal lumbricals' role in CTS symptoms. Neglecting this assessment occasionally leads to inappropriate application of palmar braces. We aim to investigate this oversight's prevalence and gather regional data to enhance CTS understanding.

Methods. We invited hand rehabilitation studies in Southern Switzerland to participate in our research on lumbrical involvement in CTS. Several studies contributed, adopting a specialized patient recruitment protocol. Non-surgically treated CTS patients underwent diagnostic tests, including the Berger Test. Test-positive patients received a targeted splint to prevent lumbrical accommodation within the carpal canal. We ensured standardized testing and data collection protocols across studies. A specialized patient recruitment assessment protocol was meticulously devised, focusing exclusively on distal median nerve entrapment. This protocol entailed the administration of diagnostic tests including the Phalen's Test, Reverse Phalen's Test, Durkan's pressure-provoking test, and the Berger test for all non-surgically treated patients diagnosed with CTS. Notably, patients who exhibited a positive response on the Berger Test underwent a targeted treatment approach. This involved the application of a splint designed to maintain the wrist in a slight extension at 20°, the metacarpophalangeal joints in flexion between 30° and 40°, and the interphalangeal joints at 0°. The purpose of this splint was to prevent lumbrical accommodation within the carpal canal. Uniform instructions were disseminated to all participating studies, ensuring a standardized and objective methodology for evaluating the Berger Test.

Discussion. Our evaluation is ongoing but is revealing a clear distribution of positive cases across the region.

Conclusion. If consistent, our survey will emphasize precise differential analysis of conservative CTS treatments, prompting tailored splint provision by hand therapists.

FM68
Fit für die Dokumentation von handtherapeutischen Behandlungen dank den FITT Prinzipien

Tamara Hauri[1], Bernadette Tobler-Ammann[2], Esther Vögelin[2] ([1]Inselspital Bern, Bern; [2]Inselspital, Bern)

Hintergrund. Die Behandlung von Handverletzungen sind vielschichtig und umfassen verschiedenen Elemente: Patient:in, chirurgischer Eingriff und die postoperative Nachbehandlung. Sowohl in der frühen Phase als auch beim Aufbau der Belastung zielen diese Behandlungen darauf ab, das verletzte Gewebe gezielt zu beeinflussen für eine bessere Genesung. Dazu werden den Patienten spezifische Übungen instruiert, deren Intensität, Häufigkeit und Wiederholungszahl von Therapeut:innen festgelegt werden.

Ziel. Ziel des Vortrags ist es, mit den FITT Prinzipien ein Instrument vorzustellen, mit

welchem sich die Nachbehandlung im klinischen Alltag und in der Forschung so dokumentieren lässt, dass die Reproduzierbarkeit gewährleistet wird.

Methodik. Die FITT Prinzipien werden erklärt und für die Handtherapie angepasst präsentiert. Anhand von Beispielen wird gezeigt, wie sie in der Praxis genutzt werden können.

Resultate. Die FITT Prinzipien werden im Trainingsbereich häufig angewendet. Für die Handtherapie könnte ihre Anwendung wie folgt aussehen: 1. «**F**requency» – wie oft werden die Übungen durchgeführt (täglich, mehrmals pro Tag). 2. «**I**ntensity» – Anzahl der Wiederholungen pro Einheit (10 Wiederholungen pro Session pro Übung). 3. «**T**ime» – Startzeitpunkt der Übungen (3-5 Tage nach Operation (OP) oder am ersten post-OP Tag). 4. «**T**ype» – Art der durchgeführten Übungen (passive Übungen, aktive Übungen bis halbe Faust, volle Faust). Durch die Dokumentation des Übungsprogramms mit den FITT Prinzipien kann es von Kolleg:innen problemlos bei eigenen Patient:innen instruiert werden, von Studien in die Praxis übertragen oder in Studien reproduziert werden.

Implikationen für die Praxis. Die Anwendung der FITT Prinzipien bietet einerseits eine klare Struktur für die klinische Praxis, welche die Übertragung von Übungsprogrammen zwischen Patient:innen und Therapeut:innen ermöglicht. Andererseits erleichtert diese die Übertragung von Studieninterventionen in die Praxis.

FM68
Prêt pour la documentation des traitements en rééducation de la main grâce aux principes FITT

Tamara Hauri[1], Bernadette Tobler-Ammann[2], Esther Vögelin[2] (1Hôpital de l'Ile Berne, Berne ; [2]Hôpital de l'Ile Berne, Berne)

Contexte. Le traitement des blessures de la main est complexe et comprend différents éléments : le patient, l'intervention chirurgicale et le traitement post-opératoire. Aussi bien dans la phase précoce que lors de la mise en place du renforcement, ces traitements visent à influencer de manière ciblée les tissus endommagés pour un meilleur rétablissement. Pour ce faire, des exercices spécifiques sont enseignés aux patients, dont l'intensité, la fréquence et le nombre de répétitions sont déterminés par les thérapeutes.

Objectif. L'objectif de cette présentation est de montrer, grâce aux principes FITT, un instrument permettant de documenter le suivi thérapeutique dans la pratique clinique quotidienne et dans la recherche, de manière à garantir la reproductibilité.

Méthodologie. Les principes FITT sont expliqués et présentés de manière adaptée à la thérapie de la main. Des exemples seront donnés pour montrer comment les utiliser dans la pratique.

Résultats. Les principes FITT sont fréquemment utilisés dans le domaine de l'entraînement. Pour la thérapie de la main, leur application pourrait se présenter comme suit : 1. « Frequency » – à quelle fréquence les exercices sont effectués (quotidiennement, plusieurs fois par jour). 2. « Intensity » – nombre de répétitions par session (10 répétitions par exercice). 3. « Time » – date de début des exercices (3-5 jours après l'opération ou le premier jour post-opératoire). 4. « Type » – type d'exercices réalisés (exercices passifs, exercices actifs jusqu'à la moitié du poing, poing complet). La documentation du programme d'exercices avec les principes FITT permet aux collègues de l'enseigner sans problème à leurs propres patients, de le transférer de la recherche à la pratique ou de le reproduire dans des études.

Implications pour la pratique. L'application des principes FITT offre d'une part une structure claire pour la pratique clinique, permettant la transmission des programmes d'exercices entre patient et thérapeute. D'autre part, cela facilite le transfert des interventions de la recherche à la pratique.

FM69
Spickfinger - macht Handtherapie Sinn?

Heidi Senn[1], Regula Harder[2] ([1]Handtherapie Bern, Bern; [2]Theranovum, Wil)

Hintergrund: Die ergotherapeutische Behandlung von Tendovaginitis stenosans (Spickfinger) zeigt in der Praxis oft unbefriedigende Ergebnisse, da die Symptome bei einem Teil unserer Patient:innen erneut auftreten. Wir beobachten, dass auch eine Kortisongabe nicht immer dauerhaft wirkt. Daraus ergibt sich für uns die Fragestellung nach den effektivsten und nachhaltigsten handtherapeutischen Behandlungsmethoden für diese Erkrankung.

Ziel: Analyse der aktuellen Evidenzlage und Ableiten handtherapeutischer Massnahmen.

Methodik: Literaturrecherche in medizinischen Datenbanken und Fachbüchern.

Resultate: Die vorhandenen Studien konzentrieren sich hauptsächlich auf Schienenbehandlungen und bekräftigen deren Wirksamkeit in Bezug auf verschiedene Schienenarten und Tragedauer. Andere Behandlungsformen wie physikalische Therapien, manuelle Mobilisation und Bewegungstherapie werden weniger häufig erwähnt. Unter Berücksichtigung der Pathoanatomie und klinischer Erfahrungen kann festgestellt werden, dass handtherapeutische

Ansätze den Spickfinger positiv beeinflussen können.

Praxisempfehlungen: Handtherapeutische Behandlungsmassnahmen sind gemäss Literatur in den unteren Einteilungsstadien der Erkrankung wirksam. Handtherapeutisch relevant sind die Schienenversorgung, ergonomische Beratung, physikalische Massnahmen, manuelle Gewebemobilisation und Sehnengleitübungen. Die Behandlungen sind an die individuellen Bedürfnisse der Patient:innen anzupassen.

Abschliessend würden wir uns weiterführende Forschungen zu einzelnen handtherapeutischen Behandlungsansätzen zum Thema Spickfinger wünschen.

FM69
Doigts à ressaut – la thérapie de la main a-t-elle un sens ?

Heidi Senn[1], Regula Harder[2] ([1]Handtherapie Bern, Berne ; [2]Theranovum, Wil)

Contexte. Le traitement ergothérapeutique des doigts à ressaut donne souvent des résultats insatisfaisants dans la pratique car les symptômes réapparaissent chez une partie de nos patients. Nous avons même observé qu'une injection de cortisone n'a pas toujours un effet durable. La question s'est alors posée de savoir quelles étaient les méthodes thérapeutiques les plus efficaces et les plus durables en rééducation de la main pour traiter cette maladie.

Objectif. Analyser les données probantes actuelles et en déduire des mesures en thérapie de la main.

Méthodologie. Revue de littérature dans des bases de données médicales et des ouvrages spécialisés.

Résultats. Les études existantes se concentrent principalement sur le traitement par attelle et confirment leur efficacité en ce qui concerne les différents types d'attelles et leur durée de port. D'autres formes de traitement telles que les thérapies physiques, la mobilisation manuelle et la thérapie par le mouvement sont moins souvent mentionnées. En tenant compte de l'anatomo-pathologie et de l'expérience clinique, il est possible de conclure que les approches en rééducation de la main peuvent influencer positivement l'évolution des doigts à ressaut.

Recommandations pratiques. Les mesures en rééducation de la main sont efficaces, selon la littérature, lors des stades inférieurs de classification de la maladie. Les mesures thérapeutiques pertinentes sont la mise en place d'attelles, les conseils ergonomiques, les mesures physiques, la mobilisation tissulaire manuelle et les exercices de glissement tendineux. Le traitement doit être adapté aux besoins individuels du patient.

Pour conclure, nous souhaiterions que des recherches plus approfondies soient menées sur les différentes approches pour le traitement des doigts à ressaut en rééducation de la main.

FM70
Der springende Punkt beim Springfinger ist der richtige Zeitpunkt!

Chiara Naselli[1], Maria Hodler[2] ([1]Ergotherapie Chiara Naselli GmbH, Naters; [2]Ergotherapie SRK Kanton Bern, Thun)

Hintergrund. Im ambulanten Setting werden erfahrungsgemäss Klient:innen entweder gar nicht oder zu spät zur konservativen Behandlung von Triggerfingern angemeldet. In der Literatur wird jedoch eine frühzeitige Anwendung einer massgefertigten Blockingschiene empfohlen. Mehrere Studien zeigen bei konsequenter Anwendung der Schiene, während eines durchschnittlichen Zeitraums von sechs Wochen, Linderung des Schmerzes und Reduktion des Triggerns auf.

Ziel. Ziel dieses Projektes ist es, eine evidenzbasierte Informationsbroschüre zur Edukation von Klient:innen über die Effektivität einer frühzeitigen Schienenbehandlung des Triggerfingers zu erstellen.

Methode. Zur Untermauerung des Projektes wurde eine Literaturrecherche in den Datenbanken Pubmed und Medline durchgeführt.
Ein systematisches Review, eine randomisierte kontrollierte Studie, sowie eine Delphi-Studie liefern die evidenzbasierte Grundlage für die Broschüre.

Resultate. Die Broschüre erklärt das Krankheitsbild in einer für Klient:innen verständlichen Sprache. Dazu gehört die Veranschaulichung der Stadien des Triggerfingers mittels einer Tabelle. Des Weiteren wird die Schienenbehandlung erklärt und bildlich dargestellt. Zusätzlich wird für Klient:innen die Definition der Handtherapie aufgeführt. Die Klient:innen können der Broschüre das Vorgehen für die Anmeldung zur Behandlung des Triggerfingers entnehmen.

Anwendung für die Praxis. Die Broschüre ist auf den Institutions-Webseiten der Autorinnen frei zugänglich, kann heruntergeladen und ausgedruckt werden. Weiterführend wird die Broschüre an Hausärzt:innen der Einzugsregionen der Autorinnen zugestellt.

Huisstede, B. M. A., Hoogvliet, P., Coert, J. H., Fridén, J., & for the European HANDGUIDE Group. (2014). Multidisciplinary Consensus Guideline for Managing Trigger Finger: Results

From the European HANDGUIDE Study. Physical Therapy, 94(10), 1421–1433.

Leong, L., Chai, S. C., Howell, J. W., & Hirth, M. J. (2023). Orthotic intervention options to non-surgically manage adult and pediatric trigger finger: A systematic review. Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 36(2), 302–315.

Yendi, B., Atilgan, E., Namaldi, S., & Kuru, C. A. (2024). Treatment of trigger finger with metacarpophalangeal joint blocking orthosis vs relative motion extension orthosis: A randomized clinical trial. Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, S0894-1130(23)00169-2.

FM70
Le point crucial d'un doigt à ressaut, au bon moment !

Chiara Naselli[1], Maria Hodler[2] ([1]Ergotherapie Chiara Naselli GmbH, Naters; [2]Ergotherapie Croix-Rouge bernoise, Thoune)

Contexte. 'expérience montre que dans le cadre ambulatoire, les clients ne sont pas du tout adressés, ou alors trop tard, pour le traitement conservateur des doigts à ressaut. La littérature recommande toutefois l'utilisation précoce d'une attelle avec bloc de flexion sur mesure. Plusieurs études montrent que l'utilisation systématique d'une attelle pendant une période moyenne de six semaines permet de soulager la douleur et de réduire le ressaut.

Objectif. L'objectif de ce projet est d'élaborer une brochure d'information basée sur des preuves pour l'éducation des clients concernant l'efficacité d'un traitement précoce par attelle du doigt à ressaut.

Méthode. Pour étayer le projet, une recherche bibliographique a été effectuée dans les bases de données Pubmed et Medline. Une revue systématique, un essai randomisé contrôlé ainsi qu'une étude Delphi fournissent la base factuelle de la brochure.

Résultats. La brochure explique le tableau clinique dans une langage compréhensible pour les clients. Cela inclut notamment l'illustration des stades du doigt à ressaut dans un tableau. Le traitement par attelle est ensuite expliqué et illustré. En outre, la définition de la thérapie de la main est décrite pour les clients. Ces derniers peuvent trouver dans la brochure la procédure à suivre pour le traitement d'un doigt à ressaut.

Application pratique. La brochure est librement accessible sur les sites internet institutionnels des auteures, peut être téléchargée et imprimée. La brochure sera ensuite distribuée aux médecins généralistes des régions où se trouvent les auteures.

Huisstede, B. M. A., Hoogvliet, P., Coert, J. H., Fridén, J., & for the European HANDGUIDE Group. (2014). Multidisciplinary Consensus Guideline for Managing Trigger Finger: Results From the European HANDGUIDE Study. Physical Therapy, 94(10), 1421–1433.

Leong, L., Chai, S. C., Howell, J. W., & Hirth, M. J. (2023). Orthotic intervention options to non-surgically manage adult and pediatric trigger finger: A systematic review. Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, 36(2), 302–315.

Yendi, B., Atilgan, E., Namaldi, S., & Kuru, C. A. (2024). Treatment of trigger finger with metacarpophalangeal joint blocking orthosis vs relative motion extension orthosis: A randomized clinical trial. Journal of Hand Therapy: Official Journal of the American Society of Hand Therapists, S0894-1130(23)00169-2.

FM71
Mallet Finger Treatment and Results in 4 Different Treatment Scenarios

Anahi Jeanrenaud[1], Alessandra Viola[2], Gaia Lionello[2], Massimo Sammons[3], Ivan Tami[3] ([1]Ergoterapia Manoegomito, Locarno; [2]Ergoterapia Manoegomito, Gravesano; [3]Centro Manoegomito, Gravesano)

Context. Mallet finger deformities are caused by tendinous lesions caused by subcutaneous extensor tendon ruptures or bony lesions at the base of the distal phalanx with tendon avulsions. From our experience, conservative treatment stands as the gold standard. The aim of mallet finger treatment is to prevent long-term extension lag, flexion contracture of the distal joint, leading to swan neck deformity and joint osteoarthritis. We firmly believe that effective communication among surgeons, therapists, and patients is pivotal in achieving optimal functional outcomes. Together, surgeons and therapists must accurately assess various lesion types and define an appropriate rehabilitation protocol. The therapist is tasked with crafting the finger splint and administering the correct treatment while educating the patient.

Objectives. Our objective is to illustrate different treatment scenarios that may have influenced outcomes following conservative treatment of mallet finger.

Methodology. Four patients were diagnosed with acute tendinous mallet finger deformity. These patients were evaluated at two intervals: 8 and 12 weeks post-treatment initiation, with the splint removed after 8 weeks.

Results. In one case, a non-compliant patient exhibited a 20° extension lag. In the second case,

due to a shortened splinting duration (only 4 weeks), a 25° extension lag occurred. In the third case, a 20° extension lag resulted from an ineffective splint crafted by the hand therapist. Conversely, in the fourth case, successful outcomes were achieved, attributed to clear communication and compliance among surgeon, therapist, and patient.

Conclusions. We present 4 scenarios delineating various treatment approaches for a common tendon lesion. Based on our experience, effective information exchange among surgeon, patient, and therapist is pivotal for optimal functional outcomes. This necessitates clear explanations from both the surgeon and therapist to the patient regarding the importance of adhering to the rehabilitation protocol, including guidance on the healing period. At times, the hand therapist must employ a customized rehabilitation approach to ensure the best possible outcome.

FM72
Medical Flossing - Wirkungsnachweis anhand von Wärmebildaufnahmen

Bettina Bachmann[1] ([1]Hand- und Ergotherapie St.Gallen AG, Herisau)

Hintergrund. Das Medical Flossing ist eine neuartige Therapietechnik, die in den letzten Jahren in den medizinischen Therapien Einzug gehalten hat. Im Bereich der degenerativen Erkrankungen zeigten sich kürzlich sehr vielversprechende Ergebnisse bei der konservativen Behandlung von Rhizarthrose (Plüss et al., 2024). Über die Wirkungsweise des Medical Flossings ist bekannt, dass es auf vier biomechanischen Prinzipien beruht: Myofasziale Kompression, Refill, Releasing und Movement Development (Kruse, 2018; Pischinger, 2021). Bislang ist es nicht gelungen, den Effekt des Medical Flossing nach ausschliesslich objektiven Kriterien zu beurteilen. Eine Möglichkeit ist die Visualisierung der Mikrozirkulation anhand der Temperatur im Gewebe direkt nach der Anwendung des Flossbandes.

Fragestellung. 1. Ist die Dokumentation mit Wärmebildaufnahmen ein geeignetes Mittel, um die Wirkungsweise des Medical Flossing bei Patienten mit Rhizarthrose objektiv zu dokumentieren? 2. Können des Weiteren funktionelle Fortschritte im Alltag der Patienten während der Behandlungszeit festgestellt werden? Inwieweit kann eine Schmerzreduktion erzielt werden?

Methode. In einer Case Serie mit 5 Patienten wird die Technik des Medical Flossings im Rahmen der konservativen Behandlung bei Rhizarthrose standardisiert angewendet und die Veränderungen der Mikrozirkulation im Bereich des CMC-Gelenkes mit einer Wärmebildkamera festgehalten. Für weitere Vergleiche wurde die Patientenspezifische Funktionsskala (PSFS) und die Numeric Rating Scale (NRS) verwendet.

Ergebnisse: Die Wirkung des Medical Flossings konnte anhand von Wärmbildaufnahmen visualisiert werden. Es kam bei jeder Anwendung zu einer Temperatursteigerung im Gewebe, wobei der grösste Anstieg jeweils nach dem ersten Durchgang erfolgte. Diese Ergebnisse lassen auf eine Mehrdurchblutung und somit auf einen erhöhten Zell- und Zwischenzellstoffwechsel schliessen. Bei vier Patienten wurde in der PSFS-Skala eine positive Veränderung und zugleich eine Schmerzreduktion festgestellt. Bei einer Person wurden die Beschwerden nicht gelindert.

Implikationen. Das Medical Flossing beeinflusst den Stoffwechsel positiv und ist als Therapiemethode bei Rhizarthrose wirkungsvoll.

Referenzen.

Kruse, S. (2018). *Easy Flossing.* Thieme Verlag.

Pischinger, A. (2021). *Das System der Grundregulation*. Thieme.

Plüss, N., Bachmann, B. & Grünert, J. (2024). Medical Flossing bei Rhizarthrose - Verbessert eine mehrfache Wiederholung die Effektivität? *DAHTH Zeitschrift für Handtherapie*.

FM72
Medical flossing – preuve d'efficacité à l'aide de l'imagerie thermique

Bettina Bachmann[1] ([1]Hand- und Ergotherapie St.Gallen AG, Herisau)

Contexte. Le medical flossing est une nouvelle technique thérapeutique qui a fait son entrée dans les thérapies médicales au cours des dernières années. Des résultats très prometteurs ont récemment été obtenus dans le domaine des maladies dégénératives, notamment dans le traitement conservateur de la rhizarthrose (Plüss et al., 2024). On sait que le mode d'action du medical flossing repose sur quatre principes biomécaniques : compression myofasciale, remplissage, relâchement et développement du mouvement (Kruse, 2018; Pischinger, 2021). Jusqu'à présent, l'effet du medical flossing n'a pas pu être évalué avec des critères exclusivement objectifs. La température dans les tissus permet de visualiser la microcirculation directement après l'application des bandes de flossing.

Problématique. 1. La documentation par imagerie thermique est-elle un moyen approprié pour documenter objectivement le mode d'action du medical flossing chez les patients atteints de rhizarthrose ? 2. Peut-on en outre constater des progrès fonctionnels dans la vie quotidienne des

patients pendant la durée du traitement ? Dans quelle mesure une réduction de la douleur peut-elle être obtenue ?

Méthode. Dans le cadre d'un traitement conservateur de la rhizarthrose, la technique du medical flossing a été appliquée de manière standardisée dans une série de cas portant sur cinq patients et les modifications de la microcirculation dans la zone de l'articulation CMC ont été capturées à l'aide d'une caméra thermique. L'échelle fonctionnelle spécifique au patient (PSFS) et l'échelle d'évaluation numérique (Numeric Rating Scale NRS) ont été utilisées pour des comparaisons supplémentaires.

Résultats. L'effet du medical flossing a pu être visualisé à l'aide de l'imagerie thermique. Une augmentation de la température dans les tissus a été observée à chaque application, la plus forte augmentation se produisant à chaque fois après le premier passage. Ces résultats permettent de conclure à une augmentation de la circulation sanguine et donc à une augmentation du métabolisme cellulaire et intercellulaire. Un changement positif sur l'échelle PSFS ainsi qu'une réduction des douleurs ont été constatés chez quatre patients. Les douleurs n'ont pas diminué chez une personne.

Implications. Le medical flossing a une influence positive sur le métabolisme et est efficace comme méthode de traitement lors d'une rhizarthrose.

Références.

Kruse, S. (2018). *Easy Flossing.* Thieme Verlag.

Pischinger, A. (2021). *Das System der Grundregulation*. Thieme.

Plüss, N., Bachmann, B. & Grünert, J. (2024). Medical Flossing bei Rhizarthrose - Verbessert eine mehrfache Wiederholung die Effektivität? *DAHTH Zeitschrift für Handtherapie*.

Freie Mitteilungen SGHR Communications libres SSRM

Freie Mitteilungen / Communications libres III

FM73
Evidence-Based Treatment Methods in Focus: Successfully Navigating Scar Management in Hand Therapy

Tanya Schuhmacher[1], Petra Hübscher[2]
([1]UniversitätSpital Zürich, Zurich; [2]Spital Limmattal, Schlieren)

Background. Scarring is a common consequence of skin injury or trauma, with significant implications for both physical and psychological well-being. Scar management aims to prevent abnormal healing processes, maximize functional independence, and facilitate patients' return to work while striving to restore them as closely as possible to their pre-injury state. Given the extensive literature on scar management, covering both non-invasive and invasive methods, and the integration of a wide range of these non-invasive methods into hand therapy practice, hand therapists are faced with a dilemma of determining the most suitable methods to use and optimal timing for their application. Therefore, careful assessment and selection of management methods are imperative. Factors such as scar type, patient-presented symptoms, wound healing phases, and patient background should all be taken into account.

Aim. To provide a decision tree guiding informed decisions on various non-invasive scar management methods within hand therapy, specifically focusing on surgical and traumatic scars. Additionally, it seeks to evaluate the current evidence for each method to facilitate clinical decision-making for hand therapists.

Methods. A literature review conducted through an electronic search across different databases such as PubMed, Cochrane, swissrecovery.

Results and Implications. Scar management in hand therapy involves diverse methods with varying efficacy. Our review found inconclusive evidence for scar massage and dry needling, highlighting the need for standardized protocols. Meanwhile, challenges in treatment delivery persist for compression therapy, making its effectiveness difficult to establish. Cryotherapy and shockwave therapy show promise, and silicone dressings remain first-line options. Laser therapy, especially low-level laser therapy, significantly improves scar appearance and pain, while ultrasound therapy

exhibits potential in tissue regeneration and inflammation reduction. Different types of tape effectively manage surgical scars, with high-stretch tapes potentially aiding wound healing. Cupping techniques enhance tissue improvement and may regulate hypertrophic scarring. Our review revealed that majority of studies focused on burn scars rather than surgical or traumatic scars. Further research is crucial for advancing scar management in hand therapy, informing therapists' clinical decisions, and refining tailored treatment approaches to provide more evidence-based interventions.

FM74
Klinischer Fall mit Wundverschluss nach nekrotisierender Fasziitis: klinische Ansätze & Überlegungen

Ailsa Samin[1], Marie-Ange Schneiders[2], Romain Baillot[2], Sophie Morisod[2] ([1]CHUV, Echandens; [2]CHUV, Lausanne)

Nekrotisierende Fasziitis (NF) ist eine schwerwiegende Infektion, die unbedingt einer chirurgischen Notfallbehandlung bedarf. Ein sekundärer Wundverschluss ist immer erforderlich und kann von der dünnen Hauttransplantation bis hin zum Verschluss mittels eines freien Hautlappens reichen. Bei jeder dieser Techniken fällt die Behandlung unterschiedlich aus.

Solch heikle Situationen stellen die Handtherapeuten vor eine enorme Herausforderung: Hautlappen sind empfindlich und können nur begrenzt mobilisiert werden, während Transplantate aus dünner Haut nach medizinischer Freigabe bereits am fünften Tag mobilisiert werden sollten (1).

Um die Herausforderungen zu veranschaulichen und Lösungen zu diskutieren, stellen der Chirurg und die Therapeuten hier einen klinischen Fall vor, der unser Vorgehen bei der Rehabilitation der oberen Extremität (OE) von der Hospitalisierung bis zum Erwerb der Selbstständigkeit beleuchtet.

Wir präsentieren den Fall eines 47-jährigen Patienten mit NF an der OE, der einer Reihe von chirurgischen Eingriffen unterzogen wurde, u.a. unter Verwendung zweier freier Lappen sowie mehrerer dünner Hauttransplantate. Unser Behandlungsansatz umfasste verschiedene Methoden wie Narbenmassage, Lymphdrainage, Dermotonie, manuelle Therapie, Gelenkmobilisation, Orthesen und Silikone sowie Muskelaufbau.

Objektive Auswertungen zeigten eine deutliche Verbesserung der Gelenkbeweglichkeit, Sensibilität und Muskelfunktion. Die Wundheilung war zufriedenstellend, mit einer erfolgreichen Integration der Dünnhauttransplantate. Nach mehr als einem Jahr intensiver Rehabilitation und zusätzlicher chirurgischer Verfahren erlangte der Patient vollständige Unabhängigkeit bei seinen täglichen Aktivitäten zurück.

Diese Fallstudie unterstreicht die Bedeutung eines interdisziplinären Therapieansatzes bei Patienten mit chirurgisch behandelter NF. Intensive Rehabilitation in Verbindung mit einem effektiven Wund- und Schmerzmanagement sowie der engen Zusammenarbeit mit dem Patienten führen zu zufriedenstellenden funktionellen Ergebnissen und einer Verbesserung der Lebensqualität des Patienten.

1. Strohl AB, Levin LS. Management of Skin Grafts and Flaps: The Surgeon's Perspective. In: Rehabilitation of the Hand and Upper Extremity. Philadelphia, PAE: Elsevier; 2020. p. 2112.

FM74
Cas clinique avec couverture cutanée post fasciite nécrosante : Approches & considérations cliniques

Ailsa Samin[1], Marie-Ange Schneiders[2], Romain Baillot[2], Sophie Morisod[2] ([1]CHUV, Echandens; [2]CHUV, Lausanne)

La fasciite nécrosante (FN) est une affection grave nécessitant une prise en charge chirurgicale d'urgence. Elle nécessite toujours une couverture cutanée secondaire. Celle-ci peut être de plusieurs types, allant de la greffe de peau fine à la couverture par lambeau libre. Chacune de ces techniques nécessite une prise en charge distincte.

Dans ces situations délicates, les thérapeutes de la main sont confrontés à un défi majeur : les lambeaux présentent une fragilité qui limite leur mobilisation, tandis que les greffes de peau fine doivent être mobilisées dès le 5ème jour, sous réserve d'une validation médicale. (1)

Afin d'illustrer ces défis et d'en discuter les solutions, le chirurgien et les thérapeutes exposent ici un cas clinique représentatif de notre pratique en réhabilitation du membre supérieur (MS) depuis l'hospitalisation jusqu'à l'acquisition de l'autonomie.

Nous présentons le cas d'un patient de 47 ans ayant souffert d'une FN au MS, ayant subi une série d'interventions chirurgicales comprenant l'utilisation de 2 lambeaux libres et plusieurs greffes de peau fine. Notre approche thérapeutique a englobé diverses méthodes, tels que le massage cicatriciel, le drainage lymphatique, la dermotonie, la thérapie manuelle, la mobilisation articulaire, la mise en place d'orthèses et silicones, ainsi que le renforcement musculaire.

Les évaluations objectives ont mis en évidence une nette amélioration de la mobilité articulaire, de la

sensibilité et de la fonction musculaire. La cicatrisation des plaies a été satisfaisante avec une intégration réussie des greffes de peau fine. Après plus d'une année de rééducation intensive et de procédures chirurgicales supplémentaires, le patient a recouvré une autonomie totale dans ses activités quotidiennes.

Cette étude de cas met en lumière l'importance d'une approche thérapeutique interdisciplinaire dans la prise en charge des patients atteints de FN traitée chirurgicalement. Une rééducation intensive, associée à une gestion efficace des plaies et de la douleur, ainsi qu'une collaboration étroite du patient, conduisent à des résultats fonctionnels satisfaisants et à une amélioration de la qualité de vie des patients.

1. Strohl AB, Levin LS. Management of Skin Grafts and Flaps: The Surgeon's Perspective. In: Rehabilitation of the Hand and Upper Extremity. Philadelphia, PAE: Elsevier; 2020. p. 2112.

FM75
s'HAND-Gepäck – Ein Spielsachenset als Hilfsmittel zur Handuntersuchung bei Kindern

Myrthe Mali[1] ([1]Ostschweizer Kinderspital, St.Gallen)

Hintergrund. Manche Kinder wollen ihre Hände nicht untersuchen lassen. Mit dem gezielten Einsatz von Spielsachen ist es möglich gewisse Handfunktionen zu provozieren. In manchen Situationen fehlt es an geeigneten Spielsachen oder diese sind nicht schnell zur Hand.

Fragestellung. Wie könnte eine Sammlung an Spielsachen gestaltet und zusammengesetzt sein, damit durch diese eine Handuntersuchung bei Kindern von 2 - 6 Jahren mit nicht akuten Handproblemen unterstützt werden kann?

Methodik. Verschiedene Spielsachen wurden basierend auf Erfahrungswerten und im Hinblick auf Aufforderungscharakter sowie Provokation bestimmter Handfunktionen mit Kindern mit und ohne Einschränkungen der Hände ausprobiert und ausgewählt. Der Bezug zur Theorie wurde mit Literatur untermauert.

Ergebnisse. Entstanden ist das „HAND-Gepäck". Ein kleiner Koffer mit ausgewählten Spielsachen, die mit Kindern zwischen 2 und 6 Jahren (Alter je nach Entwicklungsstand abweichend) in Handuntersuchungen genutzt werden können. Ergänzt wird das Set durch eine Anleitung und weitere Informationen.

Implikationen für die Praxis. Das Spiel als eine der Hauptbetätigungen von Kindern und der gezielte Einsatz von Spielsachen können in der Handtherapie sowie Untersuchungssituationen unterstützend genutzt werden. Als positiver Nebeneffekt wird das gegenseitige Vertrauen gestärkt, was die Behandlung längerfristig erleichtern kann.

Hülsemann, W. (2019). Untersuchung der Kinderhand. *Orthopädie & Rheuma*, *22*(3), 38–48.

Laier, P., Haubold, J., & Weiss, E. (2011). Basisuntersuchung der Hand und Propädeutik. In *Handchirurgie* (pp. 13–25).

Patane, G. R., Kanase, S. B., Bathia, K. J., & Patil, C. B. (2019). Effect of the Traditional Toys Exercises as an Adjunct to Hand Therapy Following Post-Traumatic Forearm Bone Fracture in Children. *Indian Journal of Physiotherapy and Occupational Therapy - An International Journal*, *13*(4).

Schelly, M., & Dunse, A.-L. (2023). *Kindliche Handfehlbildungen in Ergotherapie und Physiotherapie*.

Van Nieuwenhoven, C., Laurell, T., Weber, D., Miller, C., & Guero, S. (2023). *PULPe Webinar: Examining children's hands*. PULPe - Paediatric Upper Limb Project.

FM75
s'HAND-Gepäck* – un set de jouets comme aide pour l'évaluation de la main chez les enfants

Myrthe Mali[1] ([1]Ostschweizer Kinderspital, St-Gall)

Contexte. Certains enfants ne veulent pas que leurs mains soient examinées. En utilisant des jouets de manière ciblée, il est possible de provoquer certaines fonctions manuelles. Dans quelques situations, les jouets appropriés font défaut ou ne sont pas rapidement à portée de main.

Problématique. Comment une collection de jouets pourrait-elle être conçue et composée pour soutenir l'évaluation de la main chez les enfants de 2 à 6 ans ayant des problèmes non aigus ?

Méthodologie. Différents jouets ont été testés et sélectionnés sur la base de l'expérience et en fonction de leur caractère stimulant ainsi que de la provocation de certaines fonctions manuelles avec des enfants ayant ou non des limitations de la main. Le lien avec la théorie a été étayé par la littérature.

Résultats. Le « HAND-Gepäck » a vu le jour. Il s'agit d'une petite valise contenant une sélection de jouets qui peuvent être utilisés avec des enfants de 2 à 6 ans (l'âge varie en fonction du niveau de développement) pour l'évaluation de la main. Le kit

est complété par des instructions et des informations supplémentaires.

Implications pour la pratique : Le jeu est une des activités principales des enfants et l'utilisation ciblée de jouets peut être utilisée comme soutien en thérapie de la main ainsi qu'en situation d'évaluation. Le renforcement de la confiance mutuelle peut être un effet secondaire positif, facilitant le traitement à long terme.

Hülsemann, W. (2019). Untersuchung der Kinderhand. *Orthopädie & Rheuma*, *22*(3), 38–48.

Laier, P., Haubold, J., & Weiss, E. (2011). Basisuntersuchung der Hand und Propädeutik. In *Handchirurgie* (pp. 13–25).

Patane, G. R., Kanase, S. B., Bathia, K. J., & Patil, C. B. (2019). Effect of the Traditional Toys Exercises as an Adjunct to Hand Therapy Following Post-Traumatic Forearm Bone Fracture in Children. *Indian Journal of Physiotherapy and Occupational Therapy - An International Journal*, *13*(4).

Schelly, M., & Dunse, A.-L. (2023). *Kindliche Handfehlbildungen in Ergotherapie und Physiotherapie*.

Van Nieuwenhoven, C., Laurell, T., Weber, D., Miller, C., & Guero, S. (2023). *PULPe Webinar: Examining children's hands*. PULPe - Paediatric Upper Limb Project.

*Note de la traductrice : valise

FM76
Beurteilungsbogen zur Dokumentation von postoperativen Narben (BDpN)

Zoé Franzen[1], Rebecca Amstad[2] ([1]Kantonsspital Baselland, Bruderholz; [2]Süssbach Therapien, 5200 Brugg)

Hintergrund. Die Beurteilung von postoperativen Narben stellt einen bedeutenden Bereich in der handtherapeutischen Nachbehandlung dar. In unserem Arbeitsumfeld sowie der Literatur zeigt sich, dass hierfür häufig wenig standardisierte Assessments verwendet werden. Diese sind zudem hauptsächlich in Englisch verfasst und weisen unterschiedliche Entwicklungspotenziale auf. Es herrscht Uneinigkeit, welches Assessment sich am besten in der Praxis eignet. Basierend auf dieser Kontroverse entstand dieses Projekt zur Entwicklung eines neuen deutschsprachigen Beurteilungsbogens zur Dokumentation von postoperativen Narben.

Fragestellung. Wie gestaltet sich ein evidenzbasierter Beurteilungsbogen, welcher zur umfangreichen Dokumentation postoperativer Narben eingesetzt werden kann?

Methode. Die bestehenden Assessments zur Beurteilung von Narben werden einander gegenübergestellt und Entwicklungspotenziale erhoben. Ergänzend findet eine Literaturrecherche in diversen Datenbanken statt. Unter Einbezug der zusammengetragenen Aspekte wird ein neuer Beurteilungsbogen entwickelt. Die Erstversion dessen wird in der Praxis an zehn Klient*innen erprobt und anschliessend überarbeitet. Die verwendeten Bestandteile des Beurteilungsbogens werden zum besseren Verständnis in einem Leitfaden erläutert.

Ergebnisse. Es entsteht ein neu entwickelter Beurteilungsbogen zur Dokumentation von postoperativen Narben. Dieser vereint die Wahrnehmung der Fachpersonen der Handtherapie und der Klient*innen zu einem umfangreichen Bild. Der Beurteilungsbogen wird im Praxisalltag weiterhin erprobt und in digitaler Form bei der Befunderhebung und Verlaufsdokumentation von Narben eingesetzt.

Schlussfolgerung. Es stellte sich als Herausforderung dar, einen möglichst kurz gehaltenen Beurteilungsbogen zu erstellen, welcher alle wichtigen Aspekte beinhaltet. Die Umsetzung dessen zeigt, dass es möglich ist, die klinische Bewertung und die Sicht der Klient*innen zu vereinen.

FM76
Formulaire d'évaluation pour la documentation des cicatrices post-opératoires (BDpN*)

Zoé Franzen[1], Rebecca Amstad[2] ([1]Hôpital cantonal Bâle campagne, Bruderholz; [2]Süssbach Therapien, 5200 Brugg)

Contexte. L'évaluation des cicatrices post-opératoires représente une part importante du suivi en rééducation de la main. Dans notre environnement de travail, ainsi que dans la littérature, il apparaît que des évaluations peu standardisées sont souvent utilisées à cet effet. De plus, ces dernières sont principalement rédigées en anglais et présentent différents potentiels de développement. Il y a un désaccord sur le type d'évaluation le plus adapté à la pratique. C'est sur la base de cette controverse qu'est né ce projet de développement d'un nouveau formulaire d'évaluation en allemand pour la documentation des cicatrices postopératoires.

Problématique. Comment concevoir un formulaire d'évaluation basé sur des preuves, qui puisse être utilisé pour documenter de manière exhaustive les cicatrices postopératoires ?

Méthode. Les évaluations existantes pour évaluer les cicatrices sont comparées les unes avec les autres et leurs potentiels de développement relevés.

Une revue de littérature dans diverses bases de données est effectuée en complément. Un nouveau formulaire d'évaluation est développé en tenant compte des aspects rassemblés. La première version est testée dans la pratique sur dix clients, puis remaniée et corrigée. Les éléments utilisés dans le formulaire d'évaluation sont expliqués dans un guide pour une meilleure compréhension.

Résultats. Un nouveau formulaire d'évaluation a été élaboré pour documenter les cicatrices post-opératoires. Celui-ci réunit les perceptions des spécialistes en thérapie de la main et des clients en un tableau complet. Le formulaire d'évaluation continue d'être testé dans la pratique quotidienne et est utilisé sous forme numérique pour l'évaluation et la documentation de l'évolution des cicatrices.

Conclusion. L'élaboration d'un formulaire d'évaluation le plus court possible et contenant tous les aspects importants s'est avérée être un défi. Sa mise en œuvre montre qu'il est possible de combiner l'évaluation clinique et le point de vue des clients.

*Note de la traduction : en allemand « Beurteilungsbogen zur Dokumentation von postoperativen Narben »

FM77
Wunden in der Handtherapie: Welche Antiseptika eignen sich?

Marie-Ange Schneiders Spring[1] ([1]CHUV Lausanne, Lausanne)

Kontext. Handtherapeuten müssen häufig unterschiedliche Wunden behandeln. Zu entscheiden, ob eine Wunde vor der Wahl des geeignetsten Antiseptikums nur gereinigt oder desinfiziert werden sollte, ist integraler Bestandteil ihrer klinischen Überlegungen. Diese Entscheidung ist zentral bei der Behandlung eines solch empfindlichen Bereichs wie der Hand und spielt im Heilungsprozess eine bedeutende Rolle.

Ziele. In diesem Vortrag soll die Bandbreite der auf dem Schweizer Markt verfügbaren Reinigungsmittel und Antiseptika vorgestellt werden. Ausserdem werden Empfehlungen zu bewährten Anwendungsmethoden in der Handtherapie abgegeben, um die verschiedenen Möglichkeiten aufzuzeigen, die eine optimale Behandlung von Patienten mit Wunden erlauben. Unsere Empfehlungen basieren auf einer vertieften Analyse des Konsensus von Kramer et al 2018, angepasst an die spezifischen Gegebenheiten und Bedürfnisse bei der Handtherapie.

Praxisbezug. In Praxen und Krankenhäusern stehen Handtherapeuten in der Regel Reinigungslösungen wie NaCl mit oder ohne Antiseptikum in niedriger Konzentration sowie höher konzentrierte Antiseptika zur Verfügung. Wir haben sechs Hauptfamilien identifiziert: Chlorhexidindigluconat (CHD), Polyvinylpyrrolidon-Iod (PVP-Iod), Octenidindihydrochlorid (OCT), Polyhexanid (PHMB), Hypochlorite und Silberionen (Ag).

Diese Präsentation soll einen praktischen Leitfaden für die gezielte und wirksame Wahl eines Antiseptikums bieten. Wenn Handtherapeuten die Besonderheiten der einzelnen Wundtypen möglichst gut kennen und deren Ursprung berücksichtigen, können sie das am besten geeignete Antiseptikum auswählen, um die klinischen Ergebnisse zu verbessern, das Infektionsrisiko zu senken und eine schnellere Heilung der Wunden ihrer Patienten zu fördern.

Kramer, A., Dissmond, J., Kim, S., Willy, C., Mayer, D., Papke, R., . . . Assadian, O. (2018). Consensus on Wound Antisepsis. Skin Pharmaco Physiol, 31:28-58.

FM77
Quels antiseptiques utiliser pour les plaies en thérapie de la main ?

Marie-Ange Schneiders Spring[1] ([1]CHUV Lausanne, Lausanne)

Contexte. Les thérapeutes de la main sont régulièrement confrontés à une diversité de plaies. Déterminer s'il convient de simplement nettoyer une plaie ou de la désinfecter avant de choisir l'antiseptique le plus adapté, fait partie intégrante de leur raisonnement clinique. Cette décision est une étape clé de la prise en charge de cette zone sensible qu'est la main et revêt une grande importance en ce qui concerne le processus de guérison.

Objectifs. L'objectif de cette présentation est de fournir l'étendue des solutions de nettoyage et des antiseptiques accessibles sur le marché suisse. Son but est de fournir des recommandations de bonnes pratiques quant à leur utilisation en thérapie de la main afin de mettre en lumière les différentes possibilités et assurer des soins optimaux aux patients qui présentent des plaies lors de leur thérapie de la main.

Nos recommandations sont issues de l'analyse approfondie du consensus de Kramer et al 2018, adaptées au contexte et aux besoins spécifiques en thérapie de la main.

Implication pour la pratique. Dans les cabinets et dans les hôpitaux, les thérapeutes de la main ont recours à des solutions de nettoyage telles que le NaCl avec ou sans faible concentration d'antiseptique, ainsi qu'à des antiseptiques plus concentrés. Nous avons identifié principalement six familles : la chlorexidine digluconate (CHD), le

polyvinylpyrrolidone-iode (PVP-I), l'octenidine dihydrochloride (OCT), le polyhexanide (PHMB), les hypochlorites et les ions d'argent (Ag).

Cette présentation cherche à fournir un guide pratique sur des approches ciblées et efficaces dans le choix des antiseptiques. En connaissant ~~au~~ mieux les spécificités de chaque type de plaie et en tenant compte leur origine, les thérapeutes de la main pourront sélectionner l'antiseptique le plus approprié afin d'améliorer les résultats cliniques, réduire le risque d'infection et favoriser une guérison plus rapide des plaies de leurs patients.

Kramer, A., Dissmond, J., Kim, S., Willy, C., Mayer, D., Papke, R., . . . Assadian, O. (2018). Consensus on Wound Antisepsis. Skin Pharmaco Physiol, 31:28-58.

FM78
Entwicklung, Etablierung und Evaluation einer Informationsbroschüre zur Prävention von CRPS

Verena Müller[1], Gernot Schmidle[1]
([1]Universitätskliniken Innsbruck, Innsbruck AT)

In der Rolle der Gesundheitsfürsprecher:innen agieren Ergotherapeut:innen für Individuen, Personengruppen oder für die Bevölkerung mit dem Ziel, die Gesundheit zu erhalten bzw. zu verbessern (Peterko et. al, 2019).

Unter der Projektleitung von Priv-Doz. Dr. Gernot Schmidle und Verena Müller wurde im Sommer 2022 gemeinsam mit sechs Ergotherapiestudentinnen des Bachelor-Studiengangs Ergotherapie (fh gesundheit Innsbruck) eine Broschüre zur Prävention von CRPS entwickelt. Im Rahmen des sogenannten berufsfeldorientierten Projekts der Studierenden wurde anhand der Literatur (Gillespie et al., 2016) eine Broschüre erstellt, bei der wichtige Hinweise nicht nur mündlich, sondern auch schriftlich an die Patient:innen weitergegeben werden: 1. Sensibilisierung auf zu enge und einschneidende Gipse; 2. Kontrolle des Gipsverbandes; 3. Massnahmen zur Reduktion der Schwellung; 4. aktives Bewegen der nicht betroffenen Gelenke; 5. Einsatz der Hand bei leichten Aktivitäten (kortikale Repräsentation im somatosensorischen und motorischen Kortex); 6. Kontaktadresse, bei welcher Patient:innen bei Auffälligkeiten (starke Schmerzen, unangenehmes Tragegefühl im Gipsverband, starke Schwellung) unbedingt vorstellig werden sollen.

Nach dem Corporate Design durch die Marketingabteilung sowie der Freigabe durch die kollegiale Führung der tirol kliniken wurde die Broschüre Mitte Februar 2023 eingeführt. Alle Patient:innen mit einem Gips an der OEX erhalten seither die Broschüre mit einem QR Code. Ziel der Broschüre ist es, die Patient:innen zu befähigen (empowern), die eigenen Beschwerden ernst zu nehmen und adäquat reagieren zu können, um so die Entstehung eines CRPS v.a. aufgrund von zu engen und einschneidenden Gipsen zu vermeiden.

Die Broschüre ist Teil des interdisziplinären Behandlungspfades bei CRPS und dient der Prävention. Nach einem Jahr wurden die Zahlen erhoben und diese werden im Rahmen des Vortrages präsentiert, ebenso wie die weiteren Schritte (Plakate in Warteräumen, Übersetzung der Broschüre in weitere Sprachen wie Englisch und Türkisch, Beitrag Ambulanz TV, usw.).

Gillespie, S., Cowell, F., Cheung, G. & Brown, D. (2016). Can we reduce the incidence of complex regional pain syndrome type I in distal radius fractures? The Liverpool experience. *Hand Therapy,* 21(4), 123–130.

Peterko, Y., Unterweger, K., Wagner, C., Stoffer-Marx, M., Dürauer, J., Lettner-Hauser, K., Manolopoulos, N., Nienhusmeier, B. & Garstenauer, C. (2019). Das Kompetenzprofil der Ergotherapie. Berufsverband Ergotherapie Austria.

FM78
Développement, mise en place et évaluation d'une brochure d'information pour la prévention du CRPS

Verena Müller[1], Gernot Schmidle[1]
([1]Universitätskliniken Innsbruck, Innsbruck AT)

Dans leur rôle de porte-parole de la santé, les ergothérapeutes agissent pour des individus, des groupes de personnes ou la population dans le but de maintenir ou d'améliorer la santé (Peterko et al., 2019).

Sous la direction du projet du Priv-Doz. Dr. Gernot Schmidle et de Verena Müller lors de l'été 2022, six étudiantes de la filière bachelor en ergothérapie (haute école de santé Innsbruck) ont développé une brochure pour la prévention du CRPS. Dans le cadre du projet dit "orienté vers le domaine professionnel" des étudiants, une brochure a été créée à l'aide de la littérature (Gillespie et al., 2016), à travers laquelle les conseils importants sont aussi donnés aux patients par écrit, et pas seulement oralement : 1. Sensibilisation aux plâtres trop serrés et incisifs ; 2. Contrôle du plâtre ; 3. Mesures pour réduire l'œdème ; 4. Mobilisation active des articulations non atteintes ; 5. Utilisation de la main lors d'activités légères (représentation corticale dans le cortex somatosensoriel et moteur) ; 6. Adresse de contact à laquelle les patients doivent impérativement se rendre en cas de problèmes (fortes douleurs, port inconfortable du plâtre, œdème important)

La brochure a été publiée mi-février 2023 d'après le Corporate Design du service marketing et suite à l'approbation par la direction collégiale des cliniques du Tirol. Tous les patients portant un plâtre au membre supérieur reçoivent depuis lors la brochure avec un code QR. L'objectif de la brochure est de permettre aux patients de prendre au sérieux leurs propres symptômes et de réagir de manière adéquate (empowerment) afin d'éviter l'apparition d'un CRPS, notamment en raison d'un plâtre trop serré et incisif.

La brochure fait partie du parcours de soins interdisciplinaires en cas de CRPS et sert à la prévention. Après un an, les chiffres seront relevés et présentés dans le cadre de la conférence, ainsi que les étapes à venir (affiches dans les salles d'attente, traduction de la brochure dans d'autres langues comme l'anglais et le turc, contribution à Ambulanz TV, etc.).

Gillespie, S., Cowell, F., Cheung, G. & Brown, D. (2016). Can we reduce the incidence of complex regional pain syndrome type I in distal radius fractures? The Liverpool experience. *Hand Therapy,* 21(4), 123–130.

Peterko, Y., Unterweger, K., Wagner, C., Stoffer-Marx, M., Dürauer, J., Lettner-Hauser, K., Manolopoulos, N., Nienhusmeier, B. & Garstenauer, C. (2019). Das Kompetenzprofil der Ergotherapie. Berufsverband Ergotherapie Austria.

Freie Mitteilungen SGHR Communications libres SSRM

Freie Mitteilungen / Communications libres IV

FM79
ECU Injury Strategies in Hockey: Synthetic Review and Case Presentation

Lorenzo Negro[1], Lorenzo Priora[1], Alberto Cafarelli[1] ([1]Ergoterapia Alberto Cafarelli, Chiasso)

Introduction. Extensor Carpi Ulnaris (ECU) injuries are frequent in contact sports such as hockey, where intense wrist usage frequently exposes athletes to specific injury risks. This extensive review analyzes current knowledge and rehabilitative methodologies derived from seven studies focused on this topic, to enhance the treatment and functional recovery of ECU injuries in hockey players.

Methods. Seven relevant papers covering diagnosis, surgical interventions, conservative treatments, and rehabilitation strategies for ECU injuries were examined. This analysis included both case reports and observational studies, with particular focus on imaging methodologies, innovative surgical techniques, and rehabilitation protocols.

Results. The review revealed that advanced imaging techniques such as dynamic ultrasound and magnetic resonance imaging are crucial for accurate diagnosis. Surgical treatments, including tendon reconstruction methods, and detailed rehabilitative regimens, are essential to ensure full recovery of functionality and strength. The assessment of performance metrics, such as the Eccentric Utilization Ratio (EUR), emerges as an useful tool for monitoring recovery and athlete readiness to resume competition.

Conclusion. A deeper understanding of ECU injuries and therapeutic options significantly enhances the rehabilitative management of hockey players. Personalized prevention and athlete education are crucial to minimize the risk of recurrence. Collaboration between rehabilitators and orthopedic specialists is fundamental to optimizing recovery times and ensuring an effective return to sports activity.

Clinical Application. The rehabilitative approach for a hockey player will be presented based on the insights gained from the review.

Figure 1

Figure 2

FM80
Die Handrehabilitation nach ECU-Sehnenfachrekonstruktion mittels Retinaculum Flap: ein Fallbeispiel.

Natália Jordi Guimarães Mota[1] ([1]KSA Spital Zofingen, Zofingen)

Einleitung. Der Retinaculum Flap ist eine gut erforschte chirurgische Technik zur Rekonstruktion des Sehnenfachs des Musculus extensor carpi ulnaris (ECU), das die Stabilität der Sehne gewährleistet. Diese Technik erzielt gute funktionelle Ergebnisse und reduziert das Risiko einer erneuten Subluxation des ECU im Sehnenfach. Allerdings erfordert sie meist eine längere Immobilisation und Rehabilitationszeit. In unserem Spital wird eine frühzeitige Mobilisation mit Einschränkungen ab der ersten postoperativen Woche empfohlen. Diese Fallpräsentation soll den Behandlungsverlauf nach Retinaculum Flap und die erzielten Therapieergebnisse exemplarisch darstellen.

Methode. Es erfolgte eine systematische Literaturrecherche in den Datenbanken Medline/Pubmed und Cochrane Library sowie die Überprüfung aktueller Fachzeitschriften zur chirurgischen Technik und postoperativen Behandlung. Über einen Zeitraum von 4 Monaten wurde bei einer Patientin eine umfassende Dokumentation von Assessments, Reevaluationen und Therapiemaßnahmen vorgenommen. Die Meilensteine der Rehabilitationsphase wurden anhand von Evidenz und klinischer Expertise des Operateurs festgelegt.

Ergebnisse. Die Patientin zeigte im Behandlungsverlauf eine gute Funktionalität ohne erneute Subluxation der ECU-Sehne. Die Bewegungen im Unterarm verbesserten sich progressiv und signifikant, ebenso die Muskelkraft. Nach 6 Wochen konnte sie ihre Arbeit und ihre Freizeitaktivitäten wieder aufnehmen. Die Hypersensibilität der Narbe wurde während der Therapie erfolgreich behandelt. Durch Kenntnisse in Pausenmanagement und Gelenkschutz konnte sie selbstständig kleinen Schmerzepisode während der Arbeit entgegenwirken.

Schlussfolgerung. Aktuell existiert noch wenig Literatur zur handtherapeutischen Nachbehandlung nach ECU-Sehnenfachrekonstruktion mittels Retinaculum Flap. Die klinischen Ergebnisse bei früher Mobilisation sind erfreulich. Die noch dünne Evidenzgrundlage setzt eine klare Kommunikation zwischen Therapie, Chirurgie und Patient:innen voraus.

FM80
Rééducation de la main après reconstruction du compartiment tendineux de l'ECU par retinaculum flap : une étude de cas

Natália Jordi Guimarães Mota[1] ([1]KSA Spital Zofingen, Zofingen)

Introduction : Le retinaculum flap est une technique chirurgicale bien étudiée pour reconstruire le compartiment tendineux du muscle extenseur carpi ulnaris (ECU), qui assure la stabilité du tendon. Cette technique donne de bons résultats fonctionnels et réduit le risque d'une nouvelle subluxation de l'ECU dans le compartiment tendineux. Cependant, elle nécessite généralement une immobilisation et une période de rééducation prolongées. Dans notre hôpital, une mobilisation précoce avec des restrictions est recommandée dès la première semaine postopératoire. Cette présentation de cas a pour but d'illustrer à titre d'exemple le déroulement du traitement après un retinaculum flap et les résultats thérapeutiques obtenus.

Méthode : Une revue systématique de littérature a été effectuée dans les bases de données Medline/Pubmed et Cochrane Library, ainsi qu'un examen des journaux spécialisés actuels sur la technique chirurgicale et le traitement postopératoire. Une documentation complète des évaluations, réévaluations et mesures thérapeutiques a été réalisée chez une patiente sur une période de quatre mois. Les étapes importantes de la phase de rééducation ont été définies en fonction des preuves et de l'expertise clinique du chirurgien.

Résultats : La patiente a montré une bonne fonctionnalité au cours du traitement, sans nouvelle subluxation du tendon de l'ECU. Les mouvements de l'avant-bras se sont progressivement et significativement améliorés, de même que la force musculaire. Après six semaines, elle a pu reprendre son travail et ses activités de loisirs. L'hypersensibilité de la cicatrice a été traitée avec succès pendant la thérapie. Grâce à des connaissances en matière de gestion des pauses et de protection articulaire, elle a pu gérer de manière autonome les petits épisodes **douloureux durant le travail**.

Conclusion : Actuellement, il existe encore peu de littérature sur le traitement post-opératoire en thérapie de la main après une reconstruction du compartiment tendineux de l'ECU par retinaculum flap. Les résultats cliniques en cas de mobilisation précoce sont encourageants. La base de données probantes encore mince suppose une communication claire entre le thérapeute, le chirurgien et le patient.

FM81
Herausforderungen in der Behandlung von Handgelenksverletzungen durch Clinical Reasoning meistern

Rahel Meier[1], Nadine Schweizer[1] ([1]Stadtspital Zürich Triemli, Zürich)

Hintergrund. Die Behandlung von Handgelenksverletzungen, unspezifischen Handgelenksschmerzen sowie Instabilitäten fordern uns im Therapiealltag regelmässig heraus. Obwohl die Evidenz zur wirksamen Therapie nach Mitchell et al. (2024) noch ausstehend ist, bietet die Literatur Wissen und passende Denkstrukturen an. So sind dies einerseits die Rehabilitationsphasen der Propriozeption nach Hagert & Rein (2023) sowie Wissen zur somatosensorischen Rehabilitation bei schmerzenden Handgelenken nach Lötters et al. (2020). Ziel der Präsentation ist es, aufzuzeigen, wie das Clinical Reasoning und die Gestaltung des Rehabilitationsprozesses bei Handgelenkverletzungen, Handgelenkschmerzen sowie Instabilitäten konkret aussehen können.

Methodik. Basierend auf aktueller Evidenz in Verbindung mit den anatomischen und biomechanischen Grundlagen des Handgelenks wird anhand von Beispielen aus der Praxis aufgezeigt, wie das Clincial Reasoning in der Rehabilitation aussehen kann. Die Gestaltung eines möglichen Rehabilitationsprozesses wird durch konkrete Therapieinhalte aufgezeigt und sinnvoll erscheinende Assessments werden vorgestellt.

Resultate. Der aufgezeigte Rehabilitationsprozess soll Therapeut*innen dabei unterstützen, eine individualisierte evidenzbasierte Therapie für die genannten Klientengruppen anzubieten.

Implikationen für die Praxis. Das transparent dargestellte Clinical Reasoning des Rehabilitationsprozesses ermöglicht den Wissenstransfer auf weitere handgelenksbezogene Diagnosen im Therapiealltag.

Verwendete Literatur.

- Hagert, E., & Rein, S. (2023). Wrist proprioception—An update on scientific insights and clinical implications in rehabilitation of the wrist. Journal of Hand Therapy. https://doi.org/10.1016/j.jht.2023.09.010
- Lötters, F. J. B., Schreuders, T. A. R., & Videler, A. J. (2020). SMoC-Wrist: a sensorimotor control-based exercise program for patients with chronic wrist pain. Journal of Hand Therapy, 33(4), 607–615. https://doi.org/10.1016/j.jht.2018.11.002
- Mitchell, T., Hamilton, N., Dean, B., Rodgers, S., Fowler-Davis, S., & McLean, S. (2024). A scoping review to map evidence regarding key domains and questions in the management of non-traumatic wrist

disorders. In Hand Therapy (Vol. 29, Issue 1, pp. 3–20). SAGE Publications Ltd. https://doi.org/10.1177/17589983231219595

FM81
Relever les défis dans le traitement des lésions du poignet grâce au raisonnement clinique

Rahel Meier[1], Nadine Schweizer[1] ([1]Stadtspital Zürich Triemli, Zürich)

Contexte. Le traitement des lésions, des douleurs non spécifiques ainsi que des instabilités du poignet nous met régulièrement au défi dans le quotidien thérapeutique. Bien que les preuves d'efficacité de la thérapie selon Mitchell et al. (2024) soient encore en suspens, la littérature propose des connaissances et des structures de pensée adaptées. Ainsi, il s'agit d'une part des phases de rééducation de la proprioception selon Hagert & Rein (2023) ainsi que des connaissances sur la rééducation somatosensorielle en cas de poignet douloureux selon Lötters et al. (2020). L'objectif de la présentation est de montrer comment le raisonnement clinique et l'organisation du processus de rééducation peuvent se présenter concrètement en cas de lésions, de douleurs ainsi que d'instabilités du poignet.

Méthodologie. En se basant sur les preuves actuelles en lien avec les bases anatomiques et biomécaniques du poignet, des exemples tirés de la pratique montreront à quoi peut ressembler le raisonnement clinique dans la rééducation. La conception d'un possible processus de rééducation est illustrée par des contenus thérapeutiques concrets et des évaluations semblant pertinentes sont présentées.

Résultats. Le processus de réhabilitation expliqué doit aider les thérapeutes à proposer une thérapie individualisée basée sur des preuves pour les groupes de clients mentionnés.

Implications pour la pratique. Le raisonnement clinique du processus de rééducation exposé de manière transparente permet le transfert des connaissances à d'autres diagnostics liés au poignet dans la pratique quotidienne.

Littérature utilisée.
- Hagert, E., & Rein, S. (2023). Wrist proprioception—An update on scientific insights and clinical implications in rehabilitation of the wrist. Journal of Hand Therapy. https://doi.org/10.1016/j.jht.2023.09.010
- Lötters, F. J. B., Schreuders, T. A. R., & Videler, A. J. (2020). SMoC-Wrist: a sensorimotor control-based exercise program for patients with chronic wrist pain. Journal of Hand Therapy, 33(4), 607–615. https://doi.org/10.1016/j.jht.2018.11.002
- Mitchell, T., Hamilton, N., Dean, B., Rodgers, S., Fowler-Davis, S., & McLean, S. (2024). A scoping review to map evidence regarding key domains and questions in the management of non-traumatic wrist disorders. In Hand Therapy (Vol. 29, Issue 1, pp. 3–20). SAGE Publications Ltd. https://doi.org/10.1177/17589983231219595

FM82
Rehabilitation Strategies for Total Wrist Replacement in Complex Distal Radius Fractures in Elderly

Alessandra Viola[1], Anahi Jeanrenaud[2], Gaia Lionello[2], Massimo Sammons[2], Ivan Tami[2] ([1]ergoterapia manoegomito, Gravesano; [2]Gravesano)

Introduction. Total wrist replacement in patients with complex distal radius fractures and osteoarthritis is gaining attention as an evolving treatment pathway. Rehabilitation post-surgery is indeed a critical aspect, and the lack of studies in this area underscores the need for tailored rehabilitation programs.

Materials and Methods. Our study included 13 patients with complex distal radius fractures who underwent wrist arthroplasty between September 2020 and December 2023. We followed these patients for an average of 13 months (range: 3-31 months). The cohort comprised 2 males and 11 females, with an average age of 75 years (range: 63-83 years). We have developed and refined a three-month rehabilitation program aimed at improving mobility and support the return to activities of daily living. Patients underwent therapy sessions at least three times per week. Throughout the rehabilitation process, we crafted thermoplastic splints, lymphatic drainage bandages, and exercise, based on outcomes and individual progress. Additionally, at the six-week and the three-month follow-up appointments with surgeons, patients completed the Disabilities of the Arm, Shoulder and Hand (DASH) score and the Patient-Rated Wrist Evaluation (PRWE) test, wrist mobility and strength measurement. At the time of the presentation all patients will also have had a 6 months follow up evaluation.

Results. The observed functional improvements in wrist mobility, including extension, flexion, pronation, and supination, are promising indicators of successful rehabilitation post-surgery. Furthermore, attaining comparable mobility to the uninjured side is a significant milestone in functional recovery, facilitating the return to activities of daily living and sports. Pain scores were also acceptable.

Conclusions. Our rehabilitation program demonstrates effectiveness in treating patients

undergoing total wrist arthroplasty. Through the implementation of personalized rehabilitation strategies, our findings suggest improvements in outcomes and quality of life within this patient population, despite limitations such as a small sample size and limited long-term follow-up data.

FM83
Praktisches Handgelenkstraining: SL-Bandrehabilitation im Alltag

Erigao Haab[1], Selina Schenkel[2] ([1]Ergotherapie Wolter AG, Zürich; [2]8610 Uster)

Hintergrund. Die skapholunäre (SL) Bandruptur gehört zu den häufigsten Bandverletzungen im Handgelenk. Betroffene beschreiben klassischerweise Schmerzen bei Stütz- und Greifaktivitäten. Unbehandelt kann die Verletzung zu Handgelenksinstabilität führen[1]. In der Handtherapie wird ein schmerzfreies und funktionelles Handgelenk erzielt. Das Training spezifischer Muskeln, die das SL-Band unterstützen (Friendlymuscels), spielt dabei eine zentrale Rolle. Theraband, Gewichte aber auch Alltagsgegenstände können als Trainingsgeräte dienen.

Ziel. Dieses Projekt möchte inspirieren und Ideen vermitteln, wie das Training möglichst alltagsnah mit Gegenständen des täglichen Lebens stattfinden kann, mit der Intention, Betroffenen das tägliche Training zu erleichtern und ein neues Bewusstsein für den Gebrauch der Handgelenksmuskeln im Alltag zu vermitteln.

Methode. Basis des Projekts bildet eine Literaturstudie. Relevante Aspekte zur Biomechanik des Handgelenks, zu den Auswirkungen von Verletzungen des SL-Bandes und zu verschiedenen handtherapeutischen Behandlungswegen wurden zusammengestellt und diskutiert. Alltagsaktivitäten wurden ausgeführt. Die Auswirkung auf das SL-Band wurde im Selbsttest mit Beobachtungen zur Handgelenksstellung analysiert. Faktoren, die das Level der Übungen erhöhen oder senken, wurden berücksichtigt. Eine spezifische Auswahl an Übungen in den verschiedenen Rehabilitationsstufen wurden abgeleitet. Die Übungen wurden zur Veranschaulichung in einem Film zusammengestellt.

Ergebnisse. Unter Berücksichtigung spezifischer Faktoren, wie Gewicht, statischer oder dynamischer Bewegung, bewusster oder unbewusster Muskelarbeit, gelang es, Übungen für verschiedene Rehabilitationsstadien zu entwickeln.

Schlussfolgerung. Wir sind überzeugt, dass die alltagsnahen Übungssequenzen das Vertrauen in den Handeinsatz im Alltag nach einer Verletzung unterstützen kann. Je nach Bedarf können die Übungen mit herkömmlichen Therapiematerialien, wie zum Beispiel Theraband oder Hanteln, kombiniert oder ergänzt werden. Die Übungen wurden aufgrund Eigenerfahrungen und theoretischen Grundlagen entwickelt. Als nächsten Schritt gilt es, die Übungen in der Praxis eingehend zu erproben, was aus zeitlichen Gründen bisher nur in begrenztem Umfang möglich war.

1. Dopfer, B. (2020). *Schmerzfrei durch konservatives Vorgehen – Handtherapie bei SL-Band-Ruptur*. ergopraxis, 13(4), 22–27. https://doi.org/10.1055/a-1101-4956

FM83
Entraînement pratique du poignet : rééducation du ligament SL au quotidien

Erigao Haab[1], Selina Schenkel[2] ([1]Ergotherapie Wolter AG, Zurich; [2]8610 Uster)

Contexte. La rupture du ligament scapho-lunaire (SL) fait partie des lésions ligamentaires les plus fréquentes du poignet. Les personnes concernées décrivent classiquement des douleurs lors des activités d'appui et de préhension. Non traitée, cette lésion peut entraîner une instabilité du poignet[1]. La thérapie de la main permet d'obtenir un poignet fonctionnel et sans douleur. L'entraînement des muscles spécifiques qui soutiennent le ligament SL (muscles amis) joue ici un rôle central. Le theraband, les haltères mais aussi les objets du quotidien peuvent servir de moyens d'entraînement.

Objectif. Ce projet vise à inspirer et à donner des idées sur la manière dont l'entraînement peut se dérouler au plus près des activités quotidiennes, avec des objets de la vie courante, dans l'intention de faciliter chaque jour l'entraînement des personnes concernées et de leur faire prendre conscience de l'utilisation des muscles du poignet au quotidien.

Méthode. Le projet se base sur une revue de littérature. Les aspects pertinents concernant la biomécanique du poignet, les conséquences des lésions du ligament SL et les différents moyens de traitement en rééducation de la main ont été rassemblés et discutés.

Des activités quotidiennes ont été effectuées. L'impact sur le ligament SL a été analysé par un auto-test grâce à l'observation de la position du poignet. Les facteurs qui augmentent ou diminuent le niveau des exercices ont été pris en compte. Une sélection d'exercices spécifiques dans les différents niveaux de rééducation a été réalisée.

Les exercices ont été rassemblés dans un film à des fins d'illustration.

Résultats. En tenant compte de facteurs spécifiques, tels que la charge, le mouvement statique ou dynamique, le travail musculaire conscient ou inconscient, nous avons réussi à développer des exercices pour différents stades de rééducation.

Conclusion. Nous sommes convaincues que les séquences d'exercices proches du quotidien peuvent soutenir la confiance dans l'utilisation de la main dans la vie quotidienne après une blessure. Selon les besoins, les exercices peuvent être combinés ou complétés avec du matériel thérapeutique traditionnel, comme le theraband ou les haltères. Les exercices ont été développés sur la base d'expériences personnelles et de principes théoriques. La prochaine étape consiste à tester les exercices de manière approfondie dans la pratique, ce qui n'a été possible jusqu'à présent que dans une mesure limitée pour des raisons de temps.

1. Dopfer, B. (2020). *Schmerzfrei durch konservatives Vorgehen – Handtherapie bei SL-Band-Ruptur*. ergopraxis, 13(4), 22–27. https://doi.org/10.1055/a-1101-4956

FM84
Edukationsbroschüre Radialisparese nach Humerusfraktur

Levent Bayat[1], Moritz Hess[2] ([1]Rehaklinik Dussnang, Dussnang; [2]Kantonsspital Olten, Olten)

Hintergrund. Die Informationsfülle zu Beginn einer Behandlung erfordert eine strukturierte Patientenaufklärung, damit es nicht zu Missverständnissen im Umgang mit der Radialisparese kommt. Ein Heimprogramm in Textform soll dabei eine hilfreiche Ergänzung sein. Im Vorfeld konnten wir keine deutschsprachige Broschüre zur Radialisparese nach Humerusfraktur finden.

Fragestellung. 1. Wie sollte eine verständliche Broschüre zu diesem Thema gestaltet sein? 2. Welche Auswirkungen kann eine Humerusfraktur auf den Nervus Radialis haben? 3. Welche Symptome können auftreten und wie ist die Prognose? 4. Welche Behandlungsmöglichkeiten gibt es, und welche Rolle spielt die Rehabilitation bei der Genesung von Radialisparese?

Methodik. Wir führten eine Literaturrecherche zu den folgenden Themen durch: 1. Patientenedukation: Format, Gestaltung und Formulierung. 2. Anatomie und Pathomechanik, Ursachen, Symptome und Prognose einer Radialisparese nach Humerusfraktur. 3. Mögliche Behandlungsoptionen. 4. Schienenbehandlung bei Radialisparese. 5. Broschüre: Beginnend mit der Aufklärung über die Verletzungsmechanismen, stellten wir ein gestaffeltes Übungsprogramm zusammen. Primär geht es dabei um Kontraktur- und Ödemprophylaxe, und ergänzend entschieden wir uns dazu, Bewegungsimagination und -beobachtung einzubeziehen.

Ergebnisse und Implikationen. Die Broschüre bietet einen Leitfaden für die Bewältigung von Radialisparese nach Humerusfraktur, einschliesslich frühzeitiger Bewegungsübungen zur Vorbeugung von Kontraktionen und spezifischer Heimübungen zur Stärkung und Erhaltung der betroffenen Muskeln. Sie ist dabei leicht verständlich formuliert und durch informative Grafiken ergänzt. Die Integration innovativer Therapieansätze wie Motor Imagery und Action Observation bieten zusätzliche Optionen zur Verbesserung der Rehabilitation.

Eine noch folgende Umfrage soll klären, ob unsere Arbeit zur Verbesserung der Patientenaufklärung und Adhärenz beiträgt, die Selbstständigkeit und Lebensqualität der Patienten verbessert und ihre Rückkehr zu einem aktiven Lebensstil unterstützt. Sie sollte ausserdem Therapiezeit & -aufwand optimieren.

FM84
Brochure éducative suite à une paralysie radiale après une fracture de l'humérus

Levent Bayat[1], Moritz Hess[2] ([1]Rehaklinik Dussnang, Dussnang; [2]Hôpital cantonal Olten, Olten)

Contexte. L'abondance d'informations au début d'un traitement nécessite une éducation structurée du patient afin d'éviter tout malentendu dans la gestion d'une paralysie radiale. Un programme à domicile sous forme de texte doit être un complément utile à cet égard. Au préalable, nous n'avons pas pu trouver de brochure en allemand sur la paralysie radiale après une fracture de l'humérus.

Problématique. 1. Comment une brochure compréhensible sur ce sujet devrait-elle être conçue ? 2. Quelles conséquences une fracture de l'humérus peut-elle avoir sur le nerf radial ? 3. Quels sont les symptômes possibles et quel est le pronostic ? 4. Quelles sont les possibilités de traitement et quel est le rôle de la rééducation dans le rétablissement suite à une paralysie radiale ?

Méthodologie. Nous avons effectué une revue de littérature sur les thèmes suivants : 1. Éducation du patient : format, conception et formulation. 2. Anatomie et pathomécanique, causes, symptômes et pronostic d'une paralysie radiale après une fracture de l'humérus. 3. Options thérapeutiques possibles. 4. Confection d'attelle lors d'une paralysie radiale. 5. Brochure : en commençant par l'explication des mécanismes de lésion, nous avons établi un programme d'exercices échelonné. Il s'agit en

premier lieu de prévenir les contractures et l'œdème. Nous avons également décidé d'intégrer l'imagerie motrice et l'observation d'action.

Résultats et implications. La brochure propose un guide pour la gestion de la paralysie radiale après une fracture de l'humérus, y compris des exercices de mobilisation précoce pour prévenir les contractures et des exercices spécifiques à faire à domicile pour conserver et renforcer les muscles concernés. Elle est formulée de manière facilement compréhensible et complétée par des graphiques informatifs. L'intégration d'approches thérapeutiques innovantes telles que l'imagerie motrice et l'observation d'action offre des options supplémentaires pour améliorer la rééducation.

Un autre sondage devrait permettre de déterminer si notre travail contribue à promouvoir l'information et l'adhésion des patients, à améliorer leur autonomie et leur qualité de vie et à favoriser leur retour à un mode de vie actif. Elle devrait également permettre d'optimiser le temps et les efforts consacrés à la thérapie.

FM85
An algorithm for the conservative treatment of TFCC injuries.

Mel Eissens[1], Selina Kolb[1] ([1]Kantonspital Winterthur, Winterthur)

Hypothesis. Currently conservative hand therapy treatment programmes for TFCC injuries seem to be rather general and less focussed on the different biomechanical causes. Could it improve patient outcome if a decision-making algorithm related the different biomechanical causes to a specific exercise programme?

Methods. Evidence based practice has shown that general conservative treatment guidelines can lead to less satisfying outcomes for individual patients with TFCC injuries. Patient presentation of TFCC complaints vary and we found that individual patients are in need for individual (re)assessments and instructions. A literature search of existing TFCC treatment programmes was conducted and demonstrated an absence of association between different biomechanical causes of TFCC injuries and individualized exercise programmes.

Results. I order to associate biomechanical causes and individual (re)assessements and instructions in conservative treatment of patients with TFCC injuries, an algorithm was developed to support decision-making in daily hand therapy practise. This enables individual patients with their own individual experienced problems, to perform different strategies on different stages. The programmes present a detailed overview of all the specific assessments, re-assessments and exercises, per stage and experienced problems. This substantiates the choices made by therapists in offering patients customized exercises.

Summary. Based on clinical reasoning, biomechanical principles and a literature search, an in-depth understanding for more individualized exercises, in regard to the experienced complaints in patients with TFCC injuries, was established. An algorithm to justify decision-making in the individualized, conservative treatment for patients with TFCC injuries will be presented. However, long-term effects about patient's outcomes and satisfaction need to be evaluated.

FM86
Mommy's Thumb: a therapeutic protocol for managing De Quervain in new mothers - A Case Study

Francesca Ferrario[1], Susanna Pagella[1], Mario Gaetano Fioretti[1] ([1]Ergomano Rehab, Lugano)

Background. Mommy's thumb, a lay term for de Quervain's tenosynovitis in mothers of newborn to young children, is characterized by overuse of the wrist, often resulting from carrying the child. This condition is six times more common in women than men and particularly prevalent in women of childbearing age. Postpartum de Quervain's tenosynovitis accounts for up to 40% of all cases. Evidence regarding its association with lactation and pregnancy is unclear. Treatment options include rest, hot/cold modalities, anti-inflammatories, splinting, steroid injections, and surgery, yet there is currently no specific prevention program for new mothers.

Method. The research employs a qualitative approach, utilizing both interviews and observations. A case study of a first-time mother and her six-month-old infant was conducted. Positive Finkelstein, What, and Eichhoff tests confirmed the diagnosis of de Quervain's tenosynovitis. Interviews and observations were conducted to identify practical techniques for a preventive approach.

Results. This study supports the hypothesis that mechanical components of newborn caregiving play a major role in the development of postpartum de Quervain's tenosynovitis. Analysis of data collected through interviews and observations highlighted the importance of proper positioning during infant care.

Discussion. The findings suggest the need for targeted educational programs to teach new mothers positioning techniques to prevent or reduce the onset of de Quervain's tenosynovitis. The qualitative approach adopted in this study allowed for capturing important nuances of the problem and identifying potential preventive strategies.

Freie Mitteilungen SGHR
Communications libres SSRM

Freie Mitteilungen / Communications libres V

FM87
Nachbehandlung der CapFlex-PIP Prothese – Erkenntnisse der letzten 14 Jahre

Nicole Ziegler[1], Charles Mayor[1] ([1]Schulthess Klinik, Zürich)

Einleitung. Eine bewährte Methode für die Behandlung von Schmerzen am arthrotischen proximalen Interphalangealgelenk (PIP) ist die Implantation eines Fingerkunstgelenk[1]. Dabei gilt die Silikonprothese als Goldstandard[2]. Ein häufiges Problem dieser Prothese ist die seitliche Instabilität[3]. Zudem kann eine vorbestehende Achsabweichung mit einem Silikon-Implantat nicht korrigiert werden. Seit 2010 wird in unserer Klinik alternativ die CapFlex-Prothese implantiert. Diese Prothese ist ein Oberflächengelenksersatz, mit besserer intrinsische Stabilität[4], weshalb diese am Zeigefinger und bei vorbestehender Achsabweichung eingesetzt werden kann. In den vergangenen 14 Jahren wurde die Nachbehandlung nach Implantation einer CapFlex-Prothese laufend angepasst und optimiert. Ziel dieses Vortrages ist es aufzuzeigen, was wir in den vergangenen Jahren dazugelernt haben und wie sich die Nachbehandlung in unserer Klinik verändert hat.

Methodik. Zur Analyse der Veränderungen in der Nachbehandlung nach Implantation einer CapFlex-Prothese wurden die Verlaufseinträge der Ergotherapie, die Operations- und Sprechstundeberichte der 6-Wochenkontrolle von 30 Patienten innerhalb der letzten 14 Jahre miteinander verglichen. Eingeschlossen wurden Patienten mit einer Operation am Zeigefinger oder Mittelfinger.

Ergebnisse. Die Operationstechniken unserer Handchirurgen haben sich seit 2010 verändert und wechselten vom dorsalen Zugang nach Chamay, zum palmaren Zugang nach Simmen und schliesslich zum dorsalen Zugang mit zentralem Strecksehnensplit und Ablösen des Zentralzügelansatzes an der Mittelphalanxbasis ohne Reinsertion. In der Nachbehandlung gab es Veränderungen bezüglich der Intensität der Mobilisation und der Schienenbehandlung zur Erreichung des bestmöglichen Bewegungsausmasses im PIP.

Schlussfolgerung. Die Nachbehandlung nach Implantation einer CapFlex-Prothese ist ein dynamischer Prozess. Sie hängt sowohl von der präoperativen Situation des PIP-Gelenkes, der verwendeten Operationstechnik, als auch vom individuellen postoperativen Verlauf ab. Es lohnt sich daher, die Patienten regelmässig in der Therapie zu sehen, damit die Nachbehandlung laufend an die aktuelle Fingersituation angepasst werden kann.

Literaturangaben.

[1] Herren (2019) *EFORT Open Rev,* 4, 254-262

[2] Ceruso et al. (2017) *EFORT Open Rev,* 2(1), 21-27

[3]Bales et al. (2014) *J Hand Surg*, 3, 455-461

[4]Hensler et al. (2020) *Hand Surg Rehabil,* 39(4), 296-301

FM87
Prise en charge des prothèses IPP CapFlex – enseignement des 14 dernières années

Nicole Ziegler[1], Charles Mayor[1] ([1]Clinique Schulthess, Zurich)

Introduction. L'implantation d'une prothèse de doigt est une méthode éprouvée pour le traitement des douleurs en cas d'arthrose de l'articulation interphalangienne proximale (IPP)1. La prothèse en silicone est considérée comme le gold standard2. Un problème fréquent de cette prothèse est l'instabilité latérale3. De plus, une déviation axiale préexistante ne peut pas être corrigée avec un implant en silicone. Depuis 2010, une alternative est appliquée dans notre clinique : la prothèse CapFlex. Cette prothèse remplace la surface articulaire, avec une meilleure stabilité intrinsèque4, ce qui permet de l'utiliser sur l'index et en cas de déviation axiale préexistante. Au cours des 14 dernières années, la prise en charge après l'implantation d'une prothèse CapFlex a été constamment adaptée et optimisée. Cette présentation a pour objectif de montrer ce que nous avons appris au cours des dernières années et comment la prise en charge a évolué dans notre clinique.

Méthodologie. Afin d'analyser les changements dans la prise en charge après l'implantation d'une prothèse CapFlex, l'historique des séances en ergothérapie ainsi que les rapports opératoires et de consultation du contrôle à six semaines de 30 patients ont été comparés au cours des 14 dernières années. Les patients ayant subi une opération de l'index ou du majeur ont été inclus.

Résultats. Les techniques opératoires de nos chirurgiens de la main ont évolué depuis 2010,

passant d'un abord dorsal selon Chamay à un abord palmaire selon Simmen, pour terminer par un abord dorsal avec séparation et désinsertion de la bandelette centrale à la base de la phalange intermédiaire sans réinsertion. Dans la prise en charge thérapeutique, il y a eu des modifications concernant l'intensité de la mobilisation et le traitement par attelle afin d'obtenir la meilleure amplitude articulaire IPP possible.

Conclusion. La prise en charge après l'implantation d'une prothèse CapFlex est un processus dynamique. Il dépend aussi bien de la situation préopératoire de l'articulation IPP, de la technique chirurgicale utilisée**,** que de l'évolution postopératoire individuelle**.** Il vaut donc la peine de voir régulièrement les patients en thérapie afin d'adapter en permanence la prise en charge à la situation actuelle du doigt.

Références bibliographiques.

[1] Herren (2019) *EFORT Open Rev,* 4, 254-262

[2] Ceruso et al. (2017) *EFORT Open Rev,* 2(1), 21-27

[3]Bales et al. (2014) *J Hand Surg*, 3, 455-461

[4]Hensler et al. (2020) *Hand Surg Rehabil,* 39(4), 296-301

FM88
CapFlex-Prothese – Nachbehandlung in der Theorie und Praxis

Jacqueline Mettler[1] ([1]Ergotherapie Wolter AG, Winterthur)

Hintergrund. Die Zuweisungen von operativ versorgten Patient:innen mit Implantaten im proximalen Interphalangealgelenk (PIP) nach Arthrose nehmen in Praxen zu. Durch immer weiterführende Forschung und Entwicklung im Bereich der Prothesen wandelt sich auch die Nachbehandlung in der Praxis der verschiedenen Implantate. Die am Markt vorhandenen Silikonimplantate vor allem bei Zeige- und Mittelfinger stossen an ihre Grenzen. Um eine adäquate achsengerechte Stabilität beim kraftvollen Einsatz des Pinzettengriffs zu ermöglichen, wurde die CapFlex-Prothese für das PIP entwickelt. Durch eine minimale Knochenresektion proximal und distal unterscheidet sich die CapFlex zum aktuellen Goldstandard, dem Silikonspacer.

Ziel. Die wissenschaftlichen Erkenntnisse als auch Erfahrungen von Handtherapeut:innen aus der Praxis sollen miteinander verglichen werden. Der Fokus des Themas wurde auf die Nachbehandlung bei CapFlex-Prothese gelegt.

Methode. Durch Befragung von operierenden Ärzt:innen und behandelnden Therapeut:innen in Österreich, Deutschland und der Schweiz wurden verschiedene Meilensteine ersichtlich. Die Erfahrungsberichte konnten mittels vorhandener Literatur verglichen und ausgewertet werden. Zur Literaturrecherche wurden die Datenbanken CINAHL, MEDLINE, PubMed und Cochrane verwendet.

Ergebnisse. Es wurden bei allen Patient:innen nach CapFlex-Implantierung eine dorsale oder palmare Lagerungsschiene angefertigt. Nach aktuellem Forschungsstand ist eine Unterscheidung zwischen einem palmaren und dorsalen Zugang wichtig.

Schlussfolgerung. Die Ergebnisse in der Nachbehandlung von CapFlex-Prothesen sollen auch unerfahrenen Therapeut:innen Sicherheit auf diesem Gebiet geben. Es gilt weiterhin zu beachten, dass die Nachbehandlung individuell an die/den jeweilige:n Patient:in angepasst werden muss. Unabhängig von den Ergebnissen ist eine genaue Rücksprache mit der/dem Operateur:in Voraussetzung für eine erfolgreiche Nachbehandlung.

Schindele, S. F., Altwegg, A. & Hensler, S. (2017). Oberflächenersatz am Fingermittelgelenk mittels CapFlex-PIP. *Operative Orthopädie und Traumatologie, 29*, 86-96.

Schindele, S. & Lautenbach, M. (2020). Endoprothetik der Fingermittelgelenke. *Handchirurgie Scan, 9*, 191-205.

FM88
Prothèses CapFlex – prise en charge théorique et pratique

Jacqueline Mettler[1] ([1]Ergotherapie Wolter AG, Winterthour)

Contexte. Les cabinets reçoivent de plus en plus de patients opérés avec des prothèses dans l'articulation interphalangienne proximale (IPP) suite à de l'arthrose**.** Grâce à la recherche et au développement toujours plus poussés dans le domaine des prothèses, la prise en charge des différents implants évolue également dans la pratique. Les prothèses en silicone disponibles sur le marché atteignent leurs limites, surtout pour l'index et le majeur. La prothèse CapFlex a été développée pour l'IPP afin de permettre une stabilité axiale adéquate lors d'une puissante préhension en pince. Grâce à une résection osseuse minimale au niveau proximal et distal, la prothèse CapFlex se distingue du gold standard actuel, l'implant en silicone.

Objectif. Il s'agit de comparer les connaissances scientifiques et les expériences pratiques des thérapeutes de la main. L'accent a été mis sur la prise en charge des prothèses CapFlex.

Méthode. Une enquête menée auprès d'opérateurs et de thérapeutes en Autriche, en Allemagne et en Suisse a permis de mettre en évidence différentes étapes importantes. Les rapports d'expérience ont pu être comparés et évalués à l'aide de la littérature existante. Les bases de données CINAHL, MEDLINE, PubMed et Cochrane ont été utilisées pour la recherche bibliographique.

Résultats. Une attelle de positionnement dorsale ou palmaire a été confectionnée pour tous les patients ayant subi l'implantation d'une prothèse CapFlex. Selon l'état actuel de la recherche, il est important de faire la distinction entre un abord chirurgical palmaire et dorsal.

Conclusion. Les résultats obtenus pour la prise en charge des prothèses CapFlex doivent également donner de l'assurance aux thérapeutes inexpérimentés dans ce domaine. Il convient de noter que la prise en charge doit être adaptée de manière individuelle à chaque patient. Indépendamment des résultats, une concertation détaillée avec le chirurgien est une condition préalable à une prise en charge réussie.

Schindele, S. F., Altwegg, A. & Hensler, S. (2017). Oberflächenersatz am Fingermittelgelenk mittels CapFlex-PIP. *Operative Orthopädie und Traumatologie, 29*, 86-96.

Schindele, S. & Lautenbach, M. (2020). Endoprothetik der Fingermittelgelenke. *Handchirurgie Scan, 9*, 191-205.

FM89
Proprioception: concept and rehabilitation of the CMC 1 joint

Bernadette Tobler-Ammann[1], Tamara Hauri[1], Esther Vögelin[1] ([1]Inselgruppe AG, Bern)

Background. Proprioception is not a new concept. It was first introduced as our "muscular sense" by Charles Bell in 1826 and later elaborated by Charles Sherrington, who coined the term "proprioception" in 1906 as "our perception of joint movement and positioning in space in the absence of visual feedback." Essential for sensorimotor coordination, proprioception significantly contributes to maintaining muscle tone, refining movement precision, ensuring joint stability, coordinating actions, and sustaining balance essential for everyday tasks (Cantero-Téllez 2021). In the hand, osteoarthritis (OA), ligament injuries and any condition affecting joint mobility can affect proprioception.

Aim. The aim of this presentation is to introduce the concept of proprioception and how it can be implemented in everyday clinical practice focusing on the carpometacarpal joint (CMC) of the thumb. An exercise program to improve proprioception in the CMC 1 in three phases is presented, together with a clinical test (Joint Position Sense (JPS) test).

Methods. This presentation is based on a literature search for evidence for proprioception treatment and evaluation methods in the CMC 1 joint.

Results. There is evidence that the distribution and type of mechanoreceptors - such as Ruffini endings - differ in patients with and without OA of the CMC1 (Ludwig 2015). Where Ruffini endings predominate in patients with no to mild OA, unclassifiable corpuscles predominate in surgical patients with OA. Results showed that a 6-week proprioceptive training program for the CMC 1 joint significantly improved the JPS test in female patients with CMC 1 OA compared to those who received standard hand therapy alone (Cantero-Téllez 2022).

Implications for practice. Proprioception is crucial in hand function and plays a critical role for accurate movement and preserving joint stability. Proprioceptive exercises could help hand therapists improve motor planning and patients' performance during task execution.

References

Cantero-Téllez R, Medina Porqueres I: Practical exercises for thumb proprioception. J Hand Ther 2021, 34(3):488-492.
Cantero-Téllez R, Algar LA, Valdes KA, Naughton N: Clinical effects of proprioceptive thumb exercise for individuals with carpometacarpal joint osteoarthritis: A randomized controlled trial. J Hand Ther 2022, 35(3):358-366.
Ludwig CA, Mobargha N, Okogbaa J, Hagert E, Ladd AL: Altered Innervation Pattern in Ligaments of Patients with Basal Thumb Arthritis. J Wrist Surg 2015, 4(4):284-291.

FM90
Are static or dynamic splints evidence based in Rheumatoid Arthritis management? A narrative review.

Mario Gaetano Fioretti[1], Susanna Pagella[1], Francesca Ferrario[1], Marco Guidi[2] ([1]Ergomano Rehab, Lugano; [2]Lugano)

Introduction. Rheumatoid arthritis (RA) presents a significant healthcare challenge globally, impacting approximately 1% of Switzerland's adult population and affecting around 1.5 million individuals in the country.[1] Notably, 60% of RA patients experience hand and wrist complications, often necessitating referral for splinting interventions.[1] However, determining the optimal splinting approach for RA management remains a topic of debate, with differing perspectives on the most effective and well-tolerated types of splints.

Methodology. A comprehensive literature review was conducted utilizing keywords such as "Rheumatoid Arthritis," "splint," and "conservative treatment" across prominent databases including Pubmed, Embase, and Scholar. Various combinations of these keywords were employed using boolean operators to refine the search. This narrative review aimed to extract scientific evidence concerning different types of splints documented in the literature.

Results. A total of 313 articles were identified initially. After applying inclusion criteria (focused on conservative treatment, RA without comorbidities, and static or dynamic splints, 2000+), 22 studies were chosen for review. Analysis of these selected articles revealed limited evidence supporting the efficacy of both static and dynamic wrist braces in improving range of motion, grip strength, or halting deformity progression. While some studies hinted at a moderate enhancement in grip strength with wrist splint usage[2], its overall impact on function remained inconclusive[3], potentially affecting dexterity adversely. Conversely, contrasting results were observed for finger splints[4]. Notably, dynamic splints demonstrated specific functional benefits, particularly in activities requiring strength, albeit with minimal improvements in dexterity[5]. Recent evidence[6] underscored the rationale for employing wrist stabilizers in RA patients.

Discussion. Despite the documented findings, the lack of recent systematic reviews, with the most recent being a decade old and relying on even older trials, highlights the necessity for updated research. The advent of novel thermoplastics and design innovations in the splinting realm necessitates inclusion in future trials, providing potential avenues for advancing our understanding of optimal splinting strategies in RA management.

[1]Kostova et al., 2014

[2]Egan et al., 2001

[3] Adams et al., 2008

[4]Porter & Brittain, 2012

[5] Ramsey et al, 2014

[6] Sadura-Sieklucka et al., 2018

FM91
Handübungsprogramm für Büroangestellte: Glückliche Hände dank dreiminütiger Spende

Grazia Saracino[1], Nicole Rüfenacht[2]
([1]Manotherapie, Binningen; [2]Ergo- Handtherapie am Zürichsee, Männedorf)

Hintergrund. Beschwerden in den Händen und Unterarmen kommen bei 30% der Büroangestellten in der Schweiz vor und können zu Einschränkungen in den ADLs und zu Krankheitsausfällen mit teils grossen wirtschaftlichen Folgen führen. Ergonomische Anpassungen werden in der Ergotherapie angewendet, um arbeitsbedingte Beschwerden im Bereich der oberen Gliedmassen zu senken, jedoch ist deren Evidenz unklar. Um die physischen Voraussetzungen der Büroangestellten zu verbessern, wären Übungen als Ergänzung sinnvoll, hingegen findet man für dieses handtherapeutische Klientel nur wenig spezifische Literatur.

Fragestellung. Es soll die Frage beantwortet werden, ob ein Übungsprogramm die Beschwerden mildern und den Handeinsatz von Büroangestellten im Alltag verbessern kann. Hierfür soll ein spezifisches Übungsprogramm erstellt werden, welches im Büroalltag gut integriert werden kann.

Methodologie. Anhand von aktuellen Studien wurden vier Übungen erstellt und verfilmt. Im ersten Teil wurden 10 Teilnehmer:innen einer Firma rekrutiert (Gruppe 1). Ergänzend konnten weitere 6 Büroangestellte mit bestehenden Beschwerden ermittelt werden (Gruppe 2). Alle Teilnehmer:innen wurden vor und nach der Übungssequenz nach ihren Schmerzen (Numeric Pain Rating Scale, NPRS) befragt und der MHQ (Michigan Hand Outcomes Questionnaire) erhoben. Die Teilnehmer:innen führten während vier Wochen dreimal täglich für jeweils drei Minuten die Übungen durch. Beim Post-Test wurden zusätzlich Fragen zur Praktikabilität der Übungen erhoben (Likert-Scale).

Ergebnisse. Die Schmerzen der Gruppe 1 blieben auf einem tiefen Ausgangswert unverändert. Bei der Gruppe 2 reduzierte sich der NPRS um 2.9 Punkte, was einer klinisch relevanten Veränderung entspricht. Beide Gruppen zeigten keine eindeutigen Veränderungen in den ADLs (MHQ). Die Praktikabilität wurde von beiden Gruppen als gut eingestuft, wobei besonders die Videos als hilfreich empfunden wurden.

Schlussfolgerung. In dieser Studie konnte aufgezeigt werden, dass die Übungen Schmerzen reduzieren und in den Büroalltag integriert werden konnten.

Jepsen, J. R. & Thomsen, G. (2008). Prevention of upper limb symptoms and signs of nerve afflictions in computer operators: The effect of intervention by stretching. *Journal Of Occupational Medicine And Toxicology, 3*(1), 1. https://doi.org/10.1186/1745-6673-3-1

FM91
Programme d'exercices pour les mains des employés de bureau : des mains heureuses en seulement trois minutes par jour

Grazia Saracino[1], Nicole Rüfenacht[2] ([1]Manotherapie, Binningen; [2]Ergo- Handtherapie am Zürichsee, Männedorf)

Contexte. Les troubles des mains et des avant-bras touchent 30% des employés de bureau en Suisse et peuvent entraîner des limitations dans les AVQ et des arrêts maladie aux conséquences économiques parfois importantes. Des adaptations ergonomiques sont réalisées en ergothérapie afin de réduire les plaintes liées au travail au niveau des membres supérieurs, cependant leur évidence scientifique n'est pas claire. Afin d'améliorer les conditions physiques des employés de bureau, des exercices seraient utiles en complément, mais on ne trouve que peu de littérature spécifique pour cette clientèle en thérapie de la main.

Problématique. Il s'agit de savoir si un programme d'exercices peut atténuer les plaintes et améliorer l'utilisation des mains des employés de bureau au quotidien. Pour ce faire, il convient d'élaborer un programme d'exercices spécifique qui puisse être facilement intégré dans le quotidien professionnel.

Méthodologie. Quatre exercices ont été créés et filmés sur la base d'études récentes. Dix participants d'une entreprise ont été recrutés initialement (groupe 1). En complément, six autres employés de bureau avec des troubles existants ont été identifiés (groupe 2). Tous les participants ont été interrogés sur leurs douleurs (Numeric Pain Rating Scale, NPRS) et ont complété le MHQ (Michigan Hand Outcomes Questionnaire) avant et après la séquence d'exercices. Les participants ont effectué les exercices trois fois par jour pendant trois minutes durant quatre semaines. Lors du post-test, des questions supplémentaires ont été posées sur la praticabilité des exercices (échelle de Likert).

Résultats. Les douleurs du groupe 1 sont restées inchangées à un niveau initial bas. Dans le groupe 2, le NPRS a été réduit de 2.9 points, ce qui correspond à un changement cliniquement significatif. Les deux groupes n'ont pas montré de changements clairs dans les AVQ (MHQ). La praticabilité a été jugée bonne par les deux groupes, les vidéos étant particulièrement utiles.

Conclusion. Cette étude a permis de montrer que les exercices réduisaient les douleurs et pouvaient être intégrés dans le quotidien professionnel.

Jepsen, J. R. & Thomsen, G. (2008). Prevention of upper limb symptoms and signs of nerve afflictions in computer operators: The effect of intervention by stretching. *Journal Of Occupational Medicine And Toxicology, 3*(1), 1. https://doi.org/10.1186/1745-6673-3-1

FM92
Daumensattelgelenksprothese mit Dual-Mobilität: Entwicklung einer Patientenbroschüre

Tanja Bertoldo[1], Sabine Siebert[2] ([1]Orthopädie Rosenberg, St.Gallen; [2]Kantonsspital Münsterlingen, Konstanz DE)

Motivation. An unserem Arbeitsort werden Menschen mit Rhizarthrose in den letzten Jahren vermehrt mit einer Daumensattelgelenksprothese operativ versorgt. Eine Orientierungshilfe wie zum Beispiel eine patientengerechte schriftliche Information zur Prothese und Nachbehandlung gibt es bisher nicht. Unsere Patient*innen zeigen sich häufig verunsichert und haben viele Fragen betreffend dem zu erwartenden Heilungsverlauf und der Bewegungs- und Belastungsdosierung im Alltag.

Dies führte uns zu folgender **Fragestellung:** Welche Informationen zum Rehabilitationsverlauf können wir Patient*innen nach einer operativen Versorgung mit einer dual-mobilien Daumensattelgelenksprothese, zum Beispiel TOUCH oder MAiA Prothese, aufgrund der momentan vorhandenen Evidenzlage in einer Broschüre anbieten?

Methode. Ein Projektzeitplan wurde erstellt. Keywords definiert und eine Literaturrecherche durchgeführt. Die ausschlaggebende Literatur wurde aufgrund von Ein- und Ausschlusskriterien ausgewählt. Relevante Inhalte wurden extrahiert, sortiert und gegenübergestellt. Weitere Informationen zu den Prothesen und deren Nachbehandlung wurden im Internet gesucht und bei Institutionen angefragt.

Ergebnis. Anhand der gefundenen Ergebnisse wurde eine Patienteninformationsbroschüre zum Thema dual-mobile Daumensattelgelenksprothese und die zu erwartenden Ergebnisse zum Heilungsverlauf erstellt.

Implikation. Die Informationen zum Rehabilitationsverlauf aus der Broschüre erleichtern es Personen mit einer Dual-mobilen Daumensattelgelenksprothese aktiv den Heilungsprozess mitzugestalten und mehr Sicherheit im Alltagseinsatz zu gewinnen.

Literaturverzeichnis

Herren, D. B., Marks, M., Neumeister S. & Schindele S. (2023). Low complication rate and high implant survival at 2 years after Touch® trapeziometacarpal joint arthroplasty.

Journal of Hand Surgery, 48(9), 877-883. DOI: 10.1177/17531934231179581

Katerla, D., Schandl, R., Wolters, R. & Krimmer, H. (2021). Erfahrungen mit Endoprothetik am Daumensattelgelenk. *Orthopäde, 51*(1), 29–35. https://doi.org/10.1007/s00132-021-04196-4

Lussiez, B., Falaise, C. & Ledoux, P. (2021). Dual mobility trapeziometacarpal prosthesis: a prospective study of 107 cases with a follow-up of more than 3 years. *Journal Of Hand Surgery. European Volume*, *46*(9), 961–967. https://doi.org/10.1177/17531934211024500

FM92
Prothèse de l'articulation trapézo-métacarpienne à double mobilité : développement d'une brochure pour les patients

Tanja Bertoldo[1], Sabine Siebert[2] ([1]Orthopädie Rosenberg, St-Gall; [2]Hôpital cantonal Münsterlingen, Constance DE)

Motivation. Ces dernières années, sur notre lieu de travail, les personnes souffrant d'une rhizarthrose ont été de plus en plus souvent opérées d'une prothèse de l'articulation trapézo-métacarpienne. Il n'existait pas jusqu'à présent de guide d'orientation, comme par exemple des informations écrites adaptées au patient sur la prothèse et la prise en charge. Nos patients sont souvent inquiets et ont de nombreuses questions concernant le processus de guérison attendu et le dosage des mouvements et des efforts dans la vie quotidienne.

Cela nous a menées à la question suivante : Quelles informations sur le déroulement de la rééducation pouvons-nous proposer dans une brochure pour les patients ayant subi une intervention chirurgicale avec une prothèse de l'articulation trapézo-métacarpienne à double mobilité, par exemple une prothèse TOUCH ou MAiA, sur la base des preuves actuellement disponibles ?

Méthode. Une planification du projet a été établie. Des mots-clés ont été définis et une recherche bibliographique a été menée. La littérature déterminante a été sélectionnée sur la base de critères d'inclusion et d'exclusion. Les contenus pertinents ont été extraits, triés et comparés. Des informations supplémentaires concernant les prothèses et leur traitement ont été recherchées sur Internet et des institutions ont été questionnées.

Résultat. A l'aide des résultats obtenus, une brochure d'information destinée aux patients a été rédigée sur le thème de la prothèses trapézo-métacarpienne à double mobilité ainsi que sur les attentes concernant le processus de guérison.

Implication. Les informations sur le déroulement de la rééducation contenues dans la brochure permettent aux personnes porteuses d'une prothèse de l'articulation trapézo-métacarpienne à double mobilité de participer activement au processus de guérison et de gagner en assurance dans son utilisation quotidienne.

Références bibliographiques.
Herren, D. B., Marks, M., Neumeister S. & Schindele S. (2023). Low complication rate and high implant survival at 2 years after Touch® trapeziometacarpal joint arthroplasty. *Journal of Hand Surgery, 48*(9), 877-883. DOI: 10.1177/17531934231179581

Katerla, D., Schandl, R., Wolters, R. & Krimmer, H. (2021). Erfahrungen mit Endoprothetik am Daumensattelgelenk. *Orthopäde, 51*(1), 29–35. https://doi.org/10.1007/s00132-021-04196-4

Lussiez, B., Falaise, C. & Ledoux, P. (2021). Dual mobility trapeziometacarpal prosthesis: a prospective study of 107 cases with a follow-up of more than 3 years. *Journal Of Hand Surgery. European Volume*, *46*(9), 961–967. https://doi.org/10.1177/17531934211024500

FM93
Gelenkschutz für Ergotherapeut:innen

Evamaria Estermann[1], Hannah Lusser[2] ([1]Praxis für Ergotherapie und Handrehabilitation, Reinach; [2]TherapieEck, Lienz AT)

Hintergrund. Gemäss Praxiserfahrung kommen schmerzende Hände bei Therapiepersonen mehrfach vor. Trotz Fachwissen zu Gelenkschutz, fehlt es an konkreten Umsetzungsbeispielen für ausgewählte Therapiemethoden. Eine Umfrage bei Studierenden des CAS-Handtherapie hat gezeigt, dass der Gelenkschutz wichtig eingestuft wird, jedoch die Umsetzung teilweise vorhanden ist und diverse Beschwerden auftreten. Literaturergebnisse bestätigen, dass Therapeut:innen arbeitsbedingte Schmerzen an den Händen verspüren. Stetige Über- / Fehlbelastung der Gelenke führt zu Abnutzungen und Folgebeschwerden.

Ziel. Welche Möglichkeiten gibt es für Ergotherapeut:innen, um die Gelenke während ausgewählten praxisrelevanten Behandlungsmethoden zu schützen? Mittels Broschüre werden konkrete Gelenkschutzmaßnahmen der oberen Extremitäten für Ergotherapeut:innen zur Umsetzung am Arbeitsplatz gegeben.

Methodik. Eine Umfrage bei Studierenden des CAS-Handtherapie, Literaturrecherche und Kontaktaufnahme mit Fachpersonen dienten zur Formulierung konkreter Praxismassnahmen. Eine Zusammenfassung aller Erkenntnisse und daraus

konkrete Umsetzungsmöglichkeiten für die Praxis wurden in einer Broschüre übersichtlich dargestellt.

Resultate. Aus der Literaturrecherche und der Fragebogenerhebung haben sich folgende Haupt-Behandlungsmethoden herausgebildet, die zu Beschwerden führen: Triggerpunktbehandlung, passive Gelenkmobilisation, Massage. In der Broschüre wurden gelenkschonende Möglichkeiten zur Umsetzung während der genannten Behandlungsmethoden aufgezeigt.

Implikationen für die Praxis. Es hat sich gezeigt, dass das Thema Gelenkschutz von Ergotherapeut:innen als wichtig erachtet wird, jedoch nicht konsequent in der Praxis umgesetzt wird. Die genauen Gründe dafür müssten in weiterer Forschung evaluiert werden. Zur besseren Implementierung der Gelenkschutzmassnahmen im Berufsalltag wurde ein kurzer Überblick in Form einer Broschüre mit konkreten Umsetzungsbeispielen von Ergotherapeut:innen für Ergotherapeut:innen gestaltet.

FM93
Protection articulaire pour les ergothérapeutes

Evamaria Estermann[1], Hannah Lusser[2] ([1]Praxis für Ergotherapie und Handrehabilitation, Reinach; [2]TherapieEck, Lienz AT)

Contexte. Selon l'expérience pratique, des douleurs apparaissent régulièrement dans les mains des thérapeutes. **Malgré des connaissances spécialisées sur la protection articulaire,** il manque des exemples concrets d'application pour certaines méthodes thérapeutiques**.** Une enquête menée auprès des participants du CAS en thérapie de la main a montré que la protection articulaire est considérée comme importante mais que sa mise en œuvre est partielle et que divers troubles apparaissent**.** Les résultats de la littérature confirment que les thérapeutes ressentent des douleurs aux mains liées au travail. Une surcharge ou une mauvaise sollicitation constante des articulations entraîne une usure et des troubles consécutifs.

Objectif. Quelles sont les possibilités pour les ergothérapeutes de protéger leurs articulations pendant certaines méthodes de traitement importantes pour la pratique ? Des mesures concrètes de protection articulaire du membre supérieur pour les ergothérapeutes, à mettre en œuvre sur le lieu de travail, ont été rédigées dans une brochure.

Méthodologie. Une enquête auprès des participants du CAS en thérapie de la main, une revue de littérature et une prise de contact avec des spécialistes ont permis de formuler des mesures pratiques concrètes. Un résumé de toutes les connaissances et les possibilités concrètes de mise en œuvre qui en découlent pour la pratique a été présenté de manière claire dans une brochure.

Résultats. La revue de littérature et l'enquête par questionnaire ont permis de dégager les principales méthodes de traitement suivantes entraînant des plaintes : traitement des points trigger, mobilisation passive des articulations et massage. La brochure présente les possibilités d'application ménageant les articulations pendant les méthodes de traitement mentionnées.

Implications pour la pratique. Il s'est avéré que le thème de la protection articulaire est considéré comme important par les ergothérapeutes mais qu'il n'est pas appliqué de manière conséquente dans la pratique. Les raisons exactes devraient être évaluées dans le cadre de recherches supplémentaires. Pour faciliter la mise en œuvre des mesures de protection articulaire dans le quotidien professionnel, un bref aperçu a été conçu par des ergothérapeutes pour des ergothérapeutes sous forme d'une brochure avec des exemples pratiques concrets.

FM94
Client-centered home program to promote isometric thumb function after Trapeziectomy LRTI

Isabel Carriconde[1] ([1]Universitätsklinik Balgrist, Zürich)

The importance of post-surgical rehabilitation for patients undergoing trapeziectomy with Ligament Reconstruction and Tendon Interposition (LRTI) is emphasized in some studies to attain improvements regarding pain intensity, limitations in daily life activities, muscular instability, and pinch strength. However, there is a lack of consensus on the content of postoperative rehabilitation. Furthermore, hand therapy has been called upon to realign its values around occupation, and thus faces challenges in offering an intervention that integrates specific functional goals and biomechanical principles. The purpose of this project in line with CAS in Hand Therapy is the design of an client-centered occupational Home-Based Hand Therapy Program (HBTP). The HBTP addresses the different rehabilitation phases after Trapeziectomy with LRTI and integrates occupational tasks and biomechanical principles to promote isometric thumb function. Literature review was performed in two databases (Pubmed and Google Scholar) to recognize and synthesize the three strategic steps in the resolution and development of the HBTP: rehabilitation standard, occupational performance and taxonomy grasp. The assessment of observational criteria was carried out using the Guidelines for Critical Review Form (Mc. Master University). The result is an evidence-based HBHTP with guidelines on set repetitions and

tailored exercise load, which seeks to provide an integration of biomechanical movement in the functional settings of self-care, productivity and leisure.

Bibliography.
1. Che Daud, A. Z., Yau, M. K., Barnett, F., Judd, J., Jones, R. E., & Muhammad Nawawi, R. F. (2016). Integration of occupation based intervention in hand injury rehabilitation: A Randomized Controlled Trial. Journal of Hand Therapy, 29(1), 30–40. doi:10.1016/j.jht.2015.09.004

2. Gracia-Ibáñez, V., Sancho-Bru, J. L., & Vergara, M. (2018). Relevance of grasp types to assess functionality for personal autonomy. Journal of Hand Therapy, 31(1), 102–110. doi:10.1016/j.jht.2017.02.003

3. Wouters, R. M., Tsehaie, J., Hovius, S. E. R., Dilek, B., & Selles, R. W. (2018). Postoperative Rehabilitation Following Thumb Base Surgery: A Systematic Review of the Literature. Archives of Physical Medicine and Rehabilitation, 99(6), 1177–1212.e2. doi:10.1016/j.apmr.2017.09.114

Workshops SGHR
Ateliers SSRM

Workshop A
Künstliche Intelligenz (KI) in der Handtherapie – praktische Anwendung verschiedener Tools für die Praxis

Bernadette Tobler-Ammann, PhD; Tamara Hauri, MScOT, PhD cand.

Die rasante Entwicklung der künstlichen Intelligenz (KI) hat das Potential, eine transformative Kraft in verschiedenen Bereichen der Medizin und Therapie zu sein. Das Ziel dabei ist es nicht, den Menschen zu ersetzen. Vielmehr soll sie unsere Fähigkeiten erweitern und uns im Arbeitsalltag unterstützen, um effizienter zu besseren Ergebnissen zu kommen. Insbesondere im Bereich der Handtherapie eröffnen sich mit der Anwendung von KI innovative Möglichkeiten, um die Effizienz und Wirksamkeit von Therapiemassnahmen zu verbessern und um uns in administrativen Aufgaben zu unterstützen.

Ein praktischer Workshop zur Anwendung der KI in der Handtherapie bietet eine einzigartige Gelegenheit für Handtherapeut/-innen, sich mit den neusten Entwicklungen auf diesem Gebiet vertraut zu machen und ihre Fähigkeiten in der Anwendung von KI-gestützten Tools zu erweitern. Dieser Workshop richtet sich an Handtherapeut/-innen, die ihr Fachwissen und ihre praktischen Fertigkeiten im Umgang mit KI-basierten Technologien vertiefen möchten, um ihre Patienten noch effektiver zu unterstützen.

Im Rahmen dieses Workshops werden die Teilnehmer-/innen die Gelegenheit haben, sich mit verschiedenen Aspekten der KI in der Handtherapie vertraut zu machen. Von der Nutzung von KI-Tools zur Bewertung von Handverletzungen, der erleichterten Suche nach aktuellen Studienresultaten für eine evidenzbasierte Praxis, der Entwicklung massgeschneiderter Therapieinterventionen bis hin zur Unterstützung im Formulieren neuer Flyers für die Praxis oder Heimprogrammen für die Patienten inklusive Übersetzung in Fremdsprachen bietet dieser Workshop einen umfassenden Einblick in die Möglichkeiten und Herausforderungen der Integration von KI im Praxisalltag.

Praktische Fertigkeiten werden anhand von Fallbeispielen mit den drei kostenlosen KI-Tools «Humata», «ChatGPT» und «Evidence Hunt» trainiert. Daher müssen die Teilnehmer/-innen einen Laptop mit Internetzugang mitbringen und die Bereitschaft, ein kostenloses Login (Mailadresse; Passwort) für die drei OpenAI Tools für deren Nutzung zu erstellen. Darüber hinaus wird der Workshop Raum bieten für den Austausch von

Erfahrungen und Best Practice im Umgang mit KI in der Handtherapie, um ein gemeinsames Verständnis für Chancen und Grenzen dieser Technologien zu entwickeln.

L'intelligence artificielle (IA) dans la thérapie de la main – mise en pratique de différents outils dans le quotidien professionnel

Bernadette Tobler-Ammann, PhD; Tamara Hauri, MScOT, PhD cand.

Le développement rapide de l'intelligence artificielle (IA) a le potentiel d'être une force de changement dans différents domaines de la médecine et de la thérapie. L'objectif ici n'est pas de remplacer l'homme. Elle doit plutôt élargir nos capacités et nous soutenir dans notre travail quotidien afin de parvenir plus efficacement à de meilleurs résultats. Dans le domaine de la thérapie de la main en particulier, l'application de l'IA ouvre des possibilités innovantes pour améliorer l'efficience et l'efficacité des mesures thérapeutiques et pour nous soutenir dans les tâches administratives.

Un atelier pratique sur l'application de l'IA en thérapie de la main offre une occasion unique aux thérapeutes de la main de se familiariser avec les derniers développements dans ce domaine et d'élargir leurs compétences dans l'utilisation d'outils basés sur l'IA. Cet atelier s'adresse aux thérapeutes de la main qui souhaitent approfondir leurs connaissances et leurs compétences pratiques dans l'utilisation des technologies basées sur l'IA afin d'aider leurs patients de manière encore plus efficace.

Dans le cadre de cet atelier, les participants auront l'occasion de se familiariser avec différents aspects de l'IA en thérapie de la main. De l'utilisation d'outils de l'IA pour évaluer des lésions de la main, en passant par la recherche facilitée de résultats d'études actuelles pour une pratique basée sur les preuves, puis au développement d'interventions thérapeutiques sur mesure jusqu'au soutien dans la création de nouveaux dépliants pour le cabinet ou de programmes à domicile pour les patients, y compris la traduction en langues étrangères, cet atelier offre un aperçu complet des possibilités et des défis de l'intégration de l'IA dans la pratique quotidienne.

Des aptitudes pratiques seront entraînées à l'aide d'exemples de cas avec les trois outils d'IA gratuits « Humata », « ChatGPT » et « Evidence Hunt ». Les participants doivent donc apporter un ordinateur portable avec connexion à Internet et être prêts à créer un login gratuit (adresse e-mail ; mot de passe) pour les trois outils OpenAI afin de pouvoir les utiliser. En outre, l'atelier offrira un espace pour le partage d'expérience et de bonnes pratiques dans l'utilisation de l'IA en thérapie de la main, afin de développer une compréhension commune des opportunités et des limites de ces technologies.

Workshop B Übungsaufbau in der Rehabilitation nach ulnaren Bandverletzungen im Handgelenk

Die Wissenschaft erforscht die Grundlagen der muskulären Stabilität im Handgelenk und deren Aufbau nach Verletzung. Wir richten uns dabei nach den aktuellen wissenschaftlichen Erkenntnissen im somatosensorischen Aufbau nach Bandläsionen im Handgelenk. * Hagert, SMoC

Doch wie sieht die konkrete Umsetzung eines Trainingsplanes basierend auf dessen Studien aus? Wie gestaltet sich ein Übungsaufbau entsprechend der Verletzungsphase im Früh- Mittel und Endstadium?

Wir zeigen am Beispiel einer TFCC-Läsion einen möglichen Übungsaufbau. Im Workshop werden den Teilnehmern praxistaugliche Übungen vermittelt. Wir schlagen einen Bogen von der Theorie in die Praxis und bringen Beispiele von Steigerungsformen innerhalb der einzelnen Teilaspekte der muskulären Stabilität im Handgelenk: 1. Stärken von einzelnen stabilisierenden Muskeln (friendly muscles) bis hin zum Stärken von Muskelketten in der OEX; 2. Propriozeption ; 3. isometrische, exzentrische und konzentrische Muskelarbeit ; 4. Steigerungsform im Bewegungstempo: langsame, kontrollierbare Kontraktionen bis hin zu schnellen reflexgesteuerten Bewegungen; 5. Closed chain – open chain -> Situation der Auflagefläche von angrenzenden Gelenken als Steigerungsform in der Belastbarkeit des Handgelenkes

Von allen 5 Teilaspekten werden je 2-5 Übungen gezeigt

(Aus zeitlichen Gründen werden dazugehörige Erfassungstools nur mündlich erwähnt, nicht aber durchgeführt. Wir empfehlen vorgängig das Impulsreferat zur Theorie der somatosensorischen Rehabilitation am Kongress zu besuchen (separates Abstract eingereicht).)

Élaboration d'exercices de rééducation après une lésion ligamentaire ulnaire du poignet

La science étudie les principes de la stabilité musculaire du poignet et sa reconstruction après une blessure. Nous nous basons pour cela sur les connaissances scientifiques actuelles dans la

construction somatosensorielle après des lésions ligamentaires du poignet. * Hagert, SMoC

Mais à quoi ressemble la mise en œuvre concrète d'un plan d'entraînement basé sur ces études ? Comment se déroule la création d'un exercice en fonction du stade précoce, moyen et final de la lésion ?

Nous prendrons comme exemple l'élaboration d'exercices lors d'une lésion du TFCC. Pendant l'atelier, les participants se verront proposer des exercices pratiques. Nous passerons de la théorie à la pratique et présenterons des exemples de forme d'augmentation relative aux différents aspects spécifiques de la stabilité musculaire du poignet : 1. Renforcement des muscles stabilisateurs propres (muscles amis) jusqu'au renforcement des chaînes musculaires du membre supérieur ; 2. Proprioception ; 3. Travail musculaire isométrique, excentrique et concentrique ; 4. Forme d'augmentation dans le rythme des mouvements : contractions lentes et contrôlées jusqu'à des mouvements rapides commandés par réflexe ; 5. Chaîne fermée – chaîne ouverte -> situation de la surface d'appui des articulations adjacentes comme forme d'augmentation de la capacité de charge du poignet

Deux à cinq exercices seront présentés pour chacun des cinq aspects spécifiques.

(Pour des raisons de temps, les instruments de mesure correspondants seront mentionnés oralement mais ne seront pas pratiqués. Nous recommandons d'assister au préalable à la présentation introductive sur la théorie de la rééducation somatosensorielle lors du congrès (abstract séparé soumis).)

Poster SGH
Posters SSCM

P1
Heterotopic Hand Restauration Following Radical Osteosarcoma Resection at the Elbow Region

D. Tolnai-Szebeny[1], S. Schmitt[1], B. Fuchs[1], U. Hug[1] ([1]Kantonsspital Luzern, Luzern)

Introduction. Several methods have been outlined for repairing bone and soft tissue gaps following tumor removal with wide or radical margins. These encompass autologous vascularized bone grafts, allografts and endoprostheses. Windhager proposed segmental resection and replantation of the upper extremities as a means of partially salvaging limbs affected by upper extremity malignancies that would otherwise be inoperable. This case report presents a 42-year-old patient whit osteosarcoma of the distal humerus in whom we performed an extra-articular resection of the elbow joint under preserving vessels and nerve structures and heterotopic restauration of the forearm to preserve hand function.

Method/Result. Five years after the diagnosis of an osteosarcoma, the patient presented in the clinic due to increasing functional impairment of the upper extremity with almost stiffened elbow joint. When first diagnosed, the patient refused surgery. After extensive discussion with the patient and deliberation within an interdisciplinary team, we planned the resection and replantation/restauration of the elbow with shortening of the upper extremity. By performing a humeroulnar arthrodesis, we were able to maintain free pronation and supination. The vessels and main nerve structures could be preserved. We will present the surgical technique, histology and functional outcome after 6 months, range of motion of the upper extremity, grip strength measurements and assessment of the patient's body integrity and satisfaction after the procedure.

Conclusion. We consider segmental resection of the elbow and restauration of the hand as a viable option for partial limb salvage in appropriately chosen patients with osteosarcoma. This approach enables extensive surgical resection margins similar to those of amputations, while maintaining hand function, which cannot be replaced by an equivalent prosthesis.

P2
Hand laterality and microsurgical gesture assessment

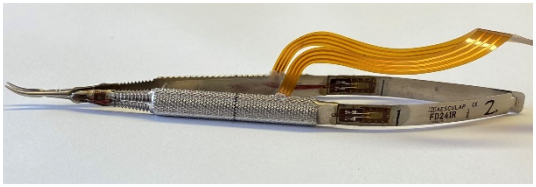
C. Guttmann[1], S. Durand[1] ([1]Service de chirurgie plastique et de la main, CHUV - Centre Hospitalier Universitaire Vaudois, Lausanne)

Introduction and objective. Hand laterality has an impact on surgical gesture. Training in ambidexterity, proposed by many authors, may help surgeons to improve performance. In this study we sought to measure multi-parameter variability of the microsurgical gesture depending on the hand used and the differences between expert microsurgeons and novices.

Methods. This study was accepted by our local ethics committee. Ten experienced microsurgeons and twenty medical students with no prior microsurgical experience were asked to perform arterial anastomosis on a chicken wing artery using dominant and non-dominant hands. The students were divided in 2 groups – one starting with dominant, and the other with non-dominant hand. We measured time and force using a home-made force sensing microsurgical needle holder, heart rate variability with Polar H10 chest strap, anxiety with STAI-Y questionnaire and anastomosis quality using MARS10 scale.

Results. In microsurgeons' group, duration of anastomosis (p=0.037), force applied to the needle holder (p=0.047), anxiety (p=0.05) and MARS10 (p=0.291) were significantly better with the dominant hand. For novices, there was no difference between the dominant and non-dominant hand concerning force, time and stress level. There was no difference between microsurgeons and novices concerning force and anxiety using non-dominant hand. For the ten students who started the exercise with their dominant hand, the time and force tended to be greater with the dominant hand, anxiety score (p=0.028) and heart rate variability (p=0.037) were statistically higher.

Conclusions. The study highlighted a marked laterality among microsurgical experts; a finding that may be explained by current learning methods. Surprisingly, no laterality is observed in students, suggesting for a specific gesture, completely different from the every-day tasks, laterality is not predefined. Many microsurgical procedures require mixed handedness for a faster, smoother, and better post-operative outcome and incorporation of deliberate repetitive practice with the nondominant hand into the residency curriculum seems relevant.



Home-made force sensing microsurgical needle holder

P3
Complications after volar plate synthesis for distal radius fractures

S. Lucchina[1], L. Pacchiarini[2], L. M. Oldrini[2], P. Feltri[2], G. Filardo[2], C. Candrian[2] ([1]Service of Orthopaedics and Traumatology EOC, Locarno's Regional Hospital, Locarno; [2]Service of Orthopaedics and Traumatology, Department of Surgery, EOC, Lugano)

Purpose. Distal radius fractures (DRFs) represent up to 18% of all fractures in the elderly population, yet studies on the rate of complications following surgery are lacking in the literature. This systematic review aimed to quantify the rate of complications and reinterventions in patients treated with volar plate for distal radius fractures and analyze if there was any predisposing factor.

Methods. A comprehensive literature search was performed on three databases up to January 2023, following PRISMA guidelines. Studies describing volar plate complications and hardware removal were included. A systematic review was performed on complications and rate of reintervention. Assessment of risk of bias and quality of evidence was performed with the 'Down and Black's Checklist for measuring quality'.

Results. About 112 studies including 17 288 patients were included. The number of complications was 2434 in 2335 patients; the most frequent was carpal tunnel syndrome (CTS), representing 14.3% of all complications. About 104 studies reported the number of reinterventions, being 1880 with a reintervention rate of 8.5%. About 84 studies reported the reason of reintervention; the most common were patient's will (3.0%), pain (1.1%), CTS (1.2%), and device failure (1.1%).

Conclusion. The complication rate after DRFs is 13.5%, with the main complication being CTS (14.3%), followed by pain and tendinopathy. The reintervention rate is 8.5%, mainly due to the patient's willingness, and all these patients had plate removal. Correct positioning of the plate and correct information to the patient before surgery can reduce the number of hardware removal, thereby reducing costs and the risk of complications associated with VLP for distal radius fractures.

P4
Instabilité antéro-postérieur de la MCP du pouce chez un jeune patient hyperlaxe

C. Bouvet[1], D. Coppey[1], N. Balagué[1] ([1]Hôpital du Valais, Sierre)

Introduction. L'instabilité de l'articulation métacarpo-phalangienne du pouce (MCP) provoque une gêne fonctionnelle très importante. Face à une laxité ligamentaire des enfants cette problématique peut être prise en charge tardivement et rentrer dans un tableau chronique d'instabilité antéro-postérieure.

Description du cas. Il s'agit d'un jeune patient de 15 ans, hyperlaxe qui subit un traumatisme sur le pouce. Il est travailleur manuel (apprentissage en maçonnerie). Cliniquement au moment du traumatisme on observe une hyperextension de la MCP du pouce, le bilan par imagerie (IRM) montre une lésion de la capsule dorsale de la MCP sans lésion ligamentaire ou tendineuse. Nous débutons un traitement conservateur par ergothérapie (renforcement EPB, court fléchisseur) et attelle de protection. Le patient évolue dans un premier temps favorablement.

Il se représente un an après le traumatisme avec la réapparition des douleurs sans nouveau traumatisme associé. Cliniquement on retrouve une articulation MCP stable sur les ligaments collatéraux mais avec une instabilité antéro-postérieure et un pouce qui part en hyperextension gênant beaucoup le patient. Une nouvelle imagerie montre une intégrité des structures articulaires de la MCP. Face à un patient hyperlaxe visant une activité manuelle une prise en charge chirurgicale est finalement proposée. Nous procédons à une rétention de la plaque palmaire par des points trans-osseux antéro-postérieur. Le patient bénéficie de 6 semaines d'immobilisation. Après cette période il commence à se mobiliser librement et il n'observe plus son instabilité. A 3 mois post –opératoire le patient est très satisfait du résultat et a pu reprendre son apprentissage.

Discussion. Il est décrit dans la littérature l'importance anatomique de la capsule articulaire dorsale de la MCP et son fibrocartilage associé pour la stabilité de l'articulation métacarpophalangienne. La stabilisation de la plaque palmaire est surtout décrite dans les cas d'arthrose avancée trapézométacarpienne avec instabilité de la MCP associée. On retrouve très peu de littérature sur les cas de pédiatrie et encore moins sur les jeunes patients hyperlaxes. Si l'instabilité antéro-postérieure persiste malgré un traitement conservateur il faut envisager la chirurgie par rétention de la plaque palmaire. Cette technique permet la stabilité de l'articulation et donne une bonne satisfaction au patient.

P6
Surgical treatment and postoperative care in children with dystrophic epidermolysis bullosa.

E. Rothenfluh[1], E. Vögelin[1] ([1]Inselspital Bern, Bern)

Introduction. Dystrophic epidermolysis bullosa is a rare disease and may come with digital contractures and pseudosyndactyly of variable severity, causing significant functional impairment. Our objective is to present a surgical technique of finger separation, with the use of Kerecis fish skin to cover skin defects, and to discuss the postoperative course and management in 2 patients.

Methods. 2 children have been treated surgically at the University Hospital Bern for dystrophic epidermolysis bullosa affecting both hands. They underwent separation of the fingers, in which defects were covered with Kerecis Omega 3, a non-cellular, non-alive, biologically active material. It is biomedically produced from fish skin and has the potential to promote wound healing in complex acute or chronic wounds. Surgical technique, dressing application and aftercare, as well as preliminary results (functional outcome, satisfaction) are reported.

Results. One child was 4 years old at the time of surgery. On first presentation, all long fingers were syndactylised on both hands and had contractures in the MP (80°) and PIP (100°) joints. The first commissure was closed with a completely adducted thumb. The fingers and first commissure were separated in staged procedures and interdigital defects covered with Kerecis. The dressing included Ialugen Cream and soft silicone layers. Similar staged procedures were performed in a 10 year old boy, the last operation is one year ago. He presented with syndactylised fingers and a closed first commissure. In both children the fingers and first commissure were successfully separated and wounds healed without complications. A dressing was applied by wound experts and the surgeons. They were changed on a regular base to maintain separation of the fingers and keep all wounds clean.

Discussion. Epidermolysis bullosa is inherited and can result in severe functional impairment of the hands given the contractures and pseudosyndactylies, which result in so called "cocoon hands". Our preferred surgical treatment of these patients is separation of fingers and the first commissure by covering defects with Kerecis to promote wound healing and prevent fast recurrence. Functional improvement was gained in both cases presented here and the wounds healed without

complications. Most importantly, families felt the effort was worthy.

Figure 1

Figure 2

P7
Mutilierende Kontrakturen nach Explosionsverletzung der Hand und Unterarm bei einem 11-jährigen Kind

A. Basagic[1] ([1]Bürgerspital Solothurn, Solothurn)

Einleitung. Schwere Verbrennungen der Hand mit Entwicklung von zum Teil mutilierenden Kontrakturen können einen erheblichen Verlust der Funktionalität der Hand und Handgelenk nach sich ziehen. Eine freie Funktion der Hand ist ohne aufwändige chirurgische Therapie häufig nicht möglich.

Falldarstellung. Es wird ein in seiner Ausprägung sehr ungewöhnlicher und komplexer Fall eines 11-jährigen Mädchen aus Angola vorgestellt, das massive und mutilierende Verbrennungskontrakturen der Hand und des Handgelenks nach vor Jahren erlittener Explosion eines Benzinbehälters davongetragen hat.

Im Rahmen eines humanitären Projektes (Friedensdorf International) konnte für die junge Patientin durch die operative Therapie eine deutliche Verbesserung der Lebensqualität erreicht werden. Durch eine komplexe zum Teil mikrochirurgische Lyse aller Strukturen (Haut, Gelenke, Sehnen, Gefäße und Nerven an der Hand und Unterarm), passagere Fixateur externe-Anlage, K-Drahtfixation der MP-Gelenke der Langfinger, Deckung des Defektes mit einem freien Lappen und späterer Syndaktylie-Trennung D2/ D3 sowie D4 /D5 konnte in diesem Fall eine deutliche Verbesserung der Funktion der zuvor vollkommen gebrauchsunfähigen Hand im Alltag erreicht werden.

Diskussion. Bei ausgeprägten Kontrakturen mit Einbeziehung verschiedenster Strukturen ist die Behandlung operativ aufwändig und nicht selten in mehreren Schritten erforderlich. Dabei entscheidend ist, intraoperativ schrittweise, individuell und befundorientiert vorzugehen, um den schmalen Grat zwischen „zu viel“ (Gefahr von Komplikationen) und „zu wenig“ (keine Besserung der Funktion) nicht zu überschreiten. Im Verlauf des Wachstums sind beim o. G. ausgeprägtem Funktionsverlust und dem jungen Alter der Pat. weitere korrigierende Maßnahmen erforderlich.

Konklusion. Selbst bei scheinbar aussichtlosen Situationen ist nicht selten eine Besserung der Handfunktion zu erreichen. Für den therapeutischen Erfolg ist die Kreativität des Operateurs und ein gutes dreidimensionales Vorstellungsvermögen gefragt, um das bestmögliche Outcome für die Pat zu generieren. Mindestens genauso wichtig ist jedoch auch die intensive postoperative Handtherapie, um die intraoperativ erreichten funktionellen Verbesserungen auszubauen oder zumindest zu halten.

P9
Hyperbaric oxygen therapy in Hand Surgery

M. A. P. Soro[1], A. Gonzalez[1], J. Y. Beaulieu[1] ([1]Hôpitaux Universitaires de Genève, Genève)

Introduction: Hyperbaric oxygen therapy (HBOT) is proven to be beneficial for the treatment of deep frostbite, osteomyelitis and healing of chronic wounds. Since 2009 our hospital possesses a double hyperbaric chamber with capacity of 16 people. The objective of this study was to present our results of HBOT use in patients of the hand surgery unit during a period of 18 months.

Material/Method: Between January 2022 and July 2023, 16 patients benefited from HBOT (5 female,

11 male, age from 24 to 80 yo). The indications were deep frostbite (n=4), severe osteitis (n=3), flexor tendon sheath infections (Michon stage I: n=1, stage II: n=3, stage III: n=2), acute ischemia of the hand (n=1) or digits (n=1), high pressure injection in a finger (n=1). The number of HBOT sessions per patient ranged from 3 to 55.

Results: Among patients with deep frostbite, no patient endured amputation. SPECT-CT performed at the beginning and end of the treatment in 2 patients showed improvement in bone captation. Patients with severe osteitis and flexor tendon sheath infection underwent surgical debridement/irrigation and antibiotherapy combined with HBOT. One patient with severe open trauma of the right upper limb underwent multiple operations for osteitis of the carpal bone which ended in wrist fusion and coverage with an inguinal flap. One patient with open fracture Gustilo 3a of the distal two forearm bones and osteitis finally benefited from osteosynthesis of the two bones of the forearm. Osteitis of one reimplantated thumb was successfully treated by surgical debridement, antibiotherapy and HBOT. Among the patients with flexor tendon sheath infection, one patient required amputation of the index finger at half P2 level. One patient required amputation through the MCP joints of all long fingers and coverage with an inguinal flap. One patient still suffers from a chronic wound of the index finger and refuses amputation. One patient suffered from acute ischemia of the hand following ulnar artery thrombosis. She finally went through amputations of 3 fingers through the PIP joint. The patient who suffered from high pressure injection in the index finger finally went through Chase amputation of the index finger.

Conclusion: HBOT is useful in frostbite injury and its benefits are easily shown with SPECT CT. While in devastating hand and upper extremity infections the benefits of HBOT are more difficult to prove. More studies are needed to evaluate HBOT in severe infectious hand cases.

P10
The use of a nasal speculum in mini-open carpal tunnel release - a technical tip

S. Wessmann[1], M. Dietrich[2], J. Sproedt[1], M. Kilgus[3] ([1]Stadtspital Waid, Zürich; [2]Stadtspital Waid Zürich, Zürich; [3]Stadtspital Triemli, Zürich)

Introduction/ Background. Carpal tunnel syndrome is a common upper limb neuropathy. Mini-open carpal tunnel release is in most cases being performed as a surgical procedure. The use of a fine nasal speculum within this procedure has several advantages in terms of implementation. Studies also show that this technique especially improves the direct visualization of the transverse carpal ligament (TCL) and reduces intra- and postoperative complications as well as improves outcomes.

Technique. A 1.5 - 2.5 cm long longitudinal incision is made proximally at the crossing point between the Kaplan`s cardinal line and a line sketched along the radial boarder of the fourth digitus. Incision is made followed by dissection to expose the palmar fascia. The fine speculum now is introduced and the palmar fascia is being opened. Afterwards the speculum is placed above the plane of the proximal limb of the TCL which then is being carefully incised under direct visualization.

Conclusion. This technique is not only safe and cost effective but also shows advantages like an improved intraoperative visualization with minimal risk of injury, a good functional and symptomatic outcome as well as an aesthetically pleasing incision.

Figure 1

Figure 2

P11
Traitement des Jersey fingers Leddy-Parker VB par plaque palmaire et sécurisation tendineuse

D. Estoppey[1], T. Mészaros[2] ([1]CHUV, Lausanne; [2]HFR, Fribourg)

Introduction. Les fractures-avulsions du flexor digitorum profundus (FDP) avec comminution articulaire (Jersey Finger de classification Leddy-Packer VB) sont difficiles à traiter car elles associent une avulsion de l'attache osseuse du tendon à fracture entièrement articulaire de la base de la phalange distale (P3), figure 1A. Un traitement par plaque associant renforcement tendineux est proposé. L'hypothèse est que cette méthode de traitement permet une reconstruction articulaire anatomique et une mobilisation précoce du doigt.

Matériel et méthodes. Il s'agit d'une revue rétrospective de de Jersey Fingers Leddy-Parker VB. La technique opératoire consistait à un abord palmaire selon Bruner en centrant l'incision au niveau de la pulpe. La plaque palmaire de l'articulation interphalangienne distale (IPD) était désinsérée proximalement pour faciliter la réduction du fragment avulsé du FDP. L'ostéosynthèse était réalisée par une plaque APTUS Hand® 1.5 en T fixée par des vis corticales 1.2 (2 au niveau métaphysaire et 1-2 vis en diaphysaire selon la place disponible), figure 1B. Le FDP était chargé selon Krakow par du PDS 4/0 qui était fixé à la partie distale de la plaque, ceci permettant la traction de la diaphyse et non celle du fragment osseux proximal lors de la flexion. La rééducation post-opératoire consistait en une mobilisation précoce active protégée par une attelle dorsale sur 6 semaines, comparable à un protocole suite à une suture de fléchisseur.

Résultats. Trois patients ont été opérés entre 2020 et 2022. Tous les patients ont présenté une consolidation de la fracture en position anatomique. Les mobilités articulaires étaient complètes à 3 mois post-opératoires hormis un déficit de flexion moyen de 15° de l'IPD. La force de préhension est revenue symétrique au côté controlatéral. Les cicatrices ne sont pas restées douloureuses. Il n'y a pas eu d'ablation de plaque nécessaire.

Conclusion. Le traitement des Jersey Fingers Leddy-Parker VB par ostéosynthèse par plaque palmaire et sécurisation du fléchisseur à la plaque, suivi d'une mobilisation précoce active protégée, semble être une option satisfaisante sur le plan clinique et radiologique. Elle évite l'arthrorise de l'IPD permettant ainsi la mobilisation précoce.

Figure 1

Figure 2

P12
Complex hand trauma case: there may be more than meets the eye

J. Döringer[1], D. Merky[2], D. Sutter[2], E. Vögelin[2] ([1]Inselspital Bern, Bern; [2]Inselspital, Bern)

Introduction: In trauma cases of the hand, complexities often lurk beneath the surface, challenging our initial assessments and treatment plans. What appears straightforward may hide layers of intricacy, necessitating flexibility, vigilance and unconventional approaches for optimal outcomes.

Method: We present the case of a 50-year-old patient with a complex injury to her dominant right hand from a printing press accident. Initial assessments revealed sharp injury with devascularization of the index and middle fingers. Subsequent imaging depicted extensive damage to carpal and metacarpal bones, with only the proximal row appearing intact. Urgent surgery was performed after careful assessment and treatment planning.

Results: Intraoperatively, instability of the whole carpus was noted, outweighing concerns regarding finger devascularization. Carpal and metacarpal stabilization was achieved with K wires and plate osteosynthesis. Postoperatively, dobutamine was administered for six days to enhance vascular hand perfusion. Despite all efforts, full necrosis of the hand ensued, necessitating transradial revision amputation.

Conclusion: Combined sharp-crush trauma resulted in devascularization of the index and middle fingers as well as extensive damage to the carpals and metacarpals. What seemed straightforward at first unfolded into a multifaceted puzzle, highlighting the need for ongoing reassessment and adaptation in traumatic hand injury management. Despite timely intervention and implementation of all available supporting measures, severe compromise of blood flow mandated amputation, underscoring the critical need for continuous reevaluation and adaptation in the management of traumatic hand unjuries and emphasizing the limitations of modern medical practice.

RöntgenHand

P13
Beidseitige kombinierte Scaphoid und Capitatum Frakturen im Adoleszenten-Alter: Eine seltene Rarität

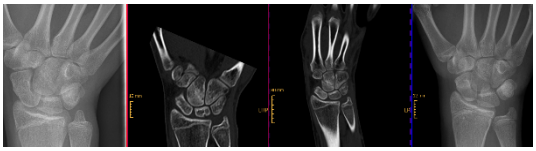
J. Ruthenberg[1] ([1]Kantonsspital Winterthur, Winterthur)

Einführung. Über kombinierte Scaphoid-Capitatum-Frakturen existieren in der Literatur lediglich wenige einzelne Fallbeschreibungen. Beim Erwachsenen treten diese Frakturen meist als Variante der Greater-Arc-Verletzung mit deutlicher Dislokation auf (Fenton-Syndrom). Diese müssen meist operativ therapiert werden. Für kindliche Frakturen ist die Datenlage noch einmal spärlicher. Für die nahezu ausschliesslich isoliert vorkommenden Frakturen von Handwurzelknochen existieren überwiegend konservative Therapieempfehlungen. Wir präsentieren den Fall einer 13jährigen Patientin, die sich eine beidseitige undislozierte Fraktur jeweils des Scaphoids sowie des Capitatum zuzog. Das eigene Vorgehen bei Diagnostik und Therapie wird dargelegt und zur Diskussion gestellt.

Hypothese/ Material und Methoden.
Fallvorstellung der konservativen Therapie einer kombinierter Scaphoid/Capitatumfrakturen ohne Dislokation beim Adoleszenten. Literaturübersicht. Der eigene diagnostische und therapeutische Algorithmus wurden analysiert und mit der existierenden Literatur verglichen. Grundlage bilden die zur Verfügung stehende klinische

Dokumentation sowie eine Online-Literaturrecherche.

Diskussion. Für die Behandlung der kombinierten Verletzung von Scaphoid und Capitatum beim Kind/Adoleszentenexistieren keinerlei valide Diagnostik- oder Therapieempfehlungen. Ob sich die kindlichen Frakturen in die Klassifikation der Greater-Arc-Frakturen einordnen lassen, ist zweifelhaft. Ein konservativer Therapieansatz mit klinischen und bildgebenden Verlaufskontrollen bis zum sicheren Nachweis der Konsolidierung erscheint opportun.



P14
Follow-up after total Wrist Arthroplasty with Integra Freedom® Implants

M. Shams[1], G. Bollmann[2], G. Kohut[2] ([1]Centre Epaule Main Fribourg, Lausanne; [2]Centre Epaule Main Fribourg, Fribourg)

Introduction. The stability and long-term loosening remain considerable challenges in the implementation of total wrist prostheses, especially in patients suffering from rheumatoid arthritis with low bone stock. This pathology brings even more complexity when facing a young patient affected on one or both wrists. Therefore, choosing between prosthesis or arthrodesis is a hard compromise between long term stability and mobility. To help us make wise choice, we conducted a retrospective study evaluating the results of Integra Freedom implementation in three patients.

Material/Methods. We conducted a retrospective case series study involving 11 patients who received an Integra Freedom total wrist prosthesis for osteoarthritis. All surgeries were performed by the same chief surgeon over 10 years. Only 4 were available for follow-up. One patient was excluded due to limb disuse following a stroke. The median age was 78 years. Follow-up of one patient at 1, one at 5, and one patient at 10 years. Evaluation criteria included overall satisfaction (expressed as %), visual analog scale (VAS) scores at rest, for hygiene, and for Activities of Daily Living (ADLs), assessments of wrist mobility, strength, and radiological findings.

Results. Our clinical results indicate an average satisfaction rate of 93%, with no pain reported at rest. The mean VAS scores for ADLs ranged from 2 to 3, reflecting satisfactory functional outcomes. Patients demonstrated adequate wrist mobility and strength, enabling them to perform ADLs comfortably. However, radiographic analysis revealed significant prosthesis loosening since five-year postoperative, consistent with findings reported in the literature. Additionally, the radiological assessment at 10 years for the patient who had suffered a stroke didn't show signs of osteolysis.

Discussion. Wrist arthroplasty is complex procedure due to its risk of loosening, but remains a valuable therapeutic option for elderly patients with moderate functional requirements. However, in the case of young patient with profound osteopenia, the five-year risk of loosening is high and patient must be informed of the probability of reoperation and arthrodesis.

Follow-up PTP

P15
Das Wartenbergsyndrom

A. L. Obiltschnig[1] ([1]Privatklinik Villach, Klagenfurt AT)

Nach Traumen, aber auch idiopathisch kommt es sehr häufig zu einem Schmerzsyndrom im Bereich des Vorderarms.

Dieses Schmerzsyndrom zieht sich über die Radialseite des Unterarms bis in den Daumen. Es sind oft sehr starke Schmerzen und Bewegungseinschränkungen des Daumens vorhanden. Die Schmerzen bestehen auch in der Nacht. Dieses Syndrom wird vielfach als Tendovaginitis der Strecksehnen diagnostiziert. Viele Patienten leiden langjährig unter diesem Syndrom. Die Diagnose ist schwierig, die Therapie mitunter ebenfalls. Es hilft nur die Operation.

Einleitung. Die Beschwerden der Patienten sind hauptsächlich am Unterarm. Es sind Nervenschmerzen und es kommt zur Ausstrahlung der Schmerzen in den Unterarm bis zum den Daumen, jedoch auch bis in die Halswirbelsäule. Die Patienten haben Nachtschmerzen und sind bei Tätigkeiten, bei denen Kraft der Unterarmmuskulatur benötigt wird, stark beeinträchtigt, können zum Beispiel nicht schreiben, oder lassen Gegenstände fallen.

Diagnose. Die Diagnose ist ausgesprochen schwierig. Das Syndrom ist der bildgebenden Diagnostik nicht zugänglich, weder im Röntgen, noch im MRT ist dieses Kompressionssyndrom feststellbar. Am Ehesten ist noch eine Sonographie des Nervus radialis superficialis im sogenannten Wartenbergschlitz zielführend. Das Tinel-Hoffmann Zeichen ist am Wartenbergschlitz positiv. Am besten ist die diagnostische Infiltration mit Xyloneural.

Methodik. Eine Heilung kann nur durch die Operation erreicht werden. Die Engstelle des Ram. superf. N. rad. liegt in dem Schlitz zwischen der Sehne des Ext. carpi rad. und der Sehne des M. brach.- rad. Es ist ein sehr enger Kanal und der Nerv muss hier durch diesen Schlitz in das Subcutangewebe gleiten und hier kommt es zu einer Abschnürung des Nervs. Das operative Vorgehen umfasst die Spaltung dieser Engstelle, Lösung des Nervs. Fallweise muss jedoch auch eine Sehnenplastik mit Erweiterung des Kanals, oder sogar eine Transposition des Nervs durch Tenotomie der Brachio-radiakis Sehne und Subcutanverlagerung des Ram. Superf. N. rad. durchgeführt werden.

Resultate. Es werden die Operationsmethoden und Ergebnisse gezeigt. Es kann bei richtigem Vorgehen eine sofortige Schmerzfreicheit erreicht werden. Allerdings muss nach einer Sehnenplastik eine 3-wöchige Ruhigstellung des Handgelenkes erfolgen. Rezidive sind möglich. Auf Spätfolgen und Komplikationen wird eingegangen.

P16
Thumb under pressure, a case report

A. Lizandra Miguel[1], N. Zechmann-Müller[1], A. Lizandra Miguel[2], D. m. N. Zechmann-Müller[2]
([1]Kantonsspital Winterthur, Winterthur; [2]Kantonsspital Winterthur, Kantonsspital Winterthur)

Introduction. High-pressure injection (HPI) injuries, resulting from high-pressure gun emissions, force materials through poorly distensible digital or palmar tissues. This leads to diffusion along fascial planes, tendon sheaths, and neurovascular bundles, resulting in significant damage. This study describes one case of HPI-induced thumb injury, proposing intensive repetitive debridement and irrigation as effective treatment for high-pressure injury.

Material/Methods. We present a clinical case of a 44-year-old man who presented to the emergency room with a 2x2mm skin defect on the distal phalanx of the left thumb. Clinical examination revealed pain, redness, swelling, and altered sensitivity. X-ray demonstrated a massive incorporation of foreign material from fingertip down to distal metacarpophalangeal-I level, diagnosing a high-pressure paint spray injury. The patient underwent surgical treatment involving repetitive intensive debridement and irrigation with Ringer's and Microdacyn solution, as well as thoroughly debridement of affected tissue. Several surgical revisions and examinations of the finger, flexor tendon sheath, and carpal tunnel were performed. Follow-up assessments included repeated clinical evaluations of pain, sensibility, active range of motion, and strength.

Results. The intensive irrigation and debridement proved to be a successful treatment approach. At the latest six-month follow-up, favorable outcomes were demonstrated, including pain alleviation (VAS 0), improved motor function (IP Flex-Ex: 30-0-0°, Kapandji 8), and increased strength (Pinch-Grip 2.5kg left vs 10kg right, Jamar II 35kg left vs 70kg right). Additionally, hypesthesia gradually improved with ongoing pathological Semmes-Weinstein testing

Discussion. HPI injuries are surgical emergencies. Early recognition and surgical management, regular follow-up, and early intensive occupational therapy are crucial for achieving successful outcomes. X-ray imaging can aid in diagnosing injury spread, depending on the incorporated substance. Severity is influenced by the nature of the substance, infection risk and time to treatment. Solvents are commonly injected materials, and the point of entry is typically small. The widespread use of pressure machinery in industry, increases HPI injury rates.

Conclusion. Early recognition and timely surgical intervention, involving repetitive intensive debridement and irrigation, can effectively preserve finger function, even in severe cases of HPI injuries.

Figure 1

Figure 2

Figure 3

P17
Improving upper extremity scar treatment with Medical Needling

C. Bauer[1], M. Aust[1] ([1]AUST AESTHETIK, Privatklinik für Plastische & Ästhetische Chirurgie, Landsberg am Lech DE)

Introduction. Scars on the hands cause particular problems. Frequent, distressing complications include hypertrophic scarring (HTS), keloids and contractures. We present two patients with severe upper extremity scarring who were treated with medical needling to optimize scar healing.

Case reports. Patient 1 (P1; m,38y) admitted Oct., 2015 in a burns clinic Bucharest: degrees I-IIA-IIB-III (affected body surface total 30-39%), right forearm and right hand, left circular forearm and left hand, >19 interventions (2016-2021)

Patient 2 (P2; f, 18y) presented with self-induced injuries 3y ago. Some wounds healed spontaneously; others developed HTS.

Materials and methods. A treatment series of different scars on hands with medical needling is actually performed, such as burns, cuts, HTS, keloids, scar strands after operations, flaps etc. Needling therapy was assessed at 2-3 defined measurement points and 2-3 control points of similar skin texture using a high-resolution device (Visioscan®) and 5 probes (Courage+Khazaka).

Results. Although the initial evaluations of the first follow-ups did not show significant changes yet, the Visioscan® data (e.g. R4-Data) already indicated an improvement in scar structure. The Cutometer® probes (e.g. R10, F4-Data) have also been able to objectify further structural improvements.

Discussion. Studies have shown that needling results in equivalent outcomes compared to laser therapies, but with lower risks and it can be used even years after trauma. Current data also show that it is applied safely on HTS and keloids. New needling devices allow to treat hard-to-reach areas (e.g. interdigital). Literature on medical needling is scarce, specifically for the upper extremity. However, needling has been a proven procedure for

years and is listed as HTS and keloid treatment option in the S2k guideline (2020-2024).

Conclusion. Medical needling is an effective, safe, simple, inexpensive and accessible treatment option for almost all upper extremity scars. It should be considered and mastered by hand surgeons. Specifically, needling can reduce the need for surgical interventions, shorten rehabilitation time, and better preserve hand/upper extremity functions.

Figure 1:Hypertrophic scars and keloids after self-injury with marked measuring points and a sample image using Visioscan®

Figure 2: Upper extremity after medical needling

P18
Ein haariger Fall: Pilonidalsinus an der Hand

K. Schär[1], N. Zechmann-Müller[1] ([1]Kantonsspital Winterthur, Winterthur)

Abstract. Ein 29-jähriger Patient wurde im Februar 2024 auf der Notfallstation unseres Hauses vorstellig mit einer schmerzhaften Schwellung interdigital zwischen den Fingern drei und vier der linken Hand. Vor drei Wochen habe es hier bereits eine Schwellung gegeben, wobei er selbstständig Eiter exprimieren konnte. Er ist Coiffeur von Beruf. Laborchemisch zeigte sich ein fast normwertiges CRP (8mg/l)) bei leicht erhöhten Leukozystenzahlen (12.9 G/l). Es wurde die Indikation zur Operation gestellt. Nach spindelförmiger Inzision um den Porus am punctum maximum der Schwellung entleerte sich reichlich Pus. Die Abszesshöhle wurde ausgiebig débridiert, wobei verklebte, nicht seinem eigenen Haaren entsprechenden Haare entfernt werden konnten. Eine Easyflowdrainage wurde eingelegt. Die Wunde wurde täglich mit Microdaycin gespült und es wurde eine Antibiotikatherapie mit CoAmoxi 3x625mg täglich für sieben Tage etabliert.

Die Histologie erbrachte eine unspezifische Entzündung bei Fremdkörperbeteiligung, die Mikrobiologie war bis auf den Nachweis von gramnegativen Stäbchen unauffällig. Bei der Kontrolle vier Wochen postoperativ zeigte sich ein symptomfreier Patient mit einer reizlos verheilten Wunde. Er berichtete dabei, dass er beim Haareschneiden die Haare der Kunden zwischen dem 3. und 4. Finger einklemmt. Dabei hätte er schon beobachtet, dass insbesondere dicke und starre Haare in die dritte Kommissur eindringen würden. Dies bestand auch auf der Gegenseite.

Diskussion und Schlussfolgerung. Die "Barber's desease", im deutschsprachigen Raum unter dem Namen Friseurgranulom beschrieben, ist ein immer wieder vorkommendes Krankheitsbild im Coiffeur Beruf. In der Literatur sind spärliche Fallberichte zu finden, wobei es sicherlich eine hohe Dunkelziffer gibt. Selbst unser Patient erwähnte, dass in seinem Kollegenkreis einige unter demselben Problem leiden. Bei Komissur-Abszessen, insbesondere beim Coiffeur-Beruf, sollte immer an die Möglichkeit eines Pilonidalsinus gedacht werden. Die Therapie umfasst radikales Débridement, antibiotische Therapie und meist die sekundäre Wundheilung. Präventivmassnahmen sollten ebenfalls berücksichtigt werden.

Dieser Fall hebt die Bedeutung einer frühzeitigen Diagnose und angemessenen Therapie von interdigitalen Abszessen hervor, insbesondere bei Personen mit berufsbedingter Exposition gegenüber Fremdmaterialien. Eine gezielte Amanese,

Untersuchung und Therapie können zu einer schnellen Genesung und Vermeidung von Komplikationen führen.

P19
Medizinische Hypnose in der Handchirurgie

H. Meier[1] ([1]Praxis, Zürich)

Wie funktioniert medizinische Hypnose? Wirkung medizinischer Hypnose prä- und postoperativ, bei Schmerzen und bei CRPS I. Mit der präoperativen Hypnose nimmt man positiven Einfluss auf die Wundheilung, hat weniger Komplikationen wie Durchblutungsstörungen, Schmerzen, Hämatome, Infekte und CRPS. Das Outcome eines Eingriffes deutlich wird gemäss multiplen Studien deutlich besser. Postoperative Schmerzzustände, chronische Schmerzzustände und CRPS I und II können durch Einbezug der eigenen Fähigkeiten des Patienten und seinen Ressourcen verringert werden. Die Wirksamkeit dieser Methode ist wissenschaftlich belegt. Metastudie über 161 Studien seit dem Jahr 2000.

Facit. Medizinische Hypnose ist ein sehr hilfreiches Tool, das vermehrt in der Chirurgie eingesetzt werden sollte.

P20
Are Corticosteroid Injections a Safe Treatment for Wrist Extensors Tenosynovitis?

F. Mauler[1], J. Lattion[1], M. Papaloïzos[1], S. Kämpfen[1], K. Vakalopoulos[1], P. Cuénod[1] ([1]Clinique de la Main - Genève, Genève)

Introduction. Corticosteroid injections are a common treatment providing relief from inflammatory pain associated with symptomatic tenosynovitis, arthritis and arthrosis. Although generally regarded as safe and effective, serious complications including subcutaneous atrophy, infection, and tendon ruptures have been reported. However, the literature regarding these adverse effects remains limited. We present a literature review about types of injectable corticosteroids, biological effect and potential complications, and illustrate this with two cases of extensor pollicis longus rupture following corticosteroid injections, shedding light on these underreported complications.

Material/Methods. We searched for literature in PubMed and Google Scholar, and searched for literature in English, German, and French. All references about corticosteroid injection, biological effect, and complications were reviewed.

Results. Mineralocorticoids and glucocorticoids are discussed, along with their subtypes and specific biological and metabolic properties. Few case reports and short series highlight the occurrence of local adverse effects, including infections, atrophy of skin and subcutaneous fat, and tendon rupture.

Conclusion. Despite the widespread use of corticosteroid injections, this review underscores the importance for clinicians to inform patients about specific risks, including extensor tendon rupture. Very little evidence is available about mid- and long-term efficacy of the injection. Based on the available data and our experience, we propose safety guidelines for corticosteroids injection in order to reduce the occurrence of these complications.

P21
Too big to fail? Biomechanical considerations on implant design of CMC-I prosthesis

A. Cousin[1], A. Pallaver[1], U. Hug[1] ([1]Luzerner Kantonsspital, Luzern)

Introduction. Prosthetic arthroplasty in carpometacarpal (CMC) osteoarthritis has become very common during the past 5 years. Implant design, especially head size, materials and head-neck-ratio determines its biomechanical properties such as stability and polyethylene (PE) wear. PE debris may later-on lead to implant loosening and implant revision, which currently is most often treated with trapeziectomy w/o ligamentoplasty (Sukur 2016). In this context we rationalize the implant design of the currently most widely used prosthesis “Touch” (Kerimedical, Geneva/CH) and hypothesize whether revision implant arthroplasty in the thumb will be a viable option in the future.

Methods. We list the available cup and head sizes of the Touch prosthesis and compare the implant design to the evidence in hip arthroplasty. For that purpose, a focused literature research was conducted on biomechanical papers to identify parameters influencing the lifespan of hip prosthesis. The current principles of hip implant arthroplasty were gathered from 10 biomechanical papers found in the National Center for Biotechnology Information (NCBI), published between 1990 and 2023.

Results. The Touch prosthesis is currently available with duo-mobility (DM) (head: 4mm diam.; cup spherical/conical: 9 and 10mm diam.; neck: 6,8 and 10mm height, 15° offset or straight).
In hip prosthesis arthroplasty research indicates that a larger head size correlates with increased volumetric PE wear rates (Pranav Rathi 2013, Livermore 1990, Schmalzried 1999, Tarasevicius 2008), while also enhancing stability. Force vectors

depending on cup orientation and head-neck-ratio have influence on the longevity of the prosthesis. The PE wear observed in DM prostheses appears to be comparable to that of fixed-bearing prostheses, although there is sparse data to confirm this finding (Boyer 2017, Gaudin 2016, Wegrzyn 2022).

Discussion. The applicability of biomechanical findings in hip prothesis to CMC arthroplasty of the thumb remains debatable. But respecting the hip prosthesis experience, we will certainly face an increasing number of aseptic implant loosening in hand surgery and we should prepare accordingly. Using a smaller cup-head element (i.e. 8mm) in primary surgery may reduce PE wear to the cost of primary cup stability. In case of aseptic loosening, smaller cups may create less bone loss allowing implantation of bigger cups in revision surgery.

P23
Ortho-plastic climax: 3D-planned osteotomy and vascularized fibula for a distal radius non-union

M. Gladysz[1], F. Fiumedinisi[1], F. Früh[1], J. A. Plock[1], R. Glaab[1] ([1]Kantonsspital Aarau, Aarau)

Introduction. High-energy trauma to the forearm can result in complex non-unions that are a particular challenge for reconstructive hand surgeons. We herein report a case integrating 3D-planned corrective osteotomy and a vascularized fibula graft to reconstruct a complex distal radius non-union, aiming to restore anatomy and improve functional outcomes.

Materials/Methods. A 42-year-old male sustained a comminuted right forearm fracture following a motorcycle accident in October 2021. Initial treatment involving open reduction, plate osteosynthesis, allogenic bone graft, and soft tissue repair resulted in a long-distance non-union at the metaphyseal radius, accompanied by volar angulation and radial deviation, leading to persistent pain and restricted range of motion. A simultaneous corrective osteotomy of the distal radius and a vascularized free fibula graft from the left leg were performed in November 2023. Preoperative 3D analysis and planning were utilized to accurately address the non-union and malalignment of the radiocarpal joint.

Results. The perioperative course was uneventful with dismissal from hospital 6 days after surgery. Weight-bearing was not allowed in the first 3 months and then limited to a maximum of 5 kg for the next three months. Wrist splint was advised for use at night and during risk activities. At the 3-month follow-up, the patient was pain-free. CT scans showed progressive consolidation of the free fibula graft. The range of motion for extension/flexion was 20°-0°-25°, and for pro-/supination 60°-0°-50°. No complications were reported for the donor site at the left leg.

Discussion. The combination of preoperative 3D planning and vascularized fibula grafts, well-established in craniofacial surgery for mandible reconstruction, can similarly be applied to the treatment of complex forearm deformities involving but not limited to posttraumatic bone loss. This approach ensures precise deformity correction and enhances biological healing, demonstrating high clinical relevance by offering a tailored solution that addresses both biomechanical and biological challenges in treating bony non-unions.

P24
Long term outcome after endoscopic assisted release of the ulnar nerve for cubital tunnel syndrome

C. Spies[1], C. Engler[1] ([1]Spital Langenthal, Langenthal)

Aim of the study. The aim of the study was to investigate functional and patient-rated outcome parameters after endoscopic assisted release of the ulnar nerve for cubital tunnel syndrome.

Methods. Thirty-two patients were recruited and evaluated clinically and by questionnaire testing retrospectively after a mean follow-up of 144 months (range: 120–180).

Results. Neurological parameters (two-point-discrimination, application of Semmes-Weinstein monofilaments, Tinel's test), grip, and three-point pinch strength were not significantly different from the contralateral extremity at the time of examination, whereas key pinch strength was significantly weaker. Mean Disabilities of the Arm, Shoulder, and Hand score was below 20. Patients' overall opinion was good/excellent for over 80% of the study population.

Discussion. The examined surgical procedure proved to be as efficacious as open in-situ decompression regarding functional outcome with fewer post-operative complications. Regarding the results it might be postulated that grip strength and three-point pinch strength determination is not necessarily relevant for ulnar nerve evaluation.

Conclusion. Endoscopic assisted release of the ulnar nerve is a reliable and safe treatment option for cubital tunnel syndrome with satisfactory long term functional and patient-rated outcomes.

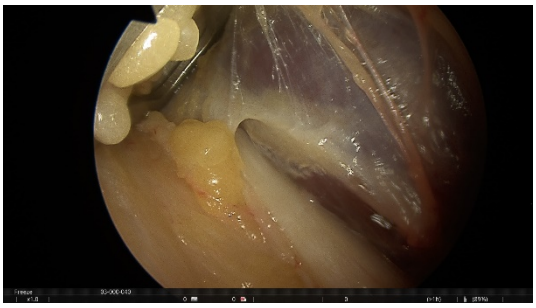


Figure 1

Figure 2

P30
3D patient-specific distal radius reconstruction with fibular graft after aneurysmal bone cyst

B. Kallenbach[1], M. Keller[2], P. Honigmann[1], M. Haug[3] ([1]Kantonsspital Baselland, Bruderholz; [2]Spital Limmattal, Schlieren; [3]Universitätsspital Basel, Basel)

Introduction. Aneurysmal Bone Cysts (ABC) is a rare benign osteolytic bone lesion with locally destroying growth. It occurs mostly in the first two decades of life, rarely in older patients and commonly affects the metaphysis. Clinical presentation includes pain and pathologic fractures. While most of ABC occur as primary lesions, there is an entity of secondary (reactive) ABC following osseous lesions such as fractures. We report a rare case of a secondary aneurysmal bone cyst of the distal radius following a distal radius fracture 4 years prior, with subsequent treatment and reconstruction.

Method. A 67-year-old female patient presented with a pathologic distal forearm fracture with radiologically expansive lytic bone lesion of the metaphysis of the distal radius, suspicious of an ABC. A biopsy and primary fracture management with an external fixator were performed due to the unclear dignity of the lesion. The diagnosis of ABC was confirmed in the biopsy. The indication for tumor resection and reconstruction was therefore set in the interdisciplinary tumorboard. A vascularized free fibula graft (ipsilateral, double barrel) was selected for reconstruction. To reproduce the physiological shape of the distal radius metaphysis the reconstruction was 3D-planned and involved the use of patient-specific 3D-printed osteotomy templates. The intraoperative course was without complications, the fibular graft was successfully fixed using plate osteosynthesis.

Results. Follow-up radiographs showed excellent bone union with progressive remodeling. The functional outcome was very good with almost the same range of motion and grip strength as the contralateral side. No limitation in everyday life and no donor site morbidity was reported.

Discussion. ABC is a rare benign bone tumor the treatment of which consists of complete resection and reconstruction. Reconstruction of the distal radius can be achieved with a fibula graft. In our case an excellent result was achieved with patient-specific osteotomy templates. Only a few cases of ABC in the distal radius and at this age have been reported, nevertheless it should be considered as a differential diagnosis for osteolytic bone lesions.

Figure 1: Follow-up radiograph

Figure 2: Initial radiograph

Figure 3: Patient-specific 3D-printed osteotomy templates

P31
COVID-19 pandemia: a raising trend of complaints in a public hospital – a 7-year retrospective study

S. Lucchina[1], P. Greco[2], B. Riccardo[3], G. Rossi[1], P. Greco[4], R. Bocci[5] ([1]Service of Orthopaedics and Traumatology EOC, Locarno's Regional Hospital, Locarno; [2]Locarno's Regional Hospital, Locarno; [3]University of Rome Tor Vergata, Faculty of Economics, Rome, Italy, Rome IT; [4]Quality service, Locarno's Regional Hospital, Locarno; [5]Quality service, Locarno's Regional Hospital Rome, Italy, Locarno)

Introduction. Patient and family dissatisfaction with hospital experiences can lead to negative word-of-mouth or formal complaints, impacting healthcare professionals' careers and hospital reputations. Mishandled public complaints erode trust in healthcare systems. In this study we analyzed formal patient complaints in a Swiss public hospital over a period of 7 years, that may represent a topical issue for hospital management.

Methods. We examined all formal patient and family complaints within a hospital's database for 7 years. Complaints were categorized using the Patient Complaint Analysis System and a control chart tracked incidence trends from 2017 to 2023. Data were analyzed retrospectively by comparing two periods, pre and post-COVID pandemic, to highlight any differences.

Results. Over a 7-year period, in a Swiss public hospital, 800 complaints were recorded from patients and families out of a total of 527,851 hospital admissions, (ave 1.5 per 1,000 visits). Highest incidence was in the Emergency (1.7/ 1,000 visits), Surgery (1.4/1,000 patients), and Internal Medicine (0.7/1,000 patients) Dept. The control chart showed a significant increase from an average of 1.2 pre-COVID to 1.8 post-COVID per 1,000 patients, surpassing the upper control limit (+O). The rise began in 2020, corresponding to the pandemic's onset. As to the reasons for dissatisfaction, 56% of complaints were categorized as “clinical”, 32% as “managerial”, and 12% as “relational”.

Discussion and conclusions. The incidence of complaints of the study in the Hospital can be compared to the other public facilities of the Swiss public network. Comparing the periods 2017-2019 and 2021-2023, for each category (clinical, managerial, and relational), an increasing number of both total complaints and incidence per 1,000 patients can be found. The category with the greatest percentage change in incidence between the two periods considered is that related to relational issues (from 0.14 to 0.24). These finding confirm previous studies related to mental health impact of COVID-19 in the community, being increasing anxiety and aggression the most frequent. Moreover they confirm the importance of complaints management to increase perceived quality and final satisfaction by staff and clinicians sensitization. Additional specific training programs on complaint management and through initiatives aimed at promoting interpersonal and intrapersonal kindness, hospitality, and humanization of care are mandatory.

P32
Dermofasciectomy in Dupuytren’s Disease; our experience with this technique: Follow-up of 9 cases.

M. Shams[1], L. Grüber[2], G. Kohut[2] ([1]Centre Epaule Main Fribourg, Lausanne; [2]Centre Epaule Main Fribourg, Fribourg)

Introduction. Dermofasciectomy is a surgical procedure for treating Dupuytren’s disease, characterized by fibrous retraction of the palmar and digital aponeurosis. This intervention involves the removal of affected skin and pathological tissue, followed by a total skin graft. In our study, we evaluated the effectiveness of this approach in patients with severe disease or recurrences.

Materials/Methods. We conducted a prospective and retrospective study involving 9 patients. All these patients underwent dermofasciectomy on the fingers with wide resection of metacarpophalangeal (MP) and interphalangeal (IPP) joints with the skin. A total skin graft harvested from the forearm is performed. In some cases, rotational flaps were also used at the metacarpophalangeal joint to reduce tension at the finger commissure. Follow-up was performed over a period ranging from 1 month to 1.5 years, during which we assessed wound healing, pain, mobility, sensitivity, and the URAM score.

Results. The wound complete healing occurs on average in 1.5 months. At 3 months, patients

reported no pain, and the mean URAM score decreased from 20.5 to 3 postoperatively. The sensitivity is preserved with 0.6 and 1g to filaments. However, there was still a persistence of low flexion contracture at the proximal interphalangeal joint (PIP), averaging 15°, with full flexion. But the satisfaction was reported by the patients is 100%. In patients followed up at 1.5 years, no recurrences were observed.

Discussion. Our study results demonstrate significant functional recovery and a noticeable reduction in residual flexion contracture at 3 months. Whether performed in cases of severe primary disease or Dupuytren's disease recurrences, this surgical procedure appears to offer important clinical benefits. The restoration of mobility and the prevention of recurrence are key advantages associated with dermofasciectomy. In summary, dermofasciectomy with skin grafting represents a promising option for patients with severe Dupuytren's disease. Further research and long-term follow-up are necessary to fully understand its efficacy and refine patient selection criteria.

Figure 1: Abstract Dupuytren SSCM

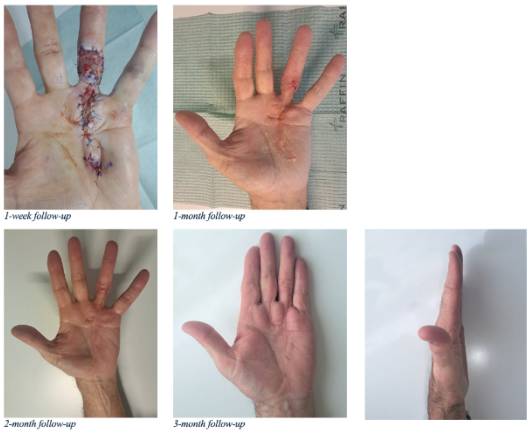


Figure 2: Abstract Dupuytren SSCM

P33
Identifying Plasma Biomarkers that Predict PROMs Following Treatment for CMC-1 Arthritis

M. Maniglio[1], M. Saggaf[2], N. Purohit[3], D. Antflek[3], J. Rockel[3], M. Kapoor[3], H. Baltzer[4] ([1]Uniklinik Balgrist, Zürich; [2]Toronto Western Hospital, Toronto CA; [3]Krembil Research Institute, TORONTO CA; [4]Toronto Western Hospital, TORONTO CA)

Introduction. First carpometacarpal osteoarthritis (CMC 1 OA) is one of the most frequent joints affected by OA in the hand. Different potential biomarkers are targets of research and advances in OA in general, but few studies focus on hand OA. This study aimed to identify systemic biomarkers in patients with CMC 1 OA at baseline that predict patient-reported outcomes one year after treatment. We hypothesized that baseline systemic biomarkers can predict patient-reported outcomes.

Methods. Prospectively collected blood samples and clinical data from 143 patients treated for CMC 1 arthritis with a conservative therapy, fat grafting or trapeziectomy were collected at baseline with follow-up at three months, six months and one year. Supervised machine learning methods using Lasso regularization were applied to the dataset to identify associations among 10 systemic biomarkers known to contribute to cartilage turnover, bone remodelling, pain transmission or lipid metabolism. The model was internally validated using 10-fold cross-validation and included Quick Disabilities of the Arm, Shoulder and Hand (QuickDASH), pain visual analogue scale (VAS) and the Trapeziometacarpal Arthrosis Symptoms and Disability (TASD) questionnaire outcome measures. Generalized estimating equation models were built for each outcome to assess the association between identified baseline biomarkers and 1-year outcomes accounting for age, sex, body mass index, time and treatment.

Results. Mean age of the 143 patients was 61± 8 years (mean±SD), and 99 patients (69 %) were female. The majority of patients were treated conservatively (n=68, 47%), followed by trapeziectomy (n=54, 38%) and fat grafting (n=21, 15%). The supervised machine learning model identified associations between several outcomes and N-propeptide of collagen IIA (PIIANP), visfatin, adiponectin and leptin. In the adjusted analyses (Table 2), baseline PIIANP was associated with improvements in VAS (beta = -3.09, 95% CI: -6.07 to -0.11, P=0.04), QuickDASH (beta =-3.99 95% CI: -5.98 to -1.99, P<0.0001) and TASD (beta = -2.42, 95% CI: -4.51 to -0.33, P=0.02) outcome measures longitudinally. Visfatin was associated with worsening in the VAS outcome measure (beta = 3.04, 95% CI: 0.14 to 5.93, P=0.04).

Conclusions. Baseline PIIANP is associated with an improvement in the clinical outcome while baseline visfatin is associated with worsening of CMC 1 OA outcomes up one year following treatment. These two biomarkers or a combination

of both may be useful to predict patient specific outcome after treatment of CMC 1 OA.

Outcome	Biomarker	Estimate* (95% CI)	P-value
QuickDASH	Visfatin	1.01 (-0.97 to 3.13)	0.30
	PIIANP	-3.99 (-5.98 to -1.99)	**<0.0001**
	Adiponectin	-1.30 (-3.51 to 0.90)	0.25
	Leptin	-0.02 (-2.31 to 2.26)	0.98
VAS	Visfatin	3.04 (0.14 to 5.93)	**0.04**
	PIIANP	-3.09 (-6.07 to -0.11)	**0.04**
	Adiponectin	-2.76 (-5.92 to 0.39)	0.09
	Leptin	1.77 (-1.53 to 5.07)	0.29
	CTX-1	-1.23 (-4.13 to 1.67)	0.41
TASD	Visfatin	1.04 (-0.95 to 3.02)	0.30
	PIIANP	-2.42 (-4.51 to -0.33)	**0.02**
	Adiponectin	-1.60 (-3.85 to 0.66)	0.17
	Leptin	0.64 (-1.64 to 2.93)	0.58
TASD Symptom Subscale	Visfatin	0.69 (-1.16 to 2.54)	0.47
	PIIANP	-1.91 (-3.90 to 0.08)	0.06
	Adiponectin	-1.59 (-3.79 to 0.63)	0.16
	Leptin	1.17 (-0.99 to 3.32)	0.29
TASD Disability Subscale	Visfatin	1.52 (-0.92 to 3.96)	0.22
	PIIANP	-3.13 (-5.70 to -0.56)	**0.02**
	Adiponectin	-1.62 (-4.26 to 1.01)	0.23

Protein markers Table 1

P34
High energy trauma through the distal carpal row with complex fracture of the capitate – a case report

A. Gübeli[1], I. Sojevic[2], J. Y. Beaulieu[2] ([1]Hopitaux Universitaires Genève, Genève; [2]Hôpitaux Universitaires Genève, Genève)

Background. Fractures of the capitatum are rare, with a reported incidence rate of 0.42-4.9% of all carpal fractures. The capitate has a central position, protected by the surrounding carpal bones and stabilized by the 3rd and 4th metacarpals, which is why its injury is often found in high-energy accidents with associated fractures of the carpus and metacarpus. We discuss the case of a young patient with fractures to all bones of the distal carpal row, who was treated surgically with open reduction and osteosynthesis, and in whom a nonunion of the capitatum was detected at 5 months.

Clinical case. An 18-year-old woman, polytraumatized in a motorcycle accident, presented a transcarpal fracture of the distal carpal row (trapezium, trapezoid, capitatum, hamatum) and base of the 2nd and 4th metacarpals. We performed open reduction and plate fixation of the capitate with temporary arthrodesis of the CMC 3 joint, plate fixation of the trapezoid and temporary arthrodesis of the CMC 2 joint, K-wire fixation of the trapezium, pinning of the triquetrohamate, hamatocapitate, scaphocapitate, CMC 3 and MC 3-5 and anchor refixation of the dorsoradial ligament of CMC 1. The wrist was immobilized in a cast for 8 weeks, followed by a cone beam computertomography (CBCT) describing a consolidation of over 50% of the carpal and metacarpal fractures including the capitate. The K-wires were removed at 3 months postoperatively to enable active mobilisation without load. At 5 months, a follow-up CBCT of the wrist revealed screw loosening, nonunion with displacement of the capitate fracture, and sclerosis of the fracture margins, with chondral lesions in the lunocapitate joint. Since the patient suffered from pain and stiffness, we decided to proceed with revision surgery. 7 months after the initial trauma, we conducted an open treatment of the capitate pseudarthrosis with cancellous bone graft of the ipsilateral distal radius and opted for a midcarpal fusion with scaphoidectomy.

Conclusion. Capitate fractures, although rare and often linked with other carpal fractures, are associated with a high nonunion rate. The existing literature is limited, primarily comprising case reports and small case series documenting instances of pseudarthrosis and avascular necrosis. This case, along with a review of the scarce literature, emphasizes the importance of patient education regarding outcomes, including the potential need for revision surgery and salvage procedures like midcarpal fusion.

P36
Axon count of nerves of the brachial plexus: A systemic review of the literature

M. Maniglio[1], H. Baltzer[2], N. Haydon[3] ([1]Uniklinik Balgrist, Zürich; [2]Toronto Western Hospital, TORONTO CA; [3]Royal North Shore Hospital, Sydney AU)

Introduction. An important factor in planning nerve transfers is the axon count matching of the donor and recipient nerves. In the literature, axon counts are obtained from various sources, using different methods. A single source who summarizes all nerves of the brachial plexus is lacking. The aim of this review is to summarize all axon counts in a single article and access the comparability between different studies.

Methods. A systemic review of the literature was conducted according to the PRISMA guidelines. The databases pubmed, Medline, Ovid and Embase were assessed in “human only” using all different variations of the terms "nerve axon count* AND upper extremity"; inter-changing the first term with “axon count* ; myelinated fibers count*; nerve transfer and the second term with brachial plexus and arm.

A total of 539 articles were found and screened from two authors independently. After exclusion of duplicates and assessing the articles titles and abstracts a total of 57 articles were selected and 19 articles were added through the reference list for a

full text assessment, after which we retained 54 articles.

The methods of axon count were assessed for these articles and the axon counts, SD, and ranges collected for all upper extremities' nerves. A metanalysis was performed, if more than one article counted the axons of a specific nerve, if the difference between the counts were less than 100%.

Results. In the 54 articles a total of 12 nerves and 44 muscle branches were assessed. Axon counts of 4 nerves and 14 branches were done only in a single study (Table 1). Comparing axon counts of different studies, the difference excided 100% between the highest and lowest value in 4 nerves and 16 nerve branches (Table 2.). For 5 nerves and 11 branches a metanalysis could been performed (Table 3).

Discussion. Our study revealed a significant contrast in nerve axon counts across various studies, with differences reaching up to a factor of 87 in between the averages. Additionally, the quality of these studies varies, with poorly described methods, particularly since axon count is frequently reported as a secondary or tertiary outcome.

Conclusions. Apart from describing the axon counts of the upper limb, the authors have found that the comparability between different studies is low. This insight should warn the surgeons for using values of axon counts from different studies, with different methodologies to match the axon counts in planning nerve transfers.

Nerve/Branch	Subclavius	Pectoralis	Ulnar [at Guyon lodge]	Radial	TD med. branch	Teres major	Infra Spinatus	Lat. Pectoral	Ant. Axillaris
Average Axons	ca. 3000	5876	10243	19859	974	1160	830	1561	4052
Min.			6238	10029			413		1541
Max.			13870	32210			1123		5768
SD	1024					506	241	379	

Nerve/Branch	Coracobrachialis ADQ	1st palm IOM	1st lumbrical PIN	APL	EPB	EPL	EIP
Average Axons	773	676	385 1411	2990	591	305	436 267
Min.					402	301	275 173
Max.					717	442	621 380
SD	75	176		824 592	108	57	100 80

Figure 1

Nerve/Branch	Axillary	MusculoCutaneous	Supra Scap	Biceps	Pronator teres	PL	FDS	FPL	AIN	FDP
Min. Average	1935	9061	1558	882	862	765	888	480	600	847
Max. Average	8700	19918	6004	1826	2178	755	2929	962	25288	2122
Factor	3.7	2.6	3.8	2.1	6	2.7	3.3	2	42	2.6

Nerve/Branch	Thenar branch	FCU	Ulnar Deep motor	Triceps	Long H	Med. H	ECRB	Supinator	ECU	EDM
Min. Average	356	372	1000	2569	546	818	183	398	515	329
Max. Average	30960	1430	35426	5962	2302	2198	745	32426	7355	5931
Factor	87	3.8	35	2.3	4	2.7	4	82	14	18

Figure 2

Nerve/Branch	SAN	Long Thoracic	Levator Scapulae	Dorsal Thoracic	DT lateral branch	Teres minor	Axillaris post branch	Brachialis
Average	1650	1468	1241	2188	1765	1072	1106	1282
Min. Average	1021	1135	1114	1887	1453	961	937	944
Max. Average	1950	1746	1335	2789	1843	1161	1242	1840
SD			447	676				

Nerve/Branch	Median	FCR	PQ	Ulnar	Triceps lat. Head BR	ECRL	EDC
Average	16131	1057	757	13346	1228	400	603 495
Min. Average	15915	746	670	10280	994	341	484 401
Max. Average	18288	1472	912	16412	1462	550	704 560
SD			143			95	

Figure 3

P38
Outcomes after selective tibial nerve transfer surgery in foot drop patients

E. Zen Vukovic[1], R. Liechti[1], D. Merky[1], S. Christen[2], E. Vögelin[1] ([1]Inselspital, Bern; [2]Berit Klinik, Goldach)

Introduction. The peroneal nerve is the most commonly injured nerve in lower extremity trauma and if untreated leads to drop foot and the need of ankle foot orthosis (AFO). Several procedures are available to restore ankle extension as neurolysis, nerve grafting, neuromusculotendinous transfers, tendon transfers and joint fusion, yet there is no consensus on the first line of treatment. Our study aims to perform an analysis of functional and electrophysiological outcomes of selective motor nerve transfer surgery (sMNT) of tibial nerve motor fascicles to branches of the deep peroneal nerve to the anterior tibial (TA) muscle in foot drop patients.

Materials/Methods. This retrospective study analysed all consecutive patients undergoing sMNT surgery following severe axonal damage to the common peroneal nerve between 01.01.2011 and 30.09.2023. Patients <16 years, with less than nine months follow-up, not willing to participate in the study and having concomitant peripheral nerve conditions (i.e. polyneuropathy) were excluded.

Results. In this time frame sMNT surgery was performed on 22 patients with paralysis caused by trauma (n=18), tumor (n=1) or iatrogenic nerve injury (n=3). Seventeen patients met the inclusion criteria, out of which eleven had available pre- and postoperative electrophysiological data. The mean age of the operated patients was 42.2 ± 18.2 years (range 16-73) with an average interval between trauma and surgery of 7.2 ± 4.3 months (range 0-15). Follow-up averaged 27.5 ± 13.8 months (9-63). Fourteen patients (82.3%) showed clinical signs of reinnervation. Median time to reinnervation was 6 months (range 2-43 months) with a significant earlier reinnervation in patients reaching MRC 4 or stronger. The overall postoperative TA muscle strength averaged 3.2 ± 1.8 (range 0-4.75) on the Medical Research Council (MRC) scale leaving 13 patients (76.5%) with an MRC of 3 or stronger. Twelve patients (70.6%) were able to walk without AFO. All electromyography findings of the TA muscle improved significantly. There was a significant correlation between motor recovery of the TA muscle and patient's age, number of transferred fascicles and additional external neurolysis of the common peroneal nerve.

Conclusion. SMNT surgery can be a viable option to restore ankle extension in foot drop patients. Age, number of fascicles transferred and additional neurolysis of the common peroneal nerve appear to influence the likelihood of successful neuromuscular reinnervation.

P40
Vascularized Growth Plate Transfer in Paediatric Non-Union: Operative technique and Literatur Review

N. M. Grünberger[1], A. Kaempfen[2], A. Krieg[3], D. Schaefer[4], A. Klein[4], M. Barandun[4]
([1]Universitätsspital Basel, Basel; [2]Unispital Basel, Basel; [3]UKBB, Basel; [4]USB, Basel)

Congenital pseudarthrosis of forearm fractures is rare and is strongly associated with neurofibromatosis type.Our case report illustrates the progression of a non-union of the ulna after minor trauma in a twelve-year-old boy, newly diagnosed with NF1, and presents the technique of microsurgical bone reconstruction, including the growth plate. More than seven years after the first operation, follow-up presents a favorable outcome with a pain-free patient and unrestricted function of the forearm after a secondary correction of the remaining radial bowing. This treatment is discussed with a comprehensive review of the current literature on ulnar congenital pseudarthrosis in PubMed and Google Scholar and free fibular growth plate transfer in PubMed and Google Scholar. Nine publications reporting on 20 cases of congenital ulnar non-unions were identified. With this reconstructive option, favorable outcomes were achieved in all cases with the union after primary surgery and complications requiring further surgeries in nine cases. The benefit of vascularized growth plate bone transfer in congenital ulna non-union seems to be significant compared to other therapies such as open reduction internal fixation (ORIF), non-vascularized bone grafts, or one-bone-forearms and beneficial when growth reconstruction is needed. Other techniques might be necessary to improve insufficient long-term results.

Poster SGHR
Posters SSRM

P60
Relationship between ULNT2 test and the mobility of the flexor muscles of forearm

Miriam Cerezo Perez[1] ([1]Hopital Universitaire de Lausanne, Lausanne)

Objective: The aim of this study is to describe the relationship between sequential neurodynamic median nerf test and the mobility test for flexor muscles with and without insertion of the fingers, the wrist and elbow, as well as, for the pronator muscles of the forearm. The subsequent research null hypothesis was that there will be no signifiant relation between sequential neurodynamic median nerf test and the mobility test for flexor muscles of the fingers, the wrist and elbow, as well as, for the pronator muscles of the forearm, in healthy subjects.

Participants: The study includes 30 fully healthy participants between 18 and 60 years old. Participants were recruited via descriptive article of the study in the physical therapy center Provital in Egg (Zurich).

Variables The studied variables are: Location of symptoms, structural differentiation, median neurodynamic test 2 positive or negative and relevant or not relevant and passif ROM ext wrist or elbow and socio-Demographic variables questionnaire.

Method A-Median neurodynamic test 2 (picture 1): 90-degree elbow flexion, full fingers and wirst extension, full RE shoulder and supination of the forearm and full elbow extension. Patients were instructed to communicate the symptoms that first appeared. B-Streatching test of flexors muscles with and without insertion of the fingers and pronator teres muscle. The onset of symptoms indicated the end of the test. (Tricás et al., 2012). Once the symptoms appear, the main physical therapist questions the participant about the location at which the second physical therapist mesures the wrist or elbow passive range of extension movement with a standard goniometer. The measured variables are compared between the different test after all the participants have completed them and the result are being analyzed.

Results (in work)

Figure 1: Neurodynamic sequence of MNT2(end position)

Figure 2: Flexor muscles with insertion on the fingers stretching OMT test

P61
Splinting for Painful Metacarpophalangeal Joints: Importance of Observing Patient Performance

Anahi Jeanrenaud[1], Lionello Gaia[2], Sammons Massimo[3], Ivan Tami[3] ([1]Ergoterapia Manoegomito, Locarno; [2]Ergoterapia Manoegomito, Gravesano; [3]Centro Manoegomito, Gravesano)

Context. The hand frequently experiences peripheral joint involvement in osteoarthritis, leading to disability that significantly impacts quality of life, hindering activities of daily living, work, and leisure pursuits. The metacarpophalangeal (MCP) joint plays a crucial role in digit positioning and the performance of various grasping and manual dexterity functions.

Objectives. Our objective is to present different functional splints designed for patients experiencing MCP joint pain, facilitating their daily, recreational, and work activities. These splints are personalized following careful analysis and observation of the patients' activity execution.

Methodology. Two patients diagnosed with osteoarthritis and one with osteoarthrosis were randomly assigned to wear either a functional neoprene or thermoplastic splint for the MCP joint, personalized based on analysis of their daily, leisure, and work activities. During the initial session, patients completed a set of questionnaires (QuickDASH and VAS). Subsequent evaluations occurred at 2 and 4 weeks after initiating splint use, assessing the same outcomes.

Results. In all cases, tangible benefits were observed in terms of increased autonomy and reduced pain during daily life, work, and recreational activities with the use of functional splints.

Conclusion. Based on our experience in crafting customized functional splints, informed by attentive observation of patients engaging in manual activities, we have noted a decrease in pain and an improvement in patient satisfaction and autonomy. It is recommended to incorporate patient education on ergonomic aspects and splint usage into the treatment regimen for individuals with painful MCP joints. Patients should also be encouraged to communicate with their therapist if modifications to the splint are needed.