Mean follow-up period in the selected studies ranged from 18 months to 110 months with minimum follow-up across all studies being 12 months. MoPyC (Modular Pyrocarbon, Tor nier™, Montbonnot-Saint-Martin France) was the implant of choice in twelve studies while one study used the Ascension Pyrocarbon radial head (Ascension Orthopaedics™, Austin, TX). Nine studies demonstrated mean Mayo Elbow Performance Score (MEPS) ranging from 79.5 to 96. Mean extension deficit across twelve selected studies ranged from 6 to 19 degrees while mean flexion ranged from 120 degrees to 140 degrees. Mean pronation and supination ranged from 71 degrees to 87 degrees and 63 degrees to 85 degrees respectively. Seven studies reported grip strength, ranging from 68.9% to 96% of the grip strength in the contralateral limb. Overall implant-related revision rate due to intra-prosthetic dissociation, prosthetic fracture, peri-prosthetic loosening, radio-capitellar subluxation and under-stuffed/over-stuffed elbow was 6.4% (21/330). Radial stress shielding and peri-prosthetic lucency was seen on radiographs in 6% to 100% of patients across different studies but symptomatic implant loosening leading to revision remained rare (1.5%, 5/330). Radiological radio-capitellar congruence was reported in 81% to 100% cases across different studies while capitellar erosion ranged from 0% to 89%. Pyrocarbon implants specific complications included implant fracture in 1.5% cases and intra-prosthetic dislocation in 1.2% cases. Conclusion: Mid-term to long-term clinical and radiological outcomes and revision rates of pyrocarbon radial head replacements are satisfactory, but implant specific complications like intra-prosthetic dissociations of modular implants and pyrocarbon fractures must be kept in mind when choosing for these implants.

Category: Elbow/Wrist/Hand

Clinical Results Of Internal Bracing In Postero-Lateral Instability Of The Elbow

Abstract ID# 21943

All Authors:
Andreas Voss MD GERMANY
Sophia Schramm Student GERMANY
Anna Soler Student GERMANY
Stefan Greiner MD, Prof. GERMANY

Summary:
Internal Bracing in posttraumatic instability of the elbow led to good subjective and objective score results.

Data:
Introduction: A tear of the lateral ulnar collateral ligament (LUCL) with/without tear of the medial collateral ligament (MCL) leads to PLRI or bilateral elbow instability. The majority of these injuries can be treated conservatively. Indications for surgery are persisting instability, osseous lesions or extensive soft tissue damage. The aim of this study is to evaluate clinical results of internal bracing in postero-lateral Instability (PLRI) of the elbow with or without medial elbow instability. The hypothesis is that internal bracing allows early post-operative mobilization and thereby avoids stiffness without endanger stability. Methods: Between 2013-2019 43 patients with a mean age of 38,8 years (18-67), were treated with internal bracing and included in this study. After diagnostic arthroscopy and treatment of accompanying lesions refixation and internal bracing of the LUCL complex was performed with an absorbable tape and knotless anchors. In cases with significant medial instability, refixation and internal bracing of the MCL was performed in the same session. All patients were treated without a splint and immediately mobilized. The Mayo Elbow Performance Score (MEPS), Oxford Elbow Score (OES), Visual Analogue Scale (VAS), and subjective evaluation of the postoperative result were evaluated. Clinical stability of the elbow was evaluated with the Push-up Test, the Pivot-shift test, Stand-up test and the pincer grip. Results: The mean follow-up was 3.5 ± 1.6 years (2-8). Postoperative ROM improved significantly (extension/flexion) mean: 0/6/144 (range: 0/0-70/130-150) in comparison to Pre-OP mean: 0/21/122 (range: 0/0-70/60-150) p<0.05. At FU the mean score results were: OES: 39,2 ± 9 (11-48) points, MEPS: 85,2 ± 18,6 (30-100) and the VAS was 1,5 (0-8±2,1). Patients evaluated the operation postoperatively by school marks (1-6) by a mean of 1,9. There were no clinical signs of persistent instability in clinical testing in any patient. Conclusion: Internal Bracing in posttraumatic instability of the elbow led to good subjective and objective score results. Early mobilization allowed to regain almost full ROM without persistent instability.

Category: Elbow/Wrist/Hand

Influence of a Blood Flow Restriction on the Joint Position Sensation in the Upper Limb

Abstract ID# 23157

All Authors:
Aleksandra Krolatkowska Prof. POLAND
Klaudia Kusienicka Msc POLAND
Ewa Lazarek Msc POLAND
Lukasz Oleksy PhD POLAND
Robert Prill PhD GERMANY
Pawel Reichert Prof POLAND

Summary:
The study on healthy recreational athletes divided into interventional and placebo, and control groups determined that the inflated blood flow restriction band on the arm impairs the sense of wrist joint position.

Data:
The literature confirms that compared with low-load training, low-load blood flow restriction (BFR) training is more effective and tolerable; therefore, the potential usage of BFR in sports medicine has been recently highlighted. With a sensation of joint motion, the joint position sense (JPS) constitutes proprioception, being crucial in joint stability, coordination, and protection against injurious movements. To date, the safety issues of using BFR haven’t been raised; therefore, the study determined the effect of a worn arm BFR band on the wrist JPS. The prospective randomized, double-blind placebo-control study was conducted in a medical university laboratory. Sixty healthy right-handed young recreational athletes (30 females, 30 males) were randomly assigned to three groups, equal in size and gender rate: Group I, the interventional group; Group II, the placebo group; and Group III, the controls. The participants, examiner, and statistician were blinded. In all groups, the active wrist joint position reproduction was measured using the isokinetic dynamometer (Biodex System 4 Pro) on two separate occasions at a 90-minute-long interval. The examination was performed bilaterally, and the participants in each group were randomly assigned to start with the right (RL) or left (LL) limb. During measurements, the participants were wearing masks covering their eyes. The starting position was 0°, and the target position was 30° of wrist flexion. During the first session, the measurements were performed with no bands. During the second session, the wireless BFR cuff (AirBands, Vald Performance) was worn in Group I and Group II on a standardized level of the arm of the examined limb. In Group I, a standardized pressure was applied, while in Group II, the bands stayed uninflated. The collected parameter was the absolute difference between the target and actively replicated position, defined as an absolute angular error, AAE (degrees). The studied group arithmetic mean (x) and the standard deviation (S) were calculated before the study. In Group I, the AAE was statistically significant higher (p=0.002-0.004) in the second session (RL, x=12.8 ± 8.23°; LL, x=13.17 ± 8.99°) compared to the first session (RL, x=8.29 ± 7.38°; LL, x=7.40 ± 5.22°). Contrarily, the mean AAE obtained in the two other groups during the second session was smaller than during the first session, and the differences were not statistically significant. The analysis of the results obtained in both sessions didn’t detect any differences between the right and left limbs in any of the groups. It can be concluded that even in healthy athletes, wearing an arm BFR band adversely affects the JPS of the wrist; therefore, special care should be taken during BFR training.