# AFJO 2024 REIMS
# 13-15 June 2024



# Scientific Program

Pascal Vié (President)

Philippe Hernigou

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Medacta International


# Platinium Sponsor

**Symposium Medacta:**

**Friday 14th June 2024 12:30 - 13:00**

**Louise Room**

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Depuis 1714

# Sponsor

**Symposium Lepine:**

**Friday 14th June 2024  14:20 - 15:00**

**Louise Room**

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| | SALLE LOUISE | SALLE SILENE |
|---|---|---|
| **Friday Morning** | | |
| | **8:00-8:30: Poster display**<br>**8:45 Welcome**<br>**8:55 Introduction**<br>**9:15 French-Japanese cooperation** | |
| | **Hip 1 session 9:15 10:15** | **Hand 1 session 9:15 10:15** |
| | Coffee Break 10:15 10:45 | |
| | **Hip 2 session 10:45 11:45**<br>**Knee 1 session 11:45 12:30** | **Pediatric 10:45 12:30** |
| | **Knee 2 Symposium Medacta 12:30 13:00** | |
| | Lunch Break 13:00 14:00 | |
| **Friday Afternoon** | | |
| | **Knee 3 session 14:00 14:20** | **Spine 14:00 15:00** |
| | **Shoulder 1 session 14:00 15:00** | |
| | **Hand 2: symposium Lepine 15:00 15:20** | |
| | **Knee 4 session 15:20 16:00** | **Feedback experience 15:00 16:00** |
| **Saturday Morning** | | |
| | **Hip 3 session 8:30 9:30**<br>**Knee 5 session 9:30 10:30** | **Shoulder 2 session 8:30 9:20**<br>**Hip and knee 9:20 10:30** |
| | Coffee Break 10:30 11:00 | |
| | **Hip 4 session 11:00 12:00** | **11:00 12:00 AFJO SOFJO Administrative meeting** |
| | Closing and Lunch Break 12:30 14:00 | |

**AFJO 2024**

**Reims June 13-15, 2024**

# Friday 14th June

**7:45 - 8:15**: the AFJO bus will stop at two or three places in the center of Reims (exact times and places will be indicated in the next letter). All orthopedic attendees and accompanying guests can access to this bus.

**8:00 - 8:15:** Arrival in meeting center of orthopedic attendees and accompanying guests registrations, Welcome coffee for Orthopedists attendees; Presentations to technician; Poster display in Louise room.

# Scientific Program

## POSTER DISPLAY IN LOUISE ROOM 8:00 - 8:30

**Poster format max height 80 cm; width 60 cm**

**1)** Hirokazu Tochigi, Mayu Suzuki, Toru Nishiwaki; Saitama Hospital; Shizuoka Red Cross Hospital; **Posterior fracture-dislocation of the shoulder(PFDS) with ipsilateral olecranon fracture**

**2)** Toru Nishiwaki, Akihiro Kitamura; Japanese Red Cross Shizuoka Hospital; **Risk of Hip Joint Damage in Adolescent Unicyclists: Insights from Two Cases**

**3)** Michihito Ishizawa, Hidetoshi Okabe, Tokuhiro Chano, Keiji Matsumoto, Shigeru Morimoto, Masaaki Egawa, Narihito Kodama, Kousei Andoh, Yoshinori Takemura, Shinji Imai, Yoshitaka Matsusue, Shinsuke Hukuda**;** Shiga University. **Histopathological explanation of the MRI target sign in extra-axial schwannomas**

**4)** Kiichi Sunouchi, Naoko Mizuno; Itami City Hospital; **A case of fatigue fracture of the femoral diaphysis in a high school athlete.**

**5)** Kohei Nakayama, Risako Yamamoto, Shigeo Joji, Mitsuru Motoyama, Yosuke Kozuma; Ja Yoshida General Hospital; **A case of cervical disc herniation in a teenager**

**6)** Eiko Hashimoto, Nobuyasu Ochiai, Seiji Ohtori, Chiba University Hospital; **Correlation between baseplate positioning and clinical outcomes after Reverse Shoulder Arthroplasty**

**7)** Tomonori Kinoshita, Soya Nagao, and Kazuyoshi Nakanishi. Itabashi Medical Association Hospital, Tokyo, Japan; **Total elbow arthroplasty for comminuted distal humerus fracture in elderly patients**

**8)** Tetsuo Hayama, Toshiomi Abe, Ayano Amagami, Keigo Yonemoto, Hideki Fujii, Mitsuru Saito; the Jikei University School of Medicine; **Results of total hip arthroplasty for DDH with cementless flat-taperd-wedge short stem -Comparison between short stem and standard length stem-**

**9)** Ken Sugita, Akifusa Wada, Atsushi Matsuo, Mayuki Taketa, Akiko Oyamada, Hideaki Kubota; Saga Handicapped Children's Hospital; **Outcomes of double arthrodesis (calcaneocuboid and talonavicular)**

**10)** Jumpei Hayama, Atsushi Sato , Jun Oike , Reo Nagasaka , Marika Mukunoki , Kanako Izukashi , Masataka Ota , Takayuki Okumo , Saki Yagura , Takayuki Koya , Koji Kanzaki; Showa University Fujigaoka Hosupital; **Treatment Experience Using Telos Ligament for Patellar Tendon Rupture**

**11)** Masataka Ota, Atsushi Sato, Jun Oike, Reo Nagasaka, Marika Mukunoki, Kanako Izukashi, Takayuki Okumo, Saki Yagura, Takayuki Koya, Fuiyoshi Kawashima, Toshiyuki Shirahara, Koji Kanzaki; Showa University Koto Toyosu Hospital, University Fujigaoka Hospital,department of Physiology**; Graduate School of Medicine Investigation of Elongation Pattern in Augmented Reality-Based Navigation TKA**

**12)** Marika Mukunoki, Atsushi Sato, Reo Nagasaka, Kanako Izukashi, Masataka Ota, Jun Oike, Takayuki Okumo , Saki Yagura, Takayuki Koya, Koji Kanzaki; Showa University Fujigaoka Hospital , Koto-toyosu Hospital, Showa University Graduate School of Medicine; **Experience of Pin Positioning System Utilization in Augmented Reality-Based Navigation Total Knee Arthroplasty**

**13)** Yusuke Morishita, Yuki Yamanashi; Aichi Medical University: **Two-stage surgical treatment for simultaneous rupture of patellar tendon and anterior cruciate ligament and medical collateral ligament**

**14)** Takkan Morishima, Kohei Hashimoto; Aichi Medical University Orthopaedic Surgery; **Planning of Quadrilateral Surface Preserving Periacetabular Osteotomy**

**15)** Junya Shimizu, Satoshi Nagoya, Ima Kosukegawa, Arata Kanaizumi, Naoya Nakahashi, Atsushi Teramoto; Sapporo Medical University School of Medicine, Japan; **The accuracy of cup placement in THA using an augmented reality-based navigation system**

**16)** Shuhei Ueno, Kentaro Iwakiri, Akio Kobayashi; Shiraniwa Hospital; **Effect of Discrepancy Between Preoperative Planning and Intraoperative Femoral Neck Osteotomy Level on Stem Alignment**

**17)** Kazushi Takayama, Teruo Kita, Shigehiro Ikeda, Kodai Okano, Hideki Sakanaka; Seikeikai Hospital, Osaka; **More than 12% of fragility fractures of the pelvis were initially unrecognized or misdiagnosed**

**18)** Susumu Tashiro, Naoya Takayama; Chiba University: **Bone regeneration using iPS cell-derived immortalized mesenchymal stem cells**

**19)** Naoko Mizuno; Toyonaka Municipal Hospital; **Effect of scapular neck morphology on scapular impingement after reverse shoulder arthroplasty**

**20)** Satomi Abe, Masahiro Inoue, Takashi Mikami, Hidefumi Honke, Shoichi Kimura; Eniwa Hospital; **Mid-term outcomes of compaction autologous bone grafting with CORAIL stem**

**21)** Hirotake Yo; Ishikiri Seiki Hospital; **Incidence of patellar clunk syndrome in mobile bearing posterior-stabilized total knee arthroplasty**

**22)** Kyoko Okuno, Hidehiko Kawabata; Sakurabashi Watanabe HospitalD**; Orthopaedics Pathway for the Differential Diagnosis of Obstetrical Brachial Plexus Palsy.**

**23)** Yasuaki Kusumoto, Yasuhiro Endo, Tatsuya Nakanowatari, Masayuki Hoshi, Junichi Omata, Akihiko Asao, Kanako Okazaki, Eri Takahashi, Hideto Kanzaki Atsushi Matsuo, Dai Iawase, Yukie Metoki Fukushima Medical University Japan, Saga, Kitasato University, Minami-ku, Sagamihara City, Kanagawa, Japan; **Reliability and validity of rheology properties-based hardness instrument in healthy college students' lower limb muscles**

## Friday 14th June Morning 8:45 - 9:15

## Opening Ceremony - Louise Room 8:45 - 9:15

**8:45- 8:50** **Pascal Vié** Welcome to Reims

**8:50-8:55** **Philippe Hernigou** Introduction of Professor Kaneko

**9:00 -9:15** **Kazuo Kaneko**; Juntendo University, School of Medicine:

**La chirurgie orthopédique au Japon et la coopération Franco-Japonaise en chirurgie orthopédique. Orthopedic surgery in Japan and French-Japanese cooperation in orthopedic surgery.**

## Friday 14th June Morning 9:15 - 10:15

## Louise Room - Hip 1 Session 9:15 - 10:15

### Moderators: Yasuharu Nakashima; Philippe Hernigou

- **Yasuharu Nakashima** Japanese Hip OA Consortium, Department of Orthopaedic Surgery, Kyushu University and Japanese Hip OA Consortium: **Life course epidemiology of hip osteoarthritis in Japan: a multicenter cross-sectional study**

- **Kiyoshi Aoki**, Kyoko Yoshioka-maeda, Chikako Honda, Hiroshige Matsumoto, Takeshi Kinjo, Kenta Fujiwara; Asahigawasou Rehabilitation and Medical Center: **Recent DDH screening system in Japan - the education on four risk factors and a new approach using remote-type ultrasound during newborn and infant home visits-**

- **Yasuhiro Homma,** Taiji Watari, Koju Hayashi, Tomonori Baba, Kazuo Kaneko, Muneaki Ishijima. Juntendo University, Orthopaedic Department: **Acoustic diagnosis for the stem stability in cementless total hip arthroplasty.**

- **Philippe Hernigou**, University Paris East: **Complications related to the Morse Taper. Can we improve the standard?**

- **Toshihisa Kajiwara**, Kentaro Shinohara, Junnichiro Matsumoto, Masatoshi Kume, Masaaki SatohYokohama Minami-kyosai Hospital, Arthroplasty Center: **Usefulness of MAKO robotic-arm assisted THA for severe acetabular dysplasia hip**

**- Pascal Vié** , Clinique du Cèdre ; Rouen : **Psoas tendonitis after total hip replacement in athletic patients**

## Silene Room - Hand 1 Session 9:15 - 10:15

### Moderators: Alain Durandeau; Moroe Beppu

-**Hideo Hasegawa**, Yasuaki Nakanishi, Takamasa Shimizu, Yasuhito Tanaka; Nara Medical University: **Trigger finger, Clinical outcomes of ultrasound-guided percutaneous release using a new device**

- **Nobuya Nishioka,** Hideo Hasegawa, Moe Komobuchi, Naoki Minami, Takamasa Shimizu, Yasuaki Nakanishi, Kenji Kawamura, Yasuhito Tanaka. Nara Medical University: **Modified Arthroscopic Distal Scaphoid Resection for the scaphotrapezio-trapezoid (STT) osteoarthritis with associated DISI**

- **Yoko Ishihara**, Satomi Kobayashi, Tetsuya Tomita; Seibo Hospital: **Clinical outcome of tonsillectomy for SAPHO syndrome: 7 cases retrospective study**

- Tatsuki Ebata, Ken-ichi Murakami, Seiji Okamoto and Hajime Yamanaka; Hokuso Orthopedic Clinic: **Electrophysiological Analysis for Surgical Indications of Carpal Tunnel Syndrome**

**- Moroe Beppu**, Saburo Sasao, Hitoshi Kihara. St.marianna University School of Medicine: **Ulnar Shortening of the DRUJ Instability especially for tennis Athletes**

- **Jacques Teissier**, Benjamin Degeorges, Adriano Toffoli. Hand Center, Clinique Saint-jean 34430 , Montpellier France: **Outcomes of 92 MAÏA Trapeziometacarpal Prostheses with more than 10 years of follow-up.**

## 10:15 - 10:45: Coffee Break

## Friday 14th June Morning 10:45 - 12:30

## Friday Morning - Louise Room - Hip 2 Session: 10:45-11:45

### Moderators: Kazuo Kaneko, Luc Kerboull

-**Naoto Nakayama,** Yamasaki Takuma; Department of Orthopaedic Surgery, Hiroshima University: **Optimal fit of cementless stem in total hip arthroplasty using anterolateral supine approach for patients with excessive antetorsion of the femoral neck**

-**Kohei Hashimoto,** Takkan Morishima , Nobunori Takahashi; Aichi Medical University: **Comparative Analysis of Periprosthetic Fracture Risk Between CMK and Exeter Systems in Total Hip Arthroplasty: A Biomechanical Study**

- **Masanori Nishi,** Takashi Atsumi, Yasushi Yoshikawa, Ryosuke Nakanishi, Minoru Watanabe, Yuki Usui, Yoshifumi Kudo Showa University School of Medicine, Tokyo, Japan. Sassa General Hospital, Tokyo, Japan. Showa University Fujigaoka Hospital, Kanagawa, Japan: **Long-Term Outcomes of Short-Stem Total Hip Arthroplasty in Young Patients with Osteonecrosis of the Femoral Head**

- **Hiroshige Hamada,** Kazuhiro Oinuma, Hidetaka Higashi, Yoko Miura, Taishi Ninomiya, Keishin Ueno Funabashi Orthopaedic Hospital: **Examination of intraoperative blood loss on the first side to perform simultaneous bilateral total hip arthroplasty without allogenic blood transfusion**

- **Takamitsu Sato**, Kazuhiro Oinuma, Yoko Miura, Hideaki Shiratuchi; Funabashi Orthopedic Hospital: **Outcomes of Impaction Bone Graft using cementless stem in revision total hip arthroplasty**

- **Masazumi Saito,** Yasukazu Hijikata, Junji Morii, Mari Inaguma, Naoki Okubo; Department of Orthopaedics, Kitasuma Hospital: **AMIS-THA reduced variation of stem anteversion**

## Friday Morning - Louise Room - Knee 1 Session: 11:45 - 12:30

### Moderators: Atsushi Sato; René Verdonk

-**Takayuki Koya,** Atsushi Sato, Masataka Ota, Jun Oike, Marika Mukunoki, Kanako Izukashi., Reo Nagasaka, Takayuki Okumo, Saki Yagura, Koji Kanzaki,. Showa University Koto Toyosu Hospital, Tokyo; Showa University Fujigaoka Hospital, Kanagawa, Japan; Showa University School of Medicine, Tokyo, Japan: **Evaluating Tibial Component Rotation after Total Knee Arthroplasty Using Augmented Reality Navigation System with Head-Mounted Display**

- **Rene Verdonk,** T Kyriakidis, A Dhollander, P Verdonk Ulb Bruxelles, Klina Antwerpen , Uantwerpen: **Knee flexion deformity after total knee arthroplasty : a surgical approach, indication and results**

**- Atsushi Sato**; Masataka Ota, Jun Oike, Marika Mukunoki, Kanako Izukashi, Reo Nagasaka, Takayuki Okumo, Saki Yagura, Takayuki Koya and Koji Kanzaki. Department of Orthpedic Surgery, Showa University Fujigaoka Hospital: **Kinematic Alignment TKA Considering Elongation Pattern using AR-based Navigation System**

- **Shinichi Fukuoka,** Toshimi Hatanaka, Takanori Matsuura, Takeharu Sasaki, Kunio Takaoka ; **Evaluation of Lower Limb Alignment before and after the Oxford medial unicompartmental knee arthroplasty**

- **Maeda Tsutomu;** Shiga General Hospital: **A Modified Technique of Kinematically Aligned Total Knee Arthroplasty for Medial Knee Osteoarthritis with Inward Obliquity using Implants Designed for Mechanically Aligned Procedures: Improving Patellar Tracking and Tibial Bone Preservation.**

## Friday Morning - Silene Room - Pediatric session: 10:45 - 12:30

### Moderators: Satoe Tanabe; Jacques Caton

-**Satoe Tanabe**, Yuto Murakami, Ryota Ito, Toshiyuki Shirahata, Koji Kanzaki. Showa University Koto Toyosu Hospital, Showa University Fujigaoka Hospital: **The effectiveness of the gradual traction for developmental dysplasia of the hip.**

- **Akifusa Wada**, Atsushi Matsuo, Ken Sugita, Tomoyuki Nakamura, Mayuki Taketa, Akiko Oyamada, Hideaki Kubota;Saga Handicapped Children's Hospital: **Treatment of late-onset Legg-Calve-Perthes disease**

- **Chika Mizuno**, Tatsuhiro Ochiai, Yuko Takahashi, Shigemasa Komatsu; Miyagi Children's Hospital: **Efficacy of Salter-Thompson classification by tomosynthesis in the early stages of Legg Calvé Perthes disease**

- **Hidehiko Kawabata**, Naomi Takahashi, Kyoko Okuno Osaka Rehabilitation Hospital For Children: **Chondrodiastasis for Phalangeal Lengthening in Congenital Short Phalanges of the Hand**

- Takeshi Kinjo; Okinawa Prefectural Nanbu Medical Center and Children's Medical Center; **The role of selective dorsal rhizotomy in pediatric Cerebral Palsy and our experience with spastic hemiplegia**

- **Yohei Oshima**,Takeshi Kinjo, Yuka Sugiura, Taketsugu Gaja, Takashi Asato, Atsuo Aguni; Higashi-washinomiya Hospital, Okinawa and Children's Medical Center, Saitama: **Catheter tip descent during growth with intrathecal baclofen therapy**

- **Yusuke Hattori,** Yohei Kawaguchi, Hideki Okamoto, Hideki Murakami. Nagoya City University Graduate School of Medical Science: **Report of Japanese Fellowship in France**.

- **Moe Komobuchi**, Hideo Hasegawa, Kenji Kawamura, Shimpei Kurata, Shohei Omokawa, Yasuhito Tanaka; Nara Medical University: **Brodie Abscess of the Radius treated with Endoscopic Curettage**

**Friday 14th June Morning 12:30 - 13:00**

**Friday Morning - Louise Room - Knee 2 Session**

## Symposium Medacta

**Atsushi Sato,** Department of Orthpedic Surgery, Showa University, Fujigaoka Hospital : **Knee alignment - New technologies**

**Moderator: Pascal Vié**

**13:00 - 14:00 Lunch Break on site**

**Friday 14th June Afternoon 14:00 - 15:00**

**Friday Afternoon - Louise Room - Knee 3 Session: 14:00 - 14:20**

**Daniele Ascani**, **Augmented Reality (AR) navigation system, NextAR (Medacta)**

**Friday afternoon - Louise Room - Shoulder 1 session: 14:20 – 15:00**

**Moderators: Eiji Itoi, Geoffroy Nourissat**

-**Takehito Hirose**,Makoto Tanaka, Hidekazu Nakai; Department of Orthopaedic Surgery, Daini Osaka Police Hospital, Osaka, Japan. **The influence of glenoid defect orientation on clinical outcomes after open Latarjet procedure combined with arthroscopic Bankart repair.**

- **Eiji Itoi**, Yuji Hatakeyama, Tadato Kido, Hidetomo Saito, Wataru Watanabe, Yoshiaki Itoigawa, Hiroyuki Shiozaki, Yoshiaki Kon, Shigeo Mori, Nobuyuki Yamamoto, and Toshimi Aizawa Tohoku University Hospital, Tohoku Rosai Hospital, Akita University Hospital; **Long-Term Effect of Immobilization in External Rotation After First-Time Shoulder Dislocation**

- **Geoffroy Nourissat**, Ali Asfour, Franck Dordain, Pierre Alban Bouché, Clinique Des Maussins Paris France; **PSI seems mandatory for accurate placement of glenoid component only for Glenoid retroversion over 20°**

- **Yoshinori Takemura**, Kosei Ando, Narihito Kodama, Shinji Imai. Shiga University of Medical Science. **Shoulder reconstruction following coracoid chondrosarcoma using liquid nitrogen- treated tumor-bearing bone combined with a vascularized iliac bone graft: A case report**

## Friday Afternoon - Silene room - Spine session 14:00 -15:00

### Moderators: Risako Yamamoto; Philippe Hernigou

- **Takeshi Oki**, Satoko Oki, Jun Oki ; Yuki Hospital. **Microscopic tubular decompression for low-grade adult isthmic spondylolisthesis**

- **Risako Yamamoto,** Shigeo Joji, Mitsuru Motoyama, Yosuke Kozuma, Kohei Nakayama; Ja Yoshida General Hospital; **Spinal Canal Shape as a Risk Factor for the Development of Epidural Hematoma, a Complication after Posterior Lumbar Decompression Surgery**

- **Kazuhiro Takeuchi,** Kentaro Yamane, Shinichiro Takao, Shinnosuke Nakahara; Okayama Medical Center. **Surgical treatment for cervical spondylotic myelopathy in athetoid cerebral palsy**

- **Masahiro Kashima**, Toru Maeda, Hiroshi Yonezu, Naoyuki Yoshida, Yuhei Yamasaki ; Anan Medical Center: **Hounsfield Unit (HU) value is useful to predict the screw loosening**

- **Kazuma Kitaguchi**, Kunihiko Hashimoto, Takashi Kaito, Kazuya Oshima, Eiji Wada; Osaka Police Hospital; Department of Orthopedic Surgery. **Comparison of the effects of topical and intravenous administration of tranexamic acid on postoperative blood loss in single-level posterior lumbar interbody fusion**

## Friday 14th June Afternoon 15:00 - 16:00

## Friday Afternoon - Louise Room - Hand 2 Session: 15:00 - 15:20

## Symposium Lepine

**Jacques Teissier,** Benjamin Degeorges, Adriano Toffoli ; Hand Center, Clinique Saint-Jean, 34430 Montpellier – France: **History of Trapeziometacarpal Prostheses**

**Moderator: Alain Durandeau**

## Friday Afternoon - Louise Room - Knee 4 session: 15:20 - 16:00

### Moderator: Jacques Caton; Yasuhiro Homma

-**Jacques Hernigou,** Sagi Martinov, Esfandiar Chahidi, Gauthier Gamela, Antoine Callewier, Olivier Bath; Ch Epicura; **Complex Regional Pain Syndrome Recurrence in Total Knee Arthroplasty**

- **Tadayuki Hoshi**,Morihiko Masuya, Fumito Komatsu, Hiroshi Nakajima, Mitsuru Komatsu, Komatsu Orthopaedic Clinic: **Mid-term results of realignment procedures for patellar instability with severely patellofemoral osteoarthritis**

- **Youngji Kim**, Mitsuaki Kubota, Yasuhiro Homma, Muneaki Ishijima, Kazuo Kaneko; Department of Orthopaedic Surgery and Sports Medicine, Faculty of Medicine, Juntendo University School of Medicine: **Hip abduction angle after open-wedge high tibial osteotomy is associated with the timed up & go test and recurrence of varus alignment**

- **Jacques Caton**, Académie Nationale de Médecine: **Caton-Deschamps's patellar height measurement index: more than 40 years already**

## Friday Afternoon - Silene Room - Feedback experience 15:00 – 16:00

### Moderators : Moroe Beppu; Frederic Dubrana

-**Moroe Beppu**, Seira Takei, Mitsutoshi Moriya, Miyuki Yokoyama , Ken Nakata; St.marianna University School of Medicine: **Prevention for the exertional heat illness in Tokyo 2020 Olympic tennis and Paralympic wheelchair tennis**

- **Kimihiko Nakata**; Higashi-Osaka Hospital: **A case of an orthopaedic surgeon who do not perform operation** - **Comme d'habitude toward SEIKEINAIKA, ou l'orthomorphie conservatice.**

- **Hiroharu Najima**; Committee member of Red Wing Project; Najima Orthopedic Clinic, Akira Kobayashi, Honorary member of SOFCOT, Former President of SOFJO: **From French aviator André Japy's Plane Crash on Mt.Sefuri (November 1936) to the foundation of Red Wing Project**

- **Frederic Dubrana**, CHU Brest: **Japanese orthopedics experience at Fukuoka University with Professor SUGIOKA and at the orthopedic hospital with Dr. KOBAYASHI, 30 years ago.**

- **Hiroshi Asahara**, Tokyo Medical and Dental University; **Athlete Giftedness and Genetics**

- **Toshio Inoue,** Jun Nishio, Department of Orthopaedic Surgery, Fukuoka Dental College: **Surgical method and results of modified scarf osteotomy for hallux valgus**

## Saturday 15th Morning 8:30 - 9:30

## Saturday Morning - Louise Room - Hip 3 session: 8:30 - 9:30

## Moderators: Hiroyuki Makita; Pascal Vié

-**Sebastien Lustig**; university of Lyon: **Is collared stem and monobloc dual mobility cup the winning Srategy ?**

- **Youngwoo Kim**; Kyoto City Hospital: **Cemented Dual Mobility Cup in Primary and Revision Total Hip Arthroplasty**

- **Hiroyuki Makita;** Yutaka Inaba; Department of Orthopaedic Surgery, International University of Health and Welfare Atami Hospital: **Results of Cemented THA Using Charnley-Kerboull Stem - its characteristics and clinical results**

**- Takuma Yamasaki;** Department of Orthopaedic Surgery, National Hospital Organization, Kure Medical Center, Hiroshima, Japan: **Dynamic evaluation of iliopsoas using sonography in osteoarthritis due to hip dysplasia**

- **Takashi Ishida**, Hideki Honda, Yuki Ozawa, Yota Katsuyama, Hideo Kobayashi Department of Orthopaedic Surgery, Saiseikai Yokohamashi Nanbu Hospital: **Total hip arthroplasty after previous osteotomy through the minimally invasive anterior approach.**

- **Masakazu Okamoto**, Yoshinobu Uchihara, Kenichiro Saito, Yusuke Inagaki, Pasuk Mahakkanukrauh, Yasuhito Tanaka. Nara Medical University, Kashihara, Nara, Japan ; Chiang Mai University, Chiang Mai, Thailand: **Optimal Retractor Insertion Point for Nerve Safety During Total Hip Arthroplasty**

## Saturday Morning - Silene Room - Shoulder 2 session 8:30 - 9:30

## Moderators : Geoffroy Nourissat; Kosei Ando

-**Kosei Ando** , Yoshinori Takemura, Narihito Kodama, Shinji Imai Department of Orthopaedic Surgery, Shiga University of Medical Science: **Vascularized fibular grafts following bone tumor resection in upper extremity**

- **Geoffroy Nourissat** Md Phd, Victor Messburger Md, Clinique Des Maussins – Paris; **Osteoporosis doesn't impact stability of stemless RSA at 2 years FU.**

- **Geoffroy Nourissat**, Chérif Kamoun, Mark Mouchantaf, Pierre Alban Bouché , Dr Victor Housset Clinique Des Maussins Paris: **Premorbid humeral head geometry should be useful defining optimal final positioning of the humerus in RSA.**

- **Katsumasa Nakazawa**, Tomoya Manaka, Yoshihiro Hirakawa, Yoichi Ito, Ryosuke Iio, Naoki Oi, Hiroaki Nakamura, Department of Orthopaedic Surgery, Osaka Metropolitan University Graduate School of Medicine: **Bone mineral density around cementless short stems after reverse shoulder arthroplasty: changes over time and its relationship to stem positioning**

## Saturday 15th Morning 9:30 - 10:30

## Saturday Morning - Louise Room - Knee 5 session: 9:30 - 10:30

## Moderators: Sebastien Lustig, Takeru Iwata

-**Sebastien Lustig;** University of Lyon: **Do I nee a Robot for the TKA I want to do?**

- **Takeru Iwata**; Kaito Nakamura, Takashi Ishitani, Yoshinori Okamoto, Chuji Hirota, Shuhei Otsuki; Osaka Medical and Pharmaceutical University: **Analysis of preoperative factors for decision making of High Tibial Osteotomy**

- **Yukinobu Nishii**, Tsukasa Teramoto, Shota Harada, Yuichiro Nishino, Tomohiko Asahara, Kazutaka Otsuka, Yoshimasa Teramoto Department of Orthopedic Surgery, Chikamori Hospital: **Clinical outcome of joint preserving surgery for advanced and end stage of the medial type knee osteoarthritis with Tibial Condylar Valgus Osteotomy**

- **Tomohiro Tomihara**, Yusuke Hashimoto, Masatoshi Taniuchi, Junsei Takigami, Hiroshi Katsuda; Department of Orthopaedic Surgery, Shimada Hospital: **Risk factors for graft maturation after anterior cruciate ligament reconstruction using bone-patellar tendon-bone autograft: A consecutive post-operative 3.0T MRI study**

- **Yuki Yamanashi**, Hirotaka Mutsuzaki, Arata Watanabe, Masataka Deie, Tomonori Kinugasa. The Department of Orthopaedic Surgery, Aichi Medical University: **Early ACL Reconstruction in Young Athletes: Do Patients with ACL Injury Really Have to Wait for Surgery?**

- **Rene Verdonk**, M Schurhoff, T Kyriakidis,s Griffin, P Verdonk Ulb , Orteq, Uantwerpen: **MENISCUS SCAFFOLDS UPDATE Indication , longer term results in litterature and future directions**

## Saturday morning - Silene Room - Hip and Knee Session 9:20 - 10:30

### Moderators: **Michel Bercovy; Kenichi Oe**

-**Kei Ishii**, Yoshinori Ishii Orthopaedic & Rehabilitation Clinic: **Characteristics of preoperative arteriosclerosis evaluated by cardio-ankle vascular index in patients with osteoarthritis before total knee arthroplasty**

-**Takashi Toyoda**, Kenichi Oe; Kansai Medical University: **Risk factors for cortical hypertrophy in cemented triple taper stems**

-**Atsuhiro Fujie**, Yushi Maruiwa, Takuto Hatakeyama, Asahi Sujino, Arihiko Kanaji, Kengo Harato, Masaya Nakamura, and Akihito Oya Department of Orthopaedic Surgery, School of Medicine, Keio University: **Distal plug technique to prevent cement leak in conversion cemented total hip arthroplasty after failed fixation for intertrochanteric fractures.**

- **Mayu Suzuki,** Toru Nishiwaki, Kitamura Akihiro, national Hospital Organization Saitama Hospital: **Involvement of neuropathic pain and nociplastic pain in patients with hip osteoarthritis**

- **Haruka Fuji**; Kyowakai Hospital: **Comparison of Procedure Time for Cup Placement Between Robotic-arm Assisted THA and CT-based Navigation THA**

- **Michel Bercovy**, Luc Kerboull: **Satisfactory mid- to long-term outcomes of TKA aligned using conventional instrumentation for flexion gap balancing with minimal soft tissue release**

## Coffee Break 10:30 - 11:00

## Saturday 15th Morning 11:00 - 12:00

## Saturday Morning - Louise Room - Hip 4 session 11:00 - 12:30

### Moderators : Yuji Yasunaga; Olivier Guyen

-**Kenichi Oe**, Hirokazu Iida, Yosuke Otsuki, Takashi Toyoda, Tomohisa Nakamura, Takanori Saito; Department of Orthopaedic Surgery, Kansai Medical University:**The modified Spitzy shelf acetabuloplasty for the dysplastic hip: A retrospective study of 144 hips**

-**Takuya Kubo**, Hirotsugu Ohashi, Tenroku Orthopedic Clinic:
**Simultaneous bilateral total hip arthroplasty versus unilateral total hip arthroplasty using direct anterior approach**.

- **Yuji Yasunaga**, Seigo Ohshima, Md, Takeshi Shoji, Md, Sotaro Izumi Md, Nobuo Adachi Md, Mitsuo Ochi Md Department of Orthopaedic Surgery, Hiroshima Prefectural Rehabilitation Center, Hiroshima, Japan: **Thirty-year follow-up study of rotational acetabular osteotomy for pre- and early osteoarthritis secondary to dysplasia of the hip.**

- **Akihiro Kitamura**, Toru Nishiwaki, Mayu Suzuki; Shizuoka Red Cross Hospital, national Hospital Organization Saitama Hospital: **Early outcome of using a novel intra-operative referencing technique with fluoroscopy in anterior total hip arthroplasty**.

- **Kerboul Luc**; Espace Médical Vauban; Paris: **THA: results of AMISK with 10 years follow-up**

- **Yuichi Kuroda;** Kobe University Graduate School of Medicine: **Radiographic Factors Predictive of Distinguishing Between Hip Arthroscopy and Periacetabular Osteotomy in Patients with Borderline Developmental Dysplasia of the Hip**

- **Olivier Guyen**; Clinique de Genolier, Genolier, Switzerland Clinique de Montchoisi, Lausanne, Switzerland Lausanne - Suisse: **Femoral de-escalation in revision THA: is there a place for shortened femoral stems?**

- **Kenichiro Saito**, Yoshinobu Uchihara, Higashiosaka City Medical Center, Osaka, Japan: **A case of heterotopic ossification around the hip joint after spinal cord injury treated with preoperative arterial embolization and a 3D bone model**

- **Norikazu Yokoyama**; Omuro Orthopedic Spine & Joint Clinic: **Workstyle Reform in AMIS-THA in Japan: Surgical Support Using Rubber Bands**

## Saturday morning - Silene Room -

## Administrative Meeting AFJO-SOFJO 11:00 - 12:00

## Closing Ceremony in Louise Room 12:30 - 13:00

## Lunch on site 13:00 - 14:00

# ABSTRACTS

**Friday 14th June Morning Opening Ceremony - Louise Room 8:45 - 9:15**

**Kazuo Kaneko**; Juntendo University, School of Medicine

**La chirurgie orthopédique au Japon et la coopération Franco-Japonaise en chirurgie orthopédique : La présentation sur les communications libres en 31 mai 2023, concernant l'académie nationale de chirurgie**. Dans cet exposé, je présenterai mes sujets d'études menées à Paris en chirurgie de la hanche avec Pr. Lord et Dr. Marotte, ainsi qu'en chirurgie de la main avec Pr. Tubiana, Pr. Masquelet et Dr. Saffar. Je parlerai également de l'obtention de mon diplôme en microchirurgie. Je présenterai ensuite les techniques de chirurgie de la main et de la hanche développées au Japon, ainsi que son histoire en arthroscopie, pour laquelle l'orthopédie japonaise a apporté une contribution majeure dans le monde entier. Je parlerai notamment du premier rattachement complet d'un pouce amputé réalisé par le Dr. Tamai, ainsi qu'au sujet d'autres microchirurgiens. En ce qui concerne la chirurgie de la hanche, je présenterai les ostéotomies rotatives japonaises et les rapports de suivi d'autres pays. Enfin, je présenterai les activités de l'AFJO (Association France Japon d'Orthopédie) et de la SOFJO (Société Franco-Japonaise d'Orthopédie), dont je suis le président du côté japonais. Le côté français est présidé par Pr. Hernigou et Dr. Caton est l'un des membres de bureau.

**Orthopedic surgery in Japan and Franco-Japanese cooperation in orthopedic surgery: The presentation on free communications on May 31, 2023, concerning the national academy of surgery.** In this presentation, I will present my subjects of studies carried out in Paris in hip surgery with Professor Lord and Dr. Marotte, as well as in hand surgery with Professor Tubiana, Professor Masquelet and Dr. Saffar. I will also talk about obtaining my degree in microsurgery. I will then present the hand and hip surgery techniques developed in Japan, as well as its history in arthroscopy, to which Japanese orthopedics has made a major contribution worldwide. In particular, I will talk about the first complete reattachment of an amputated thumb performed by Dr. Tamai, as well as other microsurgeons. Regarding hip surgery, I will introduce Japanese rotary osteotomies and follow-up reports from other countries. Finally, I will present the activities of the AFJO (Association France Japon d'Orthopédie) and the SOFJO (Société Franco-Japonaise d'Orthopédie), of which I am the president on the Japanese side. The French side is chaired by Pr. Hernigou and Dr. Caton is one of the office members.

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**Friday 14th June Morning Louise Room - Hip 1 Session 9:15-10:15**

**Yasuharu Nakashima**; Japanese Hip Oa Consortium; Department of Orthopaedic Surgery, Kyushu University and Japanese Hip Oa Consortium

**Life course epidemiology of hip osteoarthritis in Japan: a multicenter cross-sectional study** Background: The incidence of DDH in Japanese newborns has reduced drastically following a primary prevention campaign initiated in 1970s; this perinatal education campaign promoted maintaining newborns' hips in the naturally flexed-leg position. This study described the life course epidemiology of hip osteoarthritis (OA) in adult patients and assessed its association with exposure to the primary prevention campaign of DDH. Methods: New patients with hip OA diagnosed at 12 core hospitals were investigated. The decreasing trend regarding the patients with history of DDH childhood treatment was estimated by centered moving averages. We compared the prevalence of severe subluxation between patients born before and after 1972. Results: Overall, 1,095 patients (1,383 hips) were analyzed. The mean age at the survey was 63.5 years. Overall, 795 patients (73.8%) were diagnosed with secondary OA due to hip dysplasia. Approximately 15% of patients born during 1963–1972 had a history of DDH childhood treatment; however, the percentage decreased after 1973. The prevalence of severe subluxation with Crowe II-IV was 2.4% for patients born after 1973, significantly less than 11.1% in those born before 1972. Conclusions: Secondary hip OA due to hip dysplasia is still responsible for adult hip OA in Japan. However, the exposure to perinatal education initiated 50 years ago may have improved environmental factors of DDH, apparently reducing the need for childhood treatment of DDH and associated severe subluxation.

**Kiyoshi Aoki;** Kyoko Yoshioka-maeda, Chikako Honda, Hiroshige Matsumoto, Takeshi Kinjo, Kenta Fujiwara; Asahigawasou Rehabilitation and Medical Center

**Recent DDH screening system in Japan -the education on four risk factors and a new approach using remote-type ultrasound during newborn and infant home visits-** Aims: In 2017, the epidemiology of DDH in Japan,

based on the nationwide multi-center survey, were reported. Surprisingly, approximately 200 hip dislocations in two years were diagnosed after one year old. After that, we tried to educate parents and healthcare professionals about risk factors and recommended early ultrasound evaluation. This presentation aims to inform the recent DDH screening system in Japan. Methods: We report the activity of prevention and early detection of DDH and a new approach using remote-type ultrasound during newborn and infant home visits. Results: The Japanese Pediatric Orthopedic Association made posters to educate on four risk factors and recommendations for early evaluation. In addition, we developed an educational program for ultrasound hip screening during newborn and infant home visits. Newborn and infant home visits are good opportunities for hip screening in the community, because nurses visit all newborns and infants around one to two months of age. This new educational program includes e-learning, hands-on seminars, and clinical training to improve nurses' assessment skills in detecting DDH. Doctors check the ultrasound videos later. In Okinawa Prefecture, several nurses have already experienced this educational system and practiced ultrasound hip screening. Conclusions: We believe that education on four risk factors and a new approach using remote-type ultrasound during newborn and infant home visits could contribute to the prevention and early detection of DDH. We aim to accomplish not only zero late diagnosis but also zero DDH soon.

**Yasuhiro Homma,** Taiji Watari, Koju Hayashi, Tomonori Baba, Kazuo Kaneko, Muneaki Ishijima.Juntendo University, Orthopaedic Department.

**Acoustic diagnosis for the stem stability in cementless total hip arthroplasty.** Purpose: The aim of this study is to investigate the accuracy of the diagnosis for the post-operative subsidence in cementless total hip arthroplasty (THA) by the hammering sound fluctuation analysis combined with convolutional neural network (CNN). Methods: The acoustic parameters of the hammering sounds during a broaching procedure (five final sounds in the last size rasping) for 61 hips in 54 patients who underwent THAs with cementless taper-wedged stem were analyzed post-operatively. Hammering sound analysis is performed by following steps. 1: Acquisition of hammer sounds during THA, 2: Sound pressure normalization and frequency conversion, 3: Autoregressive filter treatment, 4: Tapping sound separation processing, 5: Fluctuation sound analysis, 6: Discrimination by CNN for the presence of post-operative subsidence (≥ 3mm) or not. Accuracy rate in training-data and test-data were evaluated. Results: In 61 hips with 305 hammering sounds, 12 hips (19.7%) showed ≥3 mm of post-operative subsidence. The accuracy rate was 0.964 in training data and 0.851 in test data. The accuracy rate in the test data (0.851) was slightly higher than the surgeon's accuracy in actual clinical practice (0.803). Conclusion: In this study, we reported relatively high accuracy of the diagnosis for the stem stability (post-operative subsidence) in cementless THA by the hammering fluctuation sound analysis combined with CNN. Our results represent a step toward the realisation of acoustic monitoring to avoid the complication in cementless THA.

**Philippe Hernigou,** University Paris East.

**Complications related to the Morse Taper. Can we improve the standard?** The Morse Taper was invented in 1864 by Stephen A. Morse, an enterprising mechanic, who developed it to reliably join two rotating machine components. The orthopaedic industry has adapted these tapers, under the generic name of Morse tapers, as a means of reliably joining modular components of total joints directly on the operation table. The principle of the Morse taper is that of the cone in the cone. The trunnion (the male portion) and the bore (the female portion) are both uniformly tapered.Morse tapers introduced in orthopaedic surgery have also some disadvantageous sides. First, the dimensions of Morse tapers are not standardised, they vary from company to company. Thus the male parts manufactured by company "A" must not be mixed with the female part manufactured by company "B". They may appear identical, but they are not! A total hip system assembled from such components is at great risk to dissociate. Second, the Morse taper connects two different materials, thus fretting and corrosion can be a problem with Morse tapers. Third, Morse tapers joining the ceramic femoral heads with the femoral shafts produce stresses within the ceramic material. These so-called hoop stresses can cause catastrophic fractures of the ceramic femoral head if they exceed a certain level. Our rough estimate of the incidence of complications relating to modularity is based on the estimated number of arthroplasties performed by the surgeons contributing cases, which is low, at 0.1–0.2 %. The fact, however, that we have collected 20 such complications in five years leads us to believe that the extent of the problem is not fully appreciated. Operative errors are avoidable with careful attention to detail, but the avoidance of mechanical failure will require improvements in manufacture.

**Toshihisa Kajiwara**, Kentaro Shinohara, Junnichiro Matsumoto, Masatoshi Kume, Masaaki Satoh; Yokohama Minami-kyosai Hospital , Arthroplasty Center.

**Usefulness of MAKO robotic-arm assisted THA for severe acetabular dysplasia hip.** [ Purpose ] To report the short-term results of total hip arthroplasty (THA) performed in conjunction with the MAKO robotic arm in order to place the cup in the original acetabular position for patients with extremely poor acetabular coverage. [ Methods ] Of the 183 MAKO THA performed at our department from May 2022 to May 2024, the subjects were 18 hips in 18 cases in this study. There were 2 male and 16 female , with an average age of 62 years at the time of surgery. Surgery was performed in all cases using an anterolateral approach in the lateral decubitus position, with a Stryker Trident hemispherical multihole cup placed in the original molar position and 3-4 screw fixation added. Morselized bone grafting was used in 15 joints, and block bone grafting was used in 1 joint. [ Results ] The average operation time was 120 minutes (88-152), and the average intraoperative blood loss was 259 ml (194-476). The cup installation accuracy was an average of 43° (39-53) for the outward opening angle and 18.5 (15-24) for the average forward opening angle, and all cases satisfied Lewinnek's safe zone except for one joint. There were no postoperative dislocations, cup migrations, reoperations, or revisions.

**Pascal Vié;** Clinique du Cèdre ; Rouen

**Psoas tendonitis after total hip replacement in athletic patients**. Depending on the series, psoas tendinitis after total hip replacement occurs between 1 and 4%. Often the discomfort is slight and if the patient consults anyway, it is because he needs to be reassured about the condition of his prosthesis. Sometimes, on the contrary, he is more bothered with pain when dressing, climbing stairs, sometimes even at night, or his pain prevents him from resuming his favorite sporting activity. After more than 30 years of practice in the field of hip prosthesis, the risk of developing psoas tendinitis remains a matter of concern for me. The rules to follow during the operation will be recalled but they do not always prevent the occurrence of this complication. Our understanding of this phenomenon requires ongoing reflection which must include a specific pre-operative clinical and anatomical assessment in athletic patients or in those who already present characteristic signs of psoas tendinitis pre-operatively.

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**Friday 14th June Morning Silene Room - Hand 1 Session 9:15 - 10:15**

**Hideo Hasegawa,** Yasuaki Nakanishi, Takamasa Shimizu, Yasuhito Tanaka; Orthopaedic Department, Nara Medical University.

**Clinical outcomes of ultrasound-guided percutaneous release using a new device:** Background: Trigger finger is a common hand condition causing painful locking and loss of function. Although open release is standard, we have performed minimally invasive ultrasound-guided percutaneous release using a special double-guided device, allowing earlier rehabilitation while protecting tendons. This study reports outcomes of this technique. Materials and Methods: We performed ultrasound-guided percutaneous trigger finger release on 152 fingers in 109 patients aged 45-92 years (mean 64; 53 males, 56 females), including 22 thumbs, 31 index, 49 middle, 40 ring, and 8 little fingers. Severity per Quinnell grading showed 33 grade I, 53 grade II, 46 grade III, and 20 grade IV fingers. With a patient supine under local anesthesia, 2 mm incisions were made proximal and distal to the metacarpophalangeal joint. Under ultrasound guidance, the A1 pulley was released percutaneously using an 18G needle inserted through the distal incision and advanced through a dissector and sheath guide inserted through the proximal incisions, which protected the tendon. Completion was confirmed sonographically. Bulky dressings were removed after 2 days with subsequent bathing allowed. Results: Percutaneous release was successfully completed under ultrasound guidance in all 152 fingers, with improved intraoperative gliding confirmed. Two fingers initially improved but recurrence necessitated reoperation at 6 months. No neurovascular injuries occurred. Conclusion: Ultrasound-guided double-guided percutaneous trigger finger release is a safe and effective minimally invasive technique.

**Nobuya Nishioka**, Hideo Hasegawa, Moe Komobuchi, Naoki Minami, Takamasa Shimizu, Yasuaki Nakanishi, Kenji Kawamura, Yasuhito Tanaka; Orthopaedic Department, Nara Medical University

**Modified Arthroscopic Distal Scaphoid Resection for the scaphotrapeziotrapezoid (STT) osteoarthritis**: Purpose 】 Distal scaphoid resection may exacerbate dorsal intercalated segment instability (DISI). We present a case of arthroscopic distal scaphoid resection utilizing the flexor carpi radialis (FCR) tendon for scaphotrapeziotrapezoid (STT) osteoarthritis with associated DISI. 【Case Presentation】 The 60-year-old male construction worker with a history of chronic kidney disease presented with STT osteoarthritis. Despite conservative management, his pain escalated, prompting surgical intervention. Radiographs revealed STT joint narrowing, and computed tomography confirmed joint space reduction and sclerotic changes. Intraoperatively, we observed complete articular surface damage, necessitating a 3mm resection of the distal scaphoid with wrist arthroscopy. The ulnar half of the FCR tendon was harvested and used to compensated for the flexion torque on the distal scaphoid. Fixation was achieved using a SwiveLock®. 【Conclusion】 This novel procedure holds promise for preventing DISI deformity following arthroscopic distal scaphoid resection. Long-term follow-up is warranted.

**Yoko Ishihara**, Satomi Kobayashi, Tetsuya Tomita; Seibo Hospital

**Clinical outcome of tonsillectomy for SAPHO syndrome: 7 cases retrospective study**:【Aims】The synovitis-acne-pustulosis-hyperostosis-osteitis (SAPHO) syndrome has been known since Chamot et al had proposed in late 80', though relevant treatment remains uncertain. We report clinical outcome of tonsillectomy for SAPHO syndrome. 【Methods】7 patients with SAPHO syndrome treated by tonsillectomy from 2019 to 2023 were analyzed. We cited clinical information such as sex, age, specific diagnosis, focal infection, visual analog score (VAS) and C-reacted protein (CRP) before and after tonsillectomy. 【Results】There were 1 man and 6 women. The mean age was 56.0(41-64) years old. The specific diagnosis were 6 cases of pustulotic arthro-osteitis (PAO) and one case of sternoclavicular arthritis. 5 cases had dental infection and were already treated. 2 cases had tonsillitis. The mean VAS before and 6 months after tonsillectomy were 51.2(15-80) and 16.1(0-40) respectively. The mean CRP before and 6 month after tonsillectomy were 0.19(ng/dl) and 0.15(ng/dl) respectively. 3 of 6 cases of PAO revealed complete disappearance of palmoplantar pustulosis after 6 months tonsillectomy. 【Conclusion 】Clinical symptoms of SAPHO syndrome were improved after tonsillectomy. SAPHO syndrome may have association with tonsil induced autoimmune/inflammatory syndrome. Tonsillectomy may be effective for treatment of SAPHO syndrome.

**Tatsuki Ebata,** Ken-ichi Murakami, Seiji Okamoto and Hajime Yamanaka; Hokuso Orthopedic Clinic

**Electrophysiological Analysis for Surgical Indications of Carpal Tunnel Syndrome**: Aims The study aimed to analyze abductor pollicis brevis (APB-CMAP) and sensory nerve action potential (SNAP) to determine surgical indications for CTS. Methods Two hundred ninety-nine hands of 233 patients with APB-CMAP's value of ≥4.5 ms and did not choose surgery after 3 months and more were included in the study. The mean age was 66.4 years. The mean follow-up period was 8.9 months. The hands were divided into 5 groups based on their APB-CMAP's values: Group A, ≥4.5 <5.0 ms; Group B, ≥5.0 <6.0 ms; Group C, ≥6.0 <7.0 ms; Group D, ≥7.0 <8.0 ms; Group E, ≥8.0 ms. Each Group was further divided into two subgroups: S+ which had detectable SNAP, S- which had undetectable SNAP. Follow-ups were ended when a hand's APB-CMAP's value was <4.5 or when the patients chose surgery. Normalizing Rates (the rates of hands that had APB-CMAP's value of <4.5), Surgery Rates (the rates of hands that had surgery) and Improvement Rates (the rates of hands that had lower APB-CMAP's value at the end of the follow-ups compared to initial examinations), were statistically analyzed. Results Normalizing Rates: There were statistically significant differences between Groups A and B, and between Groups B and C. Surgery Rates: There were statistically significant differences between Groups B and C. Improvement Rates: There were no statistically significant differences between Groups. No statistically significant differences were found between S+ and S- in either Group. Discussion Our findings suggest that surgery should be withheld in the hands with CMAP's values of <5.0 ms. Surgery should be considered.

**Moroe Beppu,** Saburo Sasao, Hitoshi Kihara ; St.marianna University School of Medicine
**Ulnar Shortening of the DRUJ Instability especially for tennis Athletes**: Distal radioulnar joint (DRUJ) instability is one of the causes of ulnar pain in the wrist joint. Such trauma is related to the triangular fibrocartilage complex (TFCC), and it is believed that a ulnar shortening osteotomy can help in stabilizing the DRUJ and ameliorating the symptoms. It is suggested that such ulnar shortening osteotomy can be successful because the tension of the ulno-carpal ligament and distal radioulnar ligament work effectively to stabilize the disfunctional TFCC. We have clarified the structure of ligaments in the ulnar side of the wrist joint through detailed dissection. Also, Dr. Kihara and some other colleagues, have directed their attention to the interosseous membrane of the forearm, pronator quadratus muscle and the palmar／dorsal distal radioulnar ligament as a group of soft tissue that support the distal radioulnar joint. This time we report the Ulnar Shortening of the DRUJ Instability especially for tennis Athletes.

**Jacques Teissier,** Benjamin Degeorges, Adriano Toffoli. Hand Center, Clinique Saint-jean 34430 , Montpellier France
**Outcomes of 92 MAÏA Trapeziometacarpal Prostheses with more than 10 years of follow-up:** Trapeziometacarpal (TMC) joint replacement by protheses has become a valid option for the treatment of TMC joint osteoarthritis in Europe. This study aimed to assess the long term results of the MAÏA prosthesis which is a modular, uncemented, hydroxyapathite-coated, ball-and-socket implant. A single-center retrospective study evaluated 92 MAÏA TMC Prostheses in 76 patients with a minimun of 1 years of follow-up. Indications for the procedure were painful TMC jointosteoarthritis both at rest and during activity, despite conservative treatmentfor more than 6 months. Pre- and post-operative clinical and radiographic outcomes were compared. Mean Follow-up was 134 months ( range 120 – 158 months). Mean age at time of surgery was 67 years ( Range 53 – 84 years). The cohort was 86,8 % female . The mean Quick disabilities of the Arm Shoulder and Hand Score improved from 61,3 to 19,6. Range of motion was restored and post-operative mobility was comparable with the controlateral side when this was healty. Final Kapandji oppositionscore was almost normal 9,2 +/- 0,7 . Final key-pinchand grip strength improved by 26% and 39%, respectively. Eight implants were surgically revised, 6 for trapezium cup loosening and 2 for instability due to polyethylene wear.Three cases of traumatic fracture of the trapezium in older patients were successfully reated with a cast for 8 weeks. Only 5/26 (20,8%) cases of preoperative reductible Z deformity were not totally corrected after surgery. The Kaplan-Meier survival over 10 years was 88% versus 93% over 6 years. MAÏA TMC prosthesis is a reliable long term procedure for TMC joint osteoarthrithis, improving overall fonctionbeyond 10 years. This implant is a viable alternative surgical solution to trapeziectomy.

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**Friday Morning - Louise Room - Hip 2 Session: 10:45-11:45**

**Naoto Nakayama,** Yamasaki Takuma, Department of Orthopaedic Surgery, Hiroshima University
**Optimal fit of cementless stem in total hip arthroplasty using anterolateral supine approach for patients with excessive antetorsion of the femoral neck.** Developmental dysplasia of the hip is common in our country and excessive antetorsion of the proximal femur is frequently identified. In total hip arthroplasty using anterolateral supine approach (ALS-THA), anterior instability should be concerned if the stem fit results in excessive antetorsion. We perform cementless ALS-THA using CT-based navigation system, and position of each prosthesis can be estimated preoperatively. If excessive antetorsion will be estimated in stem insertion, we allow flexed insertion to prevent increase of antetorsion. The purpose of this study is to verify our procedure on stem fit in case of excessive antetorsion of the femoral neck. 36 patients (mean age: 65.5 years) performed ALS-THA whose stem antetorsion over 30° by preoperative planning were included. The estimated stem antetorsion angle (ESA), the actual stem antetorsion angle (ASA), the angle between anterior neck wall and the anterior surface of the stem (AWAS), and sagittal insertion pattern of the stem were evaluated. In flexed insertion group, ESA was 39.3 ± 8.3°, ASA 40.1 ± 8.6°, and AWSA 12.2 ± 9.1°. In extended insertion group, ESA was 38.5 ± 6.8°, ASA 50.0 ± 10.0°, and AWSA 20.7± 10.3°. These results suggest that flexed insertion of the stem could be advantageous in ALS-THA in cases of excessive antetorsion of the femoral neck.

**Kohei Hashimoto,** Takkan Morishima , Nobunori Takahashi, Aichi Medical University

**Comparative Analysis of Periprosthetic Fracture Risk Between CMK and Exeter Systems in Total Hip Arthroplasty: A Biomechanical Study.** Background: Osteoporosis is a major concern for the elderly, despite national efforts, fractures remain challenging, especially in Japan's aging population. Increased artificial joint surgeries and osteoporosis-related proximal femoral fractures necessitate interventions. Periprosthetic fractures (PFF) are daunting, especially in patients with compromised bone density. Objectives: This study compares PFF risks with CMK and Exeter stems, aiming to optimize stem selection through biomechanical analysis. Study Design & Methods: Using the Sawbones osteoporosis model, orthopedic surgeons crafted implants (Exeter 150mm #3, #4, CMK 303, 203). Simulated scenarios induced femur fractures with compression force and torque, mimicking single-leg stances. Tests confirmed failure with a 40° internal rotation within 1 second, focusing on destructive torque for analysis. Results: Fractures propagated from posterior calcar and diaphyseal regions, nearing the stem tip. CMK303 exhibited significantly higher torque until femoral fracture compared to Exeter3 (P=0.013), suggesting an advantage against PFF. Conclusions: CMK303 showed higher torque until femoral fracture than Exeter. Performance differences between Exeter #4 and CMK 203 may be insignificant. Stems with higher medullary canal occupancy, like CMK303, may offer PPF advantages. Caution is urged, particularly with high canal occupancy stems, to mitigate intraoperative fracture risks. Insights from this research refine PFF mitigation and stem selection in orthopedics.

**Masanori Nishi,** Takashi Atsumi, Yasushi Yoshikawa, Ryosuke Nakanishi, Minoru Watanabe, Yuki Usui, Yoshifumi Kudo Showa University School of Medicine, Tokyo, Japan. Sassa General Hospital, Tokyo, Japan. Showa University Fujigaoka Hospital, Kanagawa, Japan

**Long-Term Outcomes of Short-Stem Total Hip Arthroplasty in Young Patients with Osteonecrosis of the Femoral Head.** Introduction: This study examines long-term outcomes of the Mayo conservative hip system in total hip arthroplasty (THA) for osteonecrosis of the femoral head (ONFH) in patients aged ≤30 years. Methods: In a retrospective review of 104 joints (76 patients), Mayo conservative hip system THA outcomes were assessed over a minimum 8-year follow-up. Patient groups (≤30 years, n=21; >30 years, n=83) were compared in terms of radiographic parameters, clinical evaluations, and complication rates. Results: The mean follow-up period was 12.5 years (range:8-19). The patient characteristics were similar between the two groups, except for the age (mean age: 26.9 vs. 42.8 years, p3 mm occurred in one joint in the younger group and in seven in the older group. Spot welds were observed in most joints (93.2%) in modified Gruen zones 2 and 6, with no significant differences between the groups. Stress shielding showed no significant differences in the frequency of occurrence or location. The Japanese Orthopedic Association score showed no significant difference between the two groups (96.2 vs. 96.3, p=0.54). Conclusion: The use of the Mayo stem in young patients aged ≦30 years with ONFH demonstrated favourable long-term outcomes, including long-term stability and bone preservation. Considering the potential need for future revisions in younger patients, the use of the short stem can be a valuable option.

**Hiroshige Hamada,** Kazuhiro Oinuma, Hidetaka Higashi, Yoko Miura, Taishi Ninomiya, Keishin Ueno; Funabashi Orthopaedic Hospitaal

**Examination of intraoperative blood loss on the first side to perform simultaneous bilateral total hip arthroplasty without allogenic blood transfusion**. This study aimed to investigate the factors associated with postoperative anemia in simultaneous bilateral THA using the direct anterior approach (DAA) and to identify the criteria for limiting the surgery to one side.Methods: Participants who underwent simultaneous bilateral THA between January 2022 and December 2022 and those who underwent allogeneic blood transfusion during surgery were excluded. Multiple regression analysis was performed to identify factors associated with postoperative anemia. Results: This study included 161 patients (28 men and 133 women) with a mean age of 61 years and a mean BMI of 24.8 kg/m2. The average operative time on the first side was 41 min. The preoperative hemoglobin(Hb) levels and intraoperative blood loss on the first side were identified as factors associated with postoperative anemia. Multicollinearity was not observed. When the preoperative Hb levels were less than 12 g/dL and intraoperative blood loss on the first side accounted for 9% or more of the patient blood volume (PBV), there was a tendency for postoperative Hb levels to be less than 7 g/dL. Additionally, even if the preoperative Hb levels were 12 g/dL or more, the postoperative Hb levels became less than 7 g/dL when the intraoperative blood loss on the first side exceeded 16% of the PBV.Conclusion: Our study identified the factors associated with postoperative anemia in simultaneous bilateral THA using the DAA as well as the criteria for limiting surgery to the first side to prevent postoperative blood transfusion.

**Takamitsu Sato,** Kazuhiro Oinuma, Yoko Miura, Hideaki Shiratuchi; Funabashi Orthopedic Hospital
**Outcomes of Impaction Bone Graft using cementless stem in revision total hip arthroplasty [** Introduction ] In Revision total hip arthroplasty on the femoral component, impaction bone grafting (IBG) technique with cementl stem is an excellent method for bone mass recovery and improved stability of the Stem. But there are few reports IBG with cementless stems. This study aimed to investigate the outcomes of femoral side IBG technique with cementless stem. [Methods and Resusts] IBG was performed with collared full HA stem in 6 revision total hip arthroplasties (6patients) that were done because of 5aseptic loosening and 1septic loosening. Bone defect status was classified as AAOS grade 1 in 5 hips, grade 2b in 1 hip, and grade 3 in 0 hips. The average surgical time was 127 minutes with a blood loss of 935ml. There were no cases of intraoperative fractures or complications. No cases required revision surgery. The mean stem subsidence was 1.4mm, with only one case showing 3mm subsidence. Remodeling of grafted bone was confirmed in all cases, and there were no instances of loosening. [ Conclusion ] In this study, all cases showed stable stems without loosening, and remodeling of grafted bone was observed in all cases. The IBG technique with cementless stem is a useful method in revision total hip arthroplasty.

**Masazumi Saito,** Yasukazu Hijikata, Junji Morii, Mari Inaguma, Naoki Okubo; Department of Orthopaedics, Kitasuma Hospital.
**AMIS-THA reduced variation of stem anteversion:**[ Purpose ] AMIS (anterior minimally invasive surgery)-THA is expected to be minimally invasive due to intracapsular manipulation and use of a leg positioner. The purpose of this study was to compare the clinical results and stem placement accuracy of AMIS-THA with ALS-THA. [ Method ] 12 patients underwent ALS-THA before May 2023, and 19 patients underwent AMIS-THA after June 2023. As clinical evaluations, we compared operative time, blood loss and CPK value on the 1st postoperative day. We compared days until patients were able to walk independently with a walker after surgery. As image evaluations, the femoral anteversion angle was measured on preoperative CT, and the stem anteversion angle was measured on postoperative CT, and the amount of changes was compared. [ Results ] The average operative time was 122 minutes in the ALS group and 106 minutes in the AMIS group. Blood loss was 323g and 277g, respectively. CPK values were 750 IU/L and 346 IU/L, respectively, and operative time and CPK values were significantly lower in the AMIS group. The number of days until independent walking was 3.8 days and 2.9 days. The changes of femoral anteversion were 9.3 degrees and 5.5 degrees, and the changes were significantly smaller in the AMIS group. [ Discussion ] In AMIS-THA, the surgical time was short and postoperative CPK values were low. Those indicate AMIS-THA is less invasive to the muscles. In addition, AMIS-THA showed less variation in stem anteversion. We believed that the use of a leg positioner would enable highly reproducible surgery.

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**Friday Morning - Louise Room - Knee 1 Session: 11:45 - 12:30**

**Takayuki Koya** M.d., Ph.d., Atsushi Sato, M.d., Ph.d., Masataka Ota, M.d., Jun Oike, M.d., Ph.d., Marika Mukunoki, M.d., Kanako Izukashi, M.d., Reo Nagasaka, M.d., Takayuki Okumo, M.d., Ph.d., Saki Yagura, M.d., Ph.d., Koji Kanzaki, M.d., Ph.d..1. Department of Orthopaedic Surgery, Showa University Koto Toyosu Hospital, Tokyo, Japan; 2. Department of Orthopaedic Surgery, Showa University Fujigaoka Hospital, Kanagawa, Japan; 3. Department of Physiology, Showa University School of Medicine, Tokyo, Japan
**Evaluating Tibial Component Rotation after Total Knee Arthroplasty Using Augmented Reality Navigation System with Head-Mounted Display.** Introduction: Computer-assisted surgery (CAS) for total knee arthroplasty (TKA) represents several advancements, such as implant placement and bony resection accuracy. We reported that the tibial components tend to be implanted with internal rotation (IR) compared with the preoperative plan using 3D planning support software, ZedKnee (LEXI, Japan). This observational study aimed to evaluate the accuracy of the tibial component placement using an Augmented Reality (AR) navigation system with a Head-Mounted Display (HMD), NextAR (Medacta, Switzerland) Methods: We retrospectively analyzed the patients who underwent TKA and received a Medacta GMK Sphere CS implant and whole-leg CT postoperatively. The NextAR group (14 knees) and the non-NextAR group(14 knees) were included. We defined the anteroposterior (AP) axis of the tibia as a line perpendicular to the tibial posterior wall axis connecting the medial and lateral sides of the posterior tibia and passing through the center of the proximal tibia. Then, we calculated

the error of the implanted tibial component rotational angle from the AP axis of the tibia with the CT data. Results: There was no statistical difference between groups, but the rotational angle error of the tibial component was smaller in the NextAR group, compared to the non-NextAR group (1.8 ± 2.0 ° IR, 3.6 ± 2.7 ° IR, respectively, p= 0.058). Conclusions: Besides allowing surgeons to see the tibial component rotation through HMD intraoperatively, NextAR may enable more accurate tibial component placement in rotation.

**Rene Verdonk,** T Kyriakidis, A Dhollander, P Verdonk; Ulb Bruxelles, Klina Antwerpen , Uantwerpen
**Knee flexion deformity after total knee arthroplasty : a surgical approach, indication and results.** Knee flexion deformity after total knee arthroplasty : a surgical approach, indication and results. Purpose : A flexion deformity of the knee is the inability to fully straighten the knee, also known as flexion contracture. It may develop as a result of adherences in the popliteal fossa after surgery like TKA. Materials and Methods : the authors describe a surgical technique in case of for failed rehabilitation in obtaining full extension and ROM after TKA. The incision is located at the medial side of the knee at the level of the distal medial femur. It reaches the posterior side of the distal femur close to the posterior aspect of the bone and advances on the distal posterior femur towards the medial condyle , the intercondylar notch and towards the lateral femoral condyle debriding and detaching the formal adherences causing the flexion contracture. Rehabilitation with extension posture allows for FWB gait ( sometimes supported by an extension brace ). Results : a limited series of patients is reported with adequate results . Revision arthroplasty could be avoided in this series. Conclusions : in case of postoperative fixed flexion contracture with gait limitation and pain a posterior release of fixed adherences through a medio posterior approach can easily obtain full extension without flexion loss.

**Atsushi Sato,** Masataka Ota, Jun Oike, Marika Mukunoki, Kanako Izukashi, Reo Nagasaka, Takayuki Okumo, Saki Yagura, Takayuki Koya and Koji Kanzaki. Department of Orthpedic Surgery, Showa University Fujigaoka Hospital
**Kinematic Alignment TKA Considering Elongation Pattern using AR-based Navigation System**: In recent years, there has been a growing use of virtual reality (VR) and augmented reality (AR), which superimposes virtual space onto the real world, in the medical field. Particularly, due to limited reports on navigation for total knee arthroplasty (TKA) using AR, we will report our experience with AR-based navigation for TKA using AR glasses. We also introduce the kinematic alignment method considering elongation patterns measured with this AR navigation system. By using AR glasses, it was possible to perform the surgery safely without taking your eyes off the surgical field. The combination of AR and navigation TKA is useful, and accuracy, clinical results, evaluation of elongation pattern, and other items need to be investigated in the future.

**Shinichi Fukuoka** Md, Phd, Toshimi Hatanaka Md, Takanori Matsuura Md, Phd, Takeharu Sasaki Md, Phd, Kunio Takaoka Md, Phd;Nishinomiya Watanabe Hospital, Department of Orthopaedic Surgery
**Evaluation of Lower Limb Alignment before and after the Oxford medial unicompartmental knee arthroplasty.** Background: The surgical technique of Oxford Unicompartmental Knee Arthroplasty (UKA) is to equalize the extension gap with the flexion gap without medial release. Therefore, postoperative alignment is not considered. In this study, we measured and evaluated pre- and postoperative HKA (Hip-Knee-Ankle Angle) in patients who underwent UKA for medial osteoarthritis knee. Patients and Methods: Subjects were 154 patients who underwent medial UKA. The mean age, height, body weight and BMI was 76.8 years, 155.4 cm, 60.1kg, and 24.8kg/m2, respectively. Varus alignment was defined as "negative" and valgus alignment as "positive". Results: The mean preoperative HKA was -9.4°±4.0 (-0.9~-22.7), and the mean postoperative HKA was -3.4°±2.9 (-12.2~2.7). The correlation coefficient between preoperative and postoperative HKA was 0.65, $P<0.001$. Preoperative HKA showed that 46.1%, 44.2%, and 9.1% of the patients had varus alignment of 10° or more, 5-10°, and 0-10°, respectively, while postoperative HKA showed that 1.9%, 28.6%, and 62.3% of the patients had varus alignment, and 7.1% had valgus alignment. Discussion: In this study, the preoperative HKA of the UKA was -9.4° and the postoperative HKA was -3.4°, indicating mild varus alignment. This approximates Bellemans data for normal knees and Kennedy data distribution after Oxford UKA surgery, and results in a return to the pre-OA alignment of the patients. Conclusion: The Oxford UKA for medial osteoarthritis of the knee corrects the postoperative mild varus alignment and results in an alignment similar to the patient's pre-OA alignment.

**Maeda Tsutomu;** Shiga General Hospital

**A Modified Technique of Kinematically Aligned Total Knee Arthroplasty for Medial Knee Osteoarthritis with Inward Obliquity using Implants Designed for Mechanically Aligned Procedures: Improving Patellar Tracking and Tibial Bone Preservation.** Abstract: Objective: Kinematic alignment (KA) total knee arthroplasty (TKA) holds promise for improved outcomes but faces challenges, including patellar tracking issues and component subsidence due to varus bone cuts. To address these challenges, we propose a modified KA technique. Methods: We evaluated 21 knees treated with the modified KA technique and compared them with 15 knees treated with traditional true-KA. Postoperative alignment was assessed using ZedKnee (LEXI) and Comprehensive Alignment and Positioning of the Knee (CPAK) classification. Results: The modified KA group exhibited LDFA of 90.4°, MPTA of 88.0°, a HKA of -2.7°, and JLO of 178°, while the true-KA group showed LDFA of 87.0°, MPTA of 85.6°, a HKA of -1.4°, and JLO of 172°. Postoperative CPAK classification was 88% type I, II, or III for true-KA and 80% type IV, V, or VI for modified KA. No significant difference in a HKA was observed between the groups. Conclusion: The modified KA technique offers soft tissue balance akin to true-KA, while providing improved joint line obliquity and femoral rotation alignment similar to the MA method. It has the potential to mitigate challenges associated with using true-KA components in the context of the MA technique. Further clinical validation is necessary to confirm these findings and assess long-term outcomes.

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**Friday Morning - Silene Room - Pediatric session: 10:45- 12:30**

**Satoe Tanabe,** Yuto Murakami Ryota Ito Toshiyuki Shirahata Koji Kanzaki; Showa University Koto Toyosu Hospital, Showa University Fujigaoka Hospital

**The effectiveness of the gradual traction for developmental dysplasia of the hip.** Purpose Overhead traction (OHT) is conservative treatment for intractable developmental dysplasia of the hip (DDH). It requires gradual traction, but with appropriate methods, it could complete the treatment without complication such as avascular necrosis (AVN). We report the outcome of OHT for DDH. Objectives/Methods We retrospectively reviewed 13cases 15hips with DDH treated with OHT. 9 cases were difficult to reduction with pelvic harness, and 4 cases were diagnosed as dislocation after walking start. The age at the reduction ranged from 7M to 28M. We assessed the dislocation reduction rate and the AVN rate and the rate of lateralization of the femoral head. Results 13 joints (86.6%) were successfully reduced, 2 joints required surgery. 1 joint underwent open reduction, and 1 joint underwent arthroscopic surgery to remove thickening of the pulvinar. There were no cases of AVN. After the reduction with OHT, 3 joints didn't re-dislocate but developed lateralization. 2 joints were treated with Salter innominate osteotomy, 1 joint will be considered for surgery in the future. These 3 cases of the lateralization of the femoral head were acetabular angles of 35 degrees more. Discussion The result of the OHT was relatively good. Regarding the lateralization of the femoral head after reduction, lateralization may be improved by increasing the muscle strength of the lower limbs, but correction surgery is required when acetabular dysplasia is strong as in our case. Conclusions OHT could reduce intractable dislocation and was a good method to reduce AVN under proper management.

**Akifusa Wada** Atsushi Matsuo, Ken Sugita, Tomoyuki Nakamura, Mayuki Taketa, Akiko Oyamada, Hideaki Kubota Saga Handicapped Children's Hospital

**Treatment of late-onset Legg-Calve-Perthes disease**[ Purpose ] We report the outcomes of conservative and surgical treatment in patients with late-onset Legg-Calve-Perthes disease (LCPD) whose onset is 9 years of age or older. [Patients and Methods] This study included 31 hips of 30 patients (25 boys and 5 girls) treated since 1995. Of the 31 hips, 27 hips were included in the early group, where treatment was started within 6 months from onset, and 4 hips were included in the delayed group, where treatment was started later than 6 months from onset. The early group was divided into two groups: the Nishio hip abduction brace group (17 hips) and the flexion varus osteotomy (FVO) group (10 hips), and the treatment outcomes between the two groups were compared. In the delayed group with severe femoral head deformity, femoral osteotomy was performed in combination with varus, valgus, derotation, or lengthening osteotomy and lowering of the greater trochanter. Stulberg class I or II was rated as good. [ Results ] Of the 27 hips in the early group, 3/17 (17%) were good in the Nishio brace group, while 8/10 (80%) were good in the FVO group, which was a significant improvement ($p=0.0015$). Four hips in the delayed group had poor Stulberg classification results, but hip function much improved. [ Conclusion ] In late-onset LCPD, surgery is required in most cases. Even if severe femoral head

deformity occurs, hip joint function can be improved by appropriately performing surgery according to the deformity.

**Chika Mizuno**, Tatsuhiro Ochiai, Yuko Takahashi, Shigemasa Komatsu; Department of Orthopedic Surgery, Miyagi Children's Hospital

**Efficacy of Salter-Thompson classification by tomosynthesis in the early stages of Legg Calvé Perthes disease.** Purpose: To investigate the effectiveness of Salter-Thompson classification by tomosynthesis in diagnosing the early stage of Legg Calvé Perthes disease (LCPD). Methods Nine children (mean age 6.5 years) with unilateral LCPD were included in a retrospective. Simple X-rays, tomosynthesis, and MRI were taken at the initial visit. Crescent sign evaluation was compared between simple X-ray and Tomosynthesis. In addition, the predictive value of the Salter-Thompson classification on tomosynthesis and the predicted extent of necrosis on MRI were compared with the actual extent of necrosis. Results: The crescent sign was observed in 5 cases by plain X-ray and 9 cases by tomosynthesis. According to the Salter-Thompson classification by tomosynthesis, Group A had 2 hips and Group B had 7 hips. 7 cases had signal changes in the 3/4 of the head and 2 cases in the entire head by MRI. 2 hips were in Group II and 7 hips were in Group III of the Caterall classification. The prognoses of the Salter-Thompson classification by tomosynthesis were all consistent. Discussion The Salter-Thompson classification of subchondral fractures seen on plain X-ray can predict the extent of necrosis at an early stage but has the limitation that it is only seen in about 30% of cases. Tomosynthesis, however, is more accurate because it is performed topographically from different angles. Thus, the Salter-Thompson classification by tomosynthesis, which does not require sedation and has low exposure, is effective in the early stage of LCPD

**Hidehiko Kawabata,** Naomi Takahashi, Kyoko Okuno. Osaka Rehabilitation Hospital For Children.

**Chondrodiatasis for Phalangeal Lengthening in Congenital Short Phalanges of the Hand:** Chondrodiatasis, a method involving gradual and controlled epiphyseal distraction using an external fixator, has demonstrated successful outcomes in limb lengthening procedures, particularly in long bones such as the femur and tibia. But there have been no such evidences in phalangeal lengthening. The present study aimed to evaluate surgical outcomes of chondrodiatasis in congenital short phalanges of the hand and compare them with standard callus distraction techniques. Eleven cases underwent a combination of chondrodiatasis and callus distraction on the same hand. Fifteen phalanges underwent lengthening with chondrodiatasis, while 16 were treated with callus distraction, constituting separate analysis groups. The average age at operation was 10.0 years, with a mean follow-up period of 3.4 years. Initial phalangeal length was 16mm, with an average lengthening of 13.5mm. The duration of external fixation was 104 days, and the healing index was 84 days/cm. These parameters did not exhibit statistically significant differences between the groups. However, the width of the callus was significantly greater in the chondrodiatasis group compared to the callus distraction group, resulting in more mechanically robust phalanges in the former. Based on these findings, chondrodiatasis emerges as a preferable technique for phalangeal lengthening when the physis is present but little further spontaneous growth is anticipated.

**Takeshi Kinjo;** Okinawa Prefectural Nanbu Medical Center and Children's Medical Center

**The role of selective dorsal rhizotomy in pediatric Cerebral Palsy and our experience with spastic hemiplegia**. Paresis and abnormal muscle tone cause muscle shortening and joint contracture resulting in hip dislocation and scoliosis in cerebral palsy. Unfortunately, there is no treatment for paresis, but there are several treatment options for spasticity in recent years. The diversity of cerebral palsy requires treatment strategies for each case. When spasticity inhibits motor development and rehabilitation, It is necessary to be treated. Treatment for spasticity should be done before the muscle shortening and contracture take place, to gain the selective movements through neuromuscular re-education. We should consider treatment for spasticity first. SDR is a well-established surgical procedure to improve the lower extremities function for spastic diplegia with cerebral palsy. SDR is a surgical procedure performed on the lower spinal cord, and the dorsal root are separated then identified via an electrical stimulation. SDR is generally indicated for ambulatory spastic diplegia, and there are few reports of SDR for spastic hemiplegia. We report on our experience with SDR for spastic hemiplegia with good results.

**Yohei Oshima**, Takeshi Kinjo, Yuka Sugiura, Taketsugu Gaja, Takashi Asato, Atsuo Aguni, Higashi-washinomiya Hospital, Okinawa Prefectural Nanbu Medical Center and Children's Medical Center, Saitama Prefectural Children's Medical Center.
**Catheter tip descent during growth with intrathecal baclofen therapy**. Aims: In children treated with intrathecal baclofen (ITB), the intrathecal catheter tip descends from the time of surgery as the child grows. In this study, we examined postoperative catheter tip descent in patients who had undergone ITB therapy. Subjects: 34 patients (24 males and 10 females) who underwent ITB pump implantation by orthopedic surgeons at two centers, were under 20 years old at the time of surgery, and were observed for at least one year after surgery. Five patients who had undergone selective dorsal rhizotomy were excluded. The mean age at surgery was 8.6 (2-19) years. There were 26 cerebral palsy patients. The mean observation period was 2.5 years. The mean postoperative catheter tip descent rate (vertebrae/year) was 0.8 (0-2.1), and showed a moderate negative correlation with age at surgery. The descent rate were 1.2, 0.9, 0.5, and 0.5 for infancy (0-3 years), preadolescence (4-10 years for males and 4-9 years for females), growth spurt (11-13 years for males and 10-12 years for females), and postadolescence (14 years for males and 13 years for females), respectively. The descent rate of postadolescence was predominantly lower than those in infancy and preadolescence. Discussion: We were able to observe a temporal catheter tip descent after ITB pump implantation in children. The postoperative descent was slower after the growth spurt, but faster before the growth spurt. It is important to determine the height of catheter tip placement with taking growth into consideration in introducing ITB therapy to children.

**Yusuke Hattori:** Department of Orthopedic Surgery, Nagoya City University Graduate School of Medical Science.
**Report of Japanese Fellowship in France**: As a Japanese Fellow in France this year, I'm going to go the Hand Surgery Center of the University of Strasbourg, the Clinique Saint Roch in Toulon, and the Clinique Les Franciscaines in Versailles. I' d like to learn hund surgery and culture in France, and report the results.

**Moe Komobuchi,** Hideo Hasegawa, Kenji Kawamura, Shimpei Kurata, Shohei Omokawa, Yasuhito TanakaOrthopaedic Department, Nara Medical University.
**Brodie Abscess of the Radius treated with Endoscopic Curettage**. INTRODUCTION Brodie’s abscess occurring in radius is very rare, therefore the authors herein report Brodie’s abscess in the radius treated with an endoscopic curettage. CASE REPORT A 13-year-old boy presented with three months of pain on his right wrist. He had no restriction of wrist range of motion. X-ray showed a 10mm translucent lesion in the right distal radius. MRI showed a lesion with low signal intensity on T1-weighted images and high signal intensity on T2-weighted and STIR images, extending to the cortical bone on the palmar side without crossing the growth plate. A 4cm longitudinal skin incisions were made on the volar aspect on the distal side of right forearm and inserted a 2.3mm endoscope from a 12×8mm bone window. The authors could undertake a complete curettage and performed bone grafting with bone graft substitutes. Patients return to his daily activities without complications 10 days after the operation. DISCUSSION Although Brodie's abscess is more commonly found in the tibia, its occurrence in the radius is rare. There are limited reports on the use of endoscopy for this condition. Endoscopic surgery, which allows for thorough observation of the lesion and minimizes skin incisions, offers advantages in reducing invasiveness and providing detailed visualization.

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**Friday 14th June Morning Louise Room - Knee 2 Session 12:30- 13:00**

**Symposium Medacta: Atsushi Sato; Department of Orthopaedic Surgery, Showa University Koto Toyosu Hospital, Tokyo, Japan: Knee alignment - New technologies**
Computer-assisted surgery (CAS) for total knee arthroplasty (TKA) represents several advancements, such as implant placement and bony resection accuracy. We reported that the tibial components tend to be implanted with internal rotation (IR) compared with the preoperative plan using 3D planning support software, ZedKnee (LEXI, Japan). This observational study aimed to evaluate the accuracy of the tibial component placement using an Augmented Reality (AR) navigation system with a Head-Mounted Display (HMD), NextAR (Medacta, Switzerland) Methods: We retrospectively analyzed the patients who underwent TKA and received a Medacta GMK Sphere CS implant and whole-leg CT postoperatively. The NextAR group (14 knees) and the non-NextAR group(14 knees) were included. We defined the anteroposterior (AP) axis of the tibia as a line perpendicular to the tibial posterior wall axis connecting the medial and lateral sides of the posterior tibia and passing through

the center of the proximal tibia. Then, we calculated the error of the implanted tibial component rotational angle from the AP axis of the tibia with the CT data. Results: There was no statistical difference between groups, but the rotational angle error of the tibial component was smaller in the NextAR group, compared to the non-NextAR group (1.8 ± 2.0 ° IR, 3.6 ± 2.7 ° IR, respectively, p= 0.058). Conclusions: Besides allowing surgeons to see the tibial component rotation through HMD intraoperatively, NextAR may enable more accurate tibial component placement in rotation.

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**Friday Afternoon 14th June- Louise Room - Knee 3 Session: 14:00 - 14:20**
**Daniele Ascani, Augmented Reality (AR) navigation system, NextAR (Medacta)**

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**Friday afternoon - Louise Room - Shoulder 1 session: 14:20 – 15:00**

**Takehito Hirose**, Makoto Tanaka, Hidekazu Nakai Department of Orthopaedic Surgery, Daini Osaka Police Hospital, Osaka, Japan
**The influence of glenoid defect orientation on clinical outcomes after open Latarjet procedure combined with arthroscopic Bankart repair.** Purpose: Glenoid defect orientation (GDO) differs between patients with anterior shoulder instability. However, it is unknown whether the different GDO affects clinical results after Latarjet procedure. This study aimed to clarify the influence of GDO on clinical outcomes after open Latarjet procedure combined with arthroscopic Bankart repair (aB&oL). Method: A total of 34 shoulders with a glenoid bone loss underwent aB&oL were investigated. Preoperative GDO and postoperative clinical outcomes at 1 year and final follow-up were evaluated. GDO was classified as antero-superior (AS) group, or antero-inferior (AI) group based on the inclination of the line perpendicular to line connecting the superior and inferior edges of the bone defect. Result: Seventeen shoulders were categorized as AS type, while remaining 17 shoulders as AI type. At 1 year postoperatively, the Rowe score (AS: 85.0 vs AI: 96.7, p=0.003) and WOSI index (AS: 409 vs AI: 98, p=0.04) were significantly worse in the AS group than in the AI group. An apprehensive feeling was only recognized in the AS group. At the final follow-up (2.4 years postoperatively), there were no statistical differences between the groups in all clinical scores, and apprehensive feeling was recognized in 33.3% and 28.6% of cases, respectively (p=0.82). No recurrence was observed in either group. Conclusion: Clinical scores at 1 year postoperatively for Latarjet surgery combined with arthroscopic Bankart repair were inferior in cases with an antero-superior oriented defect compared to those with an antero-inferior defect.

**Eiji Itoi,** Yuji Hatakeyama, Tadato Kido, Hidetomo Saito, Wataru Watanabe, Yoshiaki Itoigawa, Hiroyuki Shiozaki, Yoshiaki Kon, Shigeo Mori, Nobuyuki Yamamoto, and Toshimi Aizawa Tohoku University Hospital, Tohoku Rosai Hospital, Akita University Hospital.
**Long-Term Effect of Immobilization in External Rotation After First-Time Shoulder Dislocation.** Purpose: To determine the long-term effect of immobilization in external rotation (ER) after a first-time shoulder dislocation. Methods: Between 2000 and 2004, 198 patients with a first-time anterior shoulder dislocation (average age 28) were randomly assigned to immobilization in ER (104 shoulders) or internal rotation (IR) (94 shoulders) for 3 weeks. At an average 2-year follow-up, 159 patients (80.3%) were available for evaluation. In the current study, these 159 patients were further followed up and interviewed by telephone. The recurrent instability, apprehension, surgical intervention, limited range of motion, return to sports, and the SANE score were evaluated. Results: The average follow-up period was 18.2 years with the follow-up rate of 35%. The overall recurrence rate was 9/27 (33%) in the ER group and 16/29 (55%) in the IR group (p = 0.100). The surgically stabilized patients were 3/27 (11%) in the ER group and 10/29 (34%) in the IR group (p = 0.038). Adding the surgical cases and those with the SANE score □ 70% as failure cases, the failure rate was significantly lower in the ER group (26%) than in the IR group (52%) (p = 0.048). Conclusions: Immobilization in ER reduced the risk of surgical intervention and failure compared to IR immobilization in the long-term.

**Geoffroy Nourissat** Md Phd, Ali Asfour Md, Franck Dordain Md, Pierre Alban Bouché Md Phd; Clinique Des Maussins, Paris France.
**PSI seems mandatory for accurate placement of glenoid component only for Glenoid retroversion over 20°.** Background: Glenoid implant positioning in shoulder arthroplasties affects clinical outcomes. The use of patient specific instrumentation (PSI) for glenoid preparation should provide accurate reproduction of the preoperative

planning. But it costs time and money. We hypothesized that the use of PSI is needed in certain and not all glenoid deformities and we aimed to define the indications for its use. Methodology: Eighteen 3D planification's of patients undergoing reverse shoulder prostheses were randomly selected for the current study. Each patient's preoperative CT was used to create six 3D scapular models. Two experienced surgeons classified glenoid deformities utilizing the Walch and Favard classifications. Randomized glenoid pin positioning was performed twice using conventional instrumentation and PSI. Analysis of guide pin placement, including entry point, version, and inclination, was conducted using GIMP 2.10.36 Software to evaluate precision and accuracy. Results: 108 printed models were used from 7 left and 11 right shoulders. We identified 7 A1 (38,9%), 4 A2 (22,2%), 3 B2 (16,7%), 1 B3 (5,6%), 2 C (11,1%) and 1 D (5,6%). And we classify 8 E0 (44,4%), 7 E1 (38,9%) and 3 E3 (16,7%). In terms of glenoid version severity, our cohort included 10 mild (20°). The analysis of surgeon interobserver reproducibility indicated poor reliability for the entry point (ρ=0,43) and moderate reliability for both version (ρ=0,67) and the inclination (ρ=0,67).

**Yoshinori Takemura,** Kosei Ando, Narihito Kodama, Shinji Imai. Shiga University of Medical Science.
**Shoulder reconstruction following coracoid chondrosarcoma using liquid nitrogen- treated tumor-bearing bone combined with a vascularized iliac bone graft**: A case report. There is currently no effective adjuvant therapy for chondrosarcoma, and surgery is the only therapeutic method. For operation surgical treatment, wide resection is required, but this leads to a marked functional loss and requires reconstruction surgery. For malignant bone tumors located around the glenohumeral joint, total shoulder arthroplasty, resection arthroplasty might be selected. Recently, there have been many reports of reconstruction using autologous bone devitalized with liquid nitrogen after wide resection of malignant soft and bone tumors. Moreover, the combination of autogenous bone treated by liquid nitrogen and vascularized bone graft has been reported. Vascularized bone grafts are more effective for bone union and regeneration than devitalized bone treated with liquid nitrogen. We used this combined technique for a chondrosarcoma located in the coracoid process. The patient was a 63-year-old woman. The bone tumor extended from the coracoid to the glenoid of the right shoulder. We performed CT guided biopsy, and the histopathological examination revealed that the tumor of the coracoid was chondrosarcoma. We performed wide resection of the tumor and reconstructed the glenoid and coracoid using the combination of the vascularized iliac bone graft and autologous bone devitalized with liquid nitrogen. Two years after the operation, the shoulder function of patient's shoulder was excellent. There were no trouble affecting the activities of daily life. This case demonstrates that vascularized bone grafts combined with autogenous bone devitalized by liquid nitrogen for the reconstruction of wide bone and joint defects after resection of bone tumors, and can provide good postoperative function.

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**Friday Afternoon - Silene room - Spine session 14:00 -15:00**

**Takeshi Oki,** Satoko Oki, Jun Oki Orthopedic Surgery Department, Yuki Hospital.
**Microscopic tubular decompression for low-grade adult isthmic spondylolisthesis: A case series**. Introduction 】 Posterior lumbar interbody fusion (PLIF) is common surgical method for treating L5 isthmic spondylolisthesis. It is well-known that there is a high risk of neurological damage associated with reduction maneuvers in cases of severe vertebral slippage. However, neurological deficits can also occur in cases of mild slippage. In an effort to minimize invasiveness and avoid neurological complications, we perform microscopic foraminal decompression without posterior fixation. We present the postoperative outcomes at our institution. 【Methods】 A 22 mm diameter tube retractor was placed over the affected facet joint, and under a microscope, bone decompression was performed from the inner edge of the isthmic lesion to the lower part of the L5 transverse process, relieving pressure around the L5 nerve root. Evaluation included the use of visual analogue scale (VAS), and Roland Morris Disability Questionnaire (RDQ). 【Results】 Case 1: 51-year-old male with pain in the lateral right lower leg. Meyerding grade 1. Postoperatively, leg pain improved from VAS 8 to 2 and RDQ from 8 to 2. Case 2: 78-year-old male with pain in the lateral right lower leg. Meyerding grade 1. Postoperatively, leg pain improved from VAS 7 to 0 and RDQ from 15 to 1. Case 3: 45-year-old male, right lower back pain, right buttock to outer leg pain. Meyerding grade 2. Postoperatively, leg pain improved from VAS 6 to 3 and RDQ from 9 to 3. 【Conclusion】 Although it was only a short period of time after the surgery, all patients' lower back pain and leg pain improved, and no nerve damage was observed.

**Risako Yamamoto,** Shigeo Joji, Mitsuru Motoyama, Yosuke Kozuma, Kohei Nakayama. Department of Orthopedic Surgery.

**Spinal Canal Shape as a Risk Factor for the Development of Epidural Hematoma, a Complication after Posterior Lumbar Decompression Surgery**. Introduction: Postoperative spinal epidural hematoma (PSEH) is one of the complications of posterior lumbar decompression. Some risk factors such as inadequate decompression, use of anticoagulants, and postoperative hypertension have been reported. And we speculated that the shape of the spinal canal could be another risk factor. Subjects and Methods: Ten patients were reoperated due to PSEH (P group), and 22 patients were selected as controls (C group). The mean age of P group was 81.2 years, and surgery was performed on a total of 19 vertebral arches. The mean age of the C group was 80.5 years, and surgery was performed on a total of 38 vertebral arches. F-test confirmed that the variances of both groups were equal. The shape of the spinal canal was measured using preoperative CT axial images. Depth was measured as the anteroposterior diameter from the surface of the vertebral arch to the disc at the inner edge of the intervertebral joint, and the average of the left and right sides was defined as D. The width of the intervertebral joint was defined as W. Results: In P group, D was 19.7mm, W was 15.3mm, and the ratio of D to W, D/W was 1.3. In C group, D was 16.1mm, W was 16.5mm and D/W was 1.0. D/W was significantly larger in P group ($P < 0.01$). Conclusion: The spinal canal after decompression in the P group was shaped with a longer anterior-posterior diameter. This suggests that the increased pressure on the dura due to the hematoma stored in the spinal canal after surgery led to the development of PSEH.

**Kazuhiro Takeuchi,** Kentaro Yamane, Shinichiro Takao, Shinnosuke Nakahara; National Hospital Organization, Okayama Medical Center.

**Surgical treatment for cervical spondylotic myelopathy in athetoid cerebral palsy**: Athetoid cerebral palsy (CP) accompanies hyper mobility and involuntary motion which aggravates cervical myelopathy (CSM). We reviewed our surgical results in CP patients. 59 CP patients were enrolled in this study. Surgical outcomes were evaluated by image and clinical analysis. We checked cervical alignment and instability type (focal or whole lesion). Clinical results were estimated by daily living function and JOA score. Results We detected two main causes (hypermobility of the entire cervical spine and focal instability). In cervical hypermobility, MRI showed specific spinal cord atrophy. We have performed long fusion with spinal process splitting laminoplasty (Kurokawa) and bone graft in 42 CP patients. Neurological improvement was reliable. 35 out of 42 patients have returned to their daily life. Cervical kyphosis was a predictive factor of poor results. 13 kyphosis cases were treated with additional anterior release and fusion. 11 / 13 patients had great view. 20 cases of localized instability were treated with short fusion. Conclusion Dynamic factor is the main cause of CP-CSM. The aim of surgery is to achieve a static state. Usually, long fusion is considered for entire cervical spine. We have performed laminoplasty with bone graft. We also apply anterior correction against kyphotic posture. Recently, pedicle screws have become popular. Our surgical strategy is: 1) Posterior decompression and stabilization with laminoplasty and bone graft, 2) Laminoplasty with anterior release and realignment for kyphotic case, 3) Short fusion for regional instability.

**Masahiro Kashima,** Toru Maeda, Hiroshi Yonezu, Naoyuki Yoshida, Yuhei Yamasaki. Anan Medical Center.

**Hounsfield Unit (HU) value is useful to predict the screw loosening:** Introduction: Likewise adjacent vertebral body failure, screw loosening is one of major complication for spinal surgeon and in recent years, several reports advocate that Hounsfield unit (HU) value is useful to predict the risk of screw loosening. Purpose: We studied the relationship between screw loosening and HU value in our hospital. Method and Materials: study period was from January 2020 to September 2023. We searched 258 patients who underwent lumbar spinal fusion. Male 131 female 127 average age 75.5 years. Investigator judged whether screw is loose or not on the CT axial view and measured the HU value of vertebral body from L1 to S1 on the axial view and compared two groups between screw loosening or not by t-test. Result: Screw loosening was recognized in 61 of 258 (26 male, 35 female, average age 77.4 years) and was not recognized in 197 (105 male, 92 female, average age 74.8 years). The loosening rate was 23.6 % at the 3 years follow-up. HU value average: Screw loosening (+) L1=88.9 L2=85.3 L3=86.3 L4=102.4 L5=106.8 S1=150.1. Screw loosening (-) L1=102.7 L2=97.9 L3=98.0 L4=111.0 L5=129.2 S1=183.5. There was significant difference at L1, L2, L3 and L5, S1. Conclusion: As former studies reported, our study result supported the hypothesis that HU value is related to the screw loosening.

**Kazuma Kitaguchi,** Kunihiko Hashimoto, Takashi Kaito, Kazuya Oshima, Eiji Wada; Department of Orthopedic Surgery.

**Comparison of the effects of topical and intravenous administration of tranexamic acid on postoperative blood loss in single-level posterior lumbar interbody fusion.** Background: This study aimed to compare the efficacy of topical and relatively high-dose intravenous tranexamic acid (TXA) in reducing postoperative blood loss in patients undergoing single-level posterior lumbar interbody fusion (PLIF). Methods: This is a retrospective cohort study. A total of 120 patients who underwent single-level PLIF were retrospectively enrolled and assigned to three groups: (a) no TXA (control group (n = 60)), (b) intravenous TXA (2 g before wound closure; TXA (iv) group (n = 30)), and (c) topical TXA (1 g to the wound before wound closure; TXA (t) group (n = 30)). Results: Total postoperative blood loss was significantly lower in the TXA (t) group than in the TXA (iv) and control groups ($p<0.01$). Analysis of blood loss over time showed significantly less blood loss throughout the postoperative period in the TXA (t) group compared with the control group ($p<0.01$); in contrast, the TXA (iv) group showed less blood loss than the control group only in postoperative hours 2 to 6 ($p<0.01$). Conclusions: After single-level PLIF, topical TXA showed rapid and long-lasting effects in reducing postoperative blood loss compared with twice the amount of intravenous TXA.

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**Friday 14th June Afternoon : Louise Room - Hand 2 Session: 15:00 -15:20**

**Symposium Lepine : Jacques Teissier, Benjamin Degeorges, Adriano Toffoli ;** Hand Center, Clinique Saint-Jean, 34430 Montpellier - France

**History of Trapeziometacarpal Prostheses:** In 1970, on the advice of Jacques DUPARC, Jean Yves DE LA CAFFINIERE developed the first trapeziometacarpal (TMC) joint arthroplasty, a ball-and-socket implant based on hip replacement prostheses design. From 1970 to 1990 : development of the first generation: cemented TMC prostheses. Jean Yves ALNOT and the GUEPAR group developed a retaining implant with a range of "monobloc" stems and necks. Despite good initial outcomes, these constrained implants revealed a high rate of radio-lucencies and implant loosening at mid-term follow up. Yves BOUCHON from Nancy, created an original reverse arthroplasty. At that time, trapeziectomy, with tendon interposition or suspension arthroplasty, remained the most widely used surgical procedure. From 1990 to 2010 : development of the second generation: uncemented TMC prostheses. F. MOUTET from Grenoble, created the ROSELAND prosthesis and P. LEDOUX from Belgium developed an implant with an expansion cylindrical cup. Jean Jacques COMTET from Lyon designed the first implant with a range of anatomical shaped stems and modular offset necks that reproduced the anatomical nonalignment of the first metacarpal with the center of the trapezium. The ARPE prosthesis is definitely the first modern implant with encouraging long term outcome. On the basis of these results were developed the IVORY Prosthesis by C. DUMONTIER, the ISIS prosthesis by L. OBERT and the ELEKTRA prosthesis by P.J REGNARD. This last implant revealed unreliable because of the high rate of early radiological failure of the threaded cup and metal-on-metal coupling. The AVANTA prosthesis by LINSCHEID and the CAMARGUE prosthesis by J.L ROUX attempted to reproduce the normal biconcave saddle-shaped TMC and its several independent axes of rotation. This design may have cause exaggerated mechanical constraints and revealed deleterious for trapezial fixation. In 2005 J. TEISSIER and All created the MAIA prosthesis, a modular, cement-less hydroxyapatite coated implant. The purpose was to improve the ARPE prosthesis with stems flared at the proximal end to prevent subsidence, thin modular offset necks to avoid polyethylene impingement, and a better press-fit metal back cup (standard or semi-retaining). From 2010 : development of the third generation: dual mobility prostheses. B. LUSSIEZ had paved the way with the EBONY revision implant which is a "bicentric" metacarpal implant. MOOVIS group directed by G. DAUTEL created the first dual mobility prosthesis. By then, B. LUSSIEZ and P. LEDOUX developed the TOUCH prosthesis with an hemispheric cup. In 2015 the MAIA prosthesis become available in single and dual mobility. The dual mobility improves range of motion and prosthetic stability. In 2024, TMC prostheses (simple or dual mobility) are a reliable option for TMC arthritis treatment with an implant survival rate of 88% with more than 10 years of follow-up. These prostheses provide pain relief and improvement of strength and mobility. Restoration of the length of the thumb and correction of most thumb Z-deformities are others significant advantages of this arthroplasties. TMC joint prosthesis are a viable alternative solution to trapeziectomy that remains the gold standard in Anglo-Saxon countries. Moreover, trapeziectomy after TMC replacement failure provides equivalent outcomes to primary trapeziectomy.

**Friday Afternoon - Louise Room - Knee 4 session: 15:20-16:00**

**Jacques Hernigou**, Sagi Martinov, Esfandiar Chahidi, Gauthier Gamela, Antoine Callewier, Olivier Bath, Ch Epicura
**Complex Regional Pain Syndrome Recurrence in Total Knee Arthroplasty**. Introduction: Risk factors for CRPS have been extensively studied, yet none have been conclusively identified. As reported in case reports, one potential risk factor could be a history of CRPS in patients. However, most studies investigating CRPS after orthopedic surgery have excluded patients with a history of CRPS. This work explores the risk of CRPS recurrence after total knee arthroplasty. Material and methods: From 01/2017 to 12/2021, 998 patients operated on TKA were included. Reviews of medical records were conducted to determine any prior incidence of CRPS. Multiple data were analyzed: including demographic information, BMI, diabetes, cardiovascular and pulmonary past conditions, toxic substance use (alcohol and tobacco), vitamin C supplementation, anesthesia modality, use of tourniquet, use of cemented or cementless implants and patella resurfacing. Résultats / Results: 940 TKA were included in the study. 45 had a history of CRPS. Among those with a history of CRPS, 40% experienced CRPS recurrence after their TKA, compared to 10.7% in the group without a history of CRPS. After multivariate regression, history of CRPS was found to be an independent risk factor of CRPS post-TKA ($p<0.05$). In patients with a history of CRPS, vitamin C supplementation was found to reduce the frequency of CRPS recurrence after TKA: 20% Vs 56% in patients without vitamin C ($p<0.05$). Conclusion: The risk of CRPS is higher in patients with a history of CRPS (OR=5). 40% of patients experience a recurrence, regardless of the primary location of the pathology. Vitamin C reduces this risk.

**Tadayuki Hoshi**, Morihiko Masuya, Fumito Komatsu, Hiroshi Nakajima, Mitsuru Komatsu; Komatsu Orthopaedic Clinic
**Mid-term results of realignment procedures for patellar instability with severely patellofemoral osteoarthritis**. Purpose : The purpose of this study was to investigate mid-term results of realignment procedures for patellar instability with severely patellofemoral (PF) osteoarthritis (OA). Methods : Between September 2011 and July 2021, 7 knees in 7 patients undergoing arthroscopy, smoothing on the patellofemoral joint surface and proximal or/and distal realignment were evaluated. All cases were female. Mean follow-up period was 66 months (31-150) after surgery. Mean age of the patients at the time of surgery was 54.4 years (47-65). Preoperative evaluations consisted of symptoms, radiographs and MRI. The postoperative outcome measure was the Kujala patellofemoral score. Results : Preoperative symptoms were pain (6 cases), hemarthrosis (3 cases), hydrarthrosis (2 cases) and patellar subluxation (2 cases). The roentgenographic stages of PFOA by Iwano classification were stage Ⅳ (6 cases) and stage Ⅱ (1 case). The mean patellar tilting angle measured by MRI was 26.6° (17-48) in the knee extension position. At final follow-up, the mean Kujala score was 82.4 (65 -97). Residual symptoms were slightly pain (5 cases), swelling (1 case) and patellar subluxation (1 case). The mean patellar tilting angle was 8.4° (1-21) postoperatively. Conclusions : Surgical options for patellar instability with PFOA include realignment procedures, patellofemoral arthroplasty (PFA) and total knee arthroplasty (TKA). Our surgical procedures improved patellar alignment and may have delayed TKA. The subjective functional results were good, but the progression of OA should be carefully monitored in the future.

**Youngji Kim**, Mitsuaki Kubota, Yasuhiro Homma, Muneaki Ishijima, Kazuo Kaneko. Department of Orthopaedic Surgery and Sports Medicine, Faculty of Medicine, Juntendo University School of Medicine
**Hip abduction angle after open-wedge high tibial osteotomy is associated with the timed up & go test and recurrence of varus alignment.** The aim of this study) To investigate the association between the hip abduction angle (HAA) and radiographic parameters as well as the clinical assessments in open-wedge high tibial osteotomy (OWHTO) patients. Methods)A total of 90 patients who underwent OWHTO were included. The demographic characteristics, radiographic and clinical assessments were recorded. The patients were divided into two groups according to the HAA at 1 month after operation: the HAA (−) group (HAA < 0°) and the HAA (+) group (HAA ≥ 0°). Results) Clinical assessment except for the single leg standing (SLS) test and radiographic parameters were significantly improved at 2 years postoperatively. Regarding the two groups, scores on the tImed-up go (TUG) test in the HAA (−) group were significantly lower than those in the HAA (+) group ($p = 0.011$). The hip knee angle (HKA), weight-bearing line ratio (WBLR), and knee joint line obliquity (KJLO) in the HAA (−) group were significantly higher than those in the HAA (+) group ($p < 0.001$, 0.001 and $p = 0.025$). In contrast, the lateral distal

femoral angle (LDFA) in the HAA (−) group was significantly lower than those in the HAA (+) group ($p < 0.001$). The TUG test and the LDFA were weakly positively correlated with the HAA ($r = 0.34, 0.42$, $p < 0.001$ and 0.001). In contrast, the HKA, WBLR and KJLO had a weak negative correlation with the HAA ($r = -0.43, -0.38$ and $-0.37$, $p < 0.001$, 0.001 and 0.001). Conclusion) A higher postoperative HAA might induce varus recurrence and poor outcomes of the gait parameter.

**Jacques Caton** Lyon France ; Académie Nationale De Médecine

C**ATON -DESCHAMPS' patellar height measurement index :more than 40 years already:** More than 40 years ago,in 1982, on the occasion of Gérard Deschamps ' thesis on patella infera we published ouf method of measuring the patella height called the CATON -DESCHAMPS' index. This index was a modification of the first original measurement described by myself in my thesis in 1977 about « Ruptures of the extensor apparatus of the knee a part patella fractures ». This very reliable index, due to its universal nature it has been the subject of nearly 1000 citations, and is the only technique that allows surgical and précise correction of an abnormality in the patella height. In 2016 Jacques Caton and Jean Louis Prudhon also adapted this original index of patellar height in Total Knee Arthroplasty called modified Caton Deschamps index.

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**Friday Afternoon - Silene Room - Feedback experience 15:00 – 16:00**

**Moroe Beppu** President of Hip Joint Foundation of Japan, Seira Takei, Mitsutoshi Moriya, Miyuki Yokoyama , Ken Nakata. St.marianna University School of Medicine

**Prevention for the exertional heat illness in Tokyo 2020 Olympic tennis and Paralympic wheelchair tennis**. I was an Athlete Medical Supervisor (AMSV) for Tokyo 2020 Olympic & Paralympic Tennis Event. Olympic tennis & Paralympic Wheelchair Tennis will be held next July in Paris 2024. I am going to talk about "Extreme heat policies to prevent Exertional Heat Illness in Tokyo 2020 Olympic & Paralympic Tennis." Playing tennis under hot environments may develop exertional heat stress. The development of hyperthermia during tennis is of particular concern when tournaments are played in hot environments. The wet-bulb-globe temperature (WBGT) is an index that provides an estimate of the thermal load, and WBGT >28°C is considered as an extreme risk for thermal injury. As the average WBGT in Tokyo during summer exceeds 28°C, Tokyo 2020 Olympic tennis event and Paralympic wheelchair tennis event were considered as high risk for exertional heat illness. We would like to report what we have prepared for Tokyo 2020 Olympic tennis event and Paralympic From the experience of venue medical care at the Tokyo 2020 tennis games, we have learned that event organizers of tennis tournaments should understand the risks associated with heat illness presentation and be prepared to Extreme heat policies based on the specificities of tennis in hot environments.

**Kimihiko Nakata**, Higashi-Osaka Hospital

**A case of an orthopaedic surgeon who do not perform operation -Comme d'habitude toward SEIKEINAIKA, ou l'orthomorphie conservatice.** BACKGROUND: There are over 200,000 orthopaedic surgeons in Japan and all of them grow older year by year. Some of them become retired and do not perform surgical intervention. I decided to stick to old technologies. AIM: To reveal an orthopaedic surgeon who treat orthopaedic disorders conservatively. METHOD: It is a pity that well-trained orthopaedic surgeons, who are familiar with the anatomy of the bone and joint, do not perform clinical activity. Without surgical intervention, many patient with othopaedic disorders become happy; and some of them do not like surgical intervention. Here some cases with orthopaedic disorders are shown; for example osteoporotic vertebral fracture, rheumatoid arthritis, ankylosing spondylitis and so on. RESULT: As a spinal rheumatologist, osteoporosis, rheumatoid arthritis, ankylosing spondylitis and osteoarthritis are treated conservatively and shown here. CONCLUSION: Japanese orthopaedic surgeons with precise observation advocated the new clinical entity of some orthopaedic disorders. Dr. Sonozaki advocated pustulotic arthro—osteitis; Dr. Tsukimoto reported a case of the ossification of the posterior longitudinal ligament (OPLL). A spinal rheumatologist, which will be a new category of doctor, must have more important role in an extra-high aged society.

**Hiroharu Najima,** Najima Orthopedic Clinic

**From French aviator André Japy's Plane Crash on Mt. Sefuri to the Red Wing Project** In November 1936, French aviator André Japy embarked on a flight between Paris and Tokyo to compete for a grand prize. His plane arrived in Hong Kong at breakneck speed, making everyone believe he would establish a new record, until he crashed on Mt. Sefuri in Saga Prefecture on the way to Tokyo when his plane was unfortunately caught in turbulence. However, he miraculously survived the crash thanks to the efforts of the people of Sefuri who did not give up on rescuing the French man. He was admitted to Kyushu University Hospital and underwent surgery for a fracture on his left femur. Postoperative recovery went well, and he was transferred to a hospital in Beppu, famous for its hot spring therapy. A big farewell party was organized for him in Fukuoka and Sefuri before he left Japan to return home. During his stay in Japan, the French aviator experienced the kindness of the people of Sefuri and Fukuoka. In April 1947, Japanese aviator Mr. Iinuma and engineer Mr. Tsukagoe achieved the world record for their flight between Tokyo and London on their plane called the Kamikaze-go. Their success was attributed to the advice offered by André Japy regarding challenging spots on the southern route. In 1996, the cities of Kanzaki in Saga Prefecture and Beaucourt were officially deemed sister cities, and Japan–France exchanges have continued to this day. The Red Wing Project was launched in 2021 with the aim to reconstruct the Caudron Simoun aircraft built 90 years ago and fly it between Saga and Tokyo in 2026.

**Dubrana Frédéric** , Etsuji Shiota Chu Cavale Blanche

**History of Publications**: On February 2, 1992, the Paris-Fukuoka flight landed at Kyushu International Airport. For four months, I discovered Japanese orthopedics thanks to a scholarship from the AFJO association, with the support of Professors SEMOTO and KOHLER. During these four months, I explored Japanese orthopedics at Fukuoka University with Professor SUGIOKA and at the orthopedic hospital with Dr. KOBAYASHI. Thirty years later, I was invited by SOFJO with Dr. Adalbert KAPANDJI to the 16th meeting of the Franco-Japanese Society. In 2019, I visited Professor NAKAMURA's research department in Osaka for a week. With the Professor Etsuji SHIOTA, I had the opportunity to co-author two books in Japanese. The first is the " Manual of Approaches in Orthopedic and Traumatological Surgery" published in 2015 by Ishiyaku Publishers, and the second in 2020 by Igaku Shoin Publisher titled "Unicompartmental Knee Arthroplasty. A New Paradigm?" These editions in Japanese were, for me, a Benedictine-like endeavor, as everything was thoroughly controlled and verified.. The numerous errors in the English and French manuscripts were corrected, making the publication in Japanese an indisputable reference.

**Hiroshi Asahara**, Ryo Nakamichi; Tokyo Medical and Dental Univiersity

**Athlete Giftedness and Genetics**. The identification of Mkx as the central transcription factor for tendons marked a significant breakthrough (Yokoyama et al. Dev Cell 2009), shedding light on the elusive mechanisms governing tendon production (Ito et al, PNAS 2010, Suzuki et al, PNAS 2016, Nakamichi et al. Nat Commun 2016). This discovery, coupled with our exploration of Piezo1, a mechano-sensor and Mkx activator, revealed surprising findings. Through mouse models, we found that enhancing Piezo1 activity specifically in tenocytes led to remarkable improvements in jumping ability and maximum speed (Nakamichi et al, Sci Transl Med 2022). Expanding our investigation to human athletes, collaboration with the Athrome Consortium uncovered intriguing insights. By analyzing the frequency of the active PIEZO1 E756del variant in Jamaican sprinters and the general population, we observed a significantly higher occurrence among sprinters (Nakamichi et al, Sci Transl Med 2022). These findings hint at the potential influence of tendon biology on athletic performance. Overall, our research not only deepens our understanding of tendons but also highlights their broader implications for motor function and athleticism. Such insights hold promise for advancing medical interventions and promoting overall societal health and well-being.

**Toshio Inoue,** Jun Nishio, Department of Orthopaedic Surgery, Fukuoka Dental College

**Surgical method and results of modified scarf osteotomy for hallux valgus.** Purpose: Modified scarf osteotomy for hallux valgus is a method with excellent flexibility in correction, and adjustment of metatarsal length. We will report on the results of our own experience. Methods: From 2013 to 2022, we performed modified scarf osteotomies for hallux valgus and followed up for more than 6 months on 26 feet of 20 cases. There were 2 male and 18 female, and their ages at the time of surgery ranged from 18 to 78 years (mean 62.8 years). We investigated the pre- and postoperative radiograms, postoperative results, and complications. Additional

surgeries included lateral metatarsal osteotomy on 13 feet, proximal phalanx osteotomy on 2 feet, 2nd MTP joint reduction on 6 feet, 2nd proximal phalanx osteotomy on 1 foot, resection of the 2nd proximal phalanx head on 3 feet and tendon transfer on 2 feet. The postoperative follow-up period ranged from 6 to 57 months (mean 26.7 months). Results: In the measurements of radiograms taken before surgery and at the final survey, the hallux valgus angle (mean ± standard deviation) was 41.7 ± 6.7 degrees before surgery, and 14.3 ± 8.5 degrees at the final survey. The 1st and 2nd intermetatarsal angles were 17.2±2.9 degrees and 9.8±4.4 degrees respectively. The JSSF hallux scale was 53.2±12.7 points before surgery and 88.9±8.9 points at the final survey. Recurrence of bunion in 7 feet, hallux varus in 1 foot, and paresthesia in 2 feet were observed. Conclusion: Modified scarf osteotomy is an effective method for treating hallux valgus of moderate or severe deformity, but recurrence was relatively common in this study.

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**Saturday 15th Morning - Louise Room - Hip 3 session: 8:30 – 9:30**

**Sebastien Lustig**; university of Lyon:

**Is collared stem and monobloc dual mobility cup the winning strategy? Comparative study about 1940 consecutive primary arthroplasties:** The stem design in total hip arthroplasty (THA) is constantly evolving. The impact of the collar on the risk of periprosthetic fracture remains controversial. This study aimed to determine whether adding a collar to the femoral stem impacts the early periprosthetic fracture risk within 90 days of surgery. This retrospective study included 1,623 patients who underwent primary total hip arthroplasty in a single orthopedic department between January 2010 and December 2020. The inclusion criteria were uncemented stem with or without a collar, in a primary intention, without previous hip surgery with a similar "corail like" design. The assessed data were demographic characteristics (age, gender, number of obese (BMI > 30)), single or dual mobility, the surgical approach, the early complication, particularly the periprosthetic femoral fractures. Of the 1,623 patients, 1,380 received a collared stem (85%), and 243 received a collarless stem (15%). A multivariate analysis was performed to determine the collar's effect on the risk of early periprosthetic fracture (<90 days). Nine (0.55%) early periprosthetic fractures were identified in the whole cohort. There were four fractures (1.65%) in the collarless stem group and five fractures (0.36%) in the collared stem group (p=0,005). One patient required revision surgery in the collared stem group, while two patients required revision surgery in the collarless stem group. The multinomial logistic regression model indicated a statistically significant lower ($p<0.05$) risk of early periprosthetic fracture within 90 days of surgery in the collared stems group. No other risk factor for early periprosthetic fractures has been identified. Using collared stems in cementless THA protects early periprosthetic femoral fractures within 90 days of surgery.

**Youngwoo Kim**; Kyoto City Hospital

**Cemented Dual Mobility Cup in Primary and Revision Total Hip Arthroplasty: Clinical and Radiographic outcome.** Instability after total hip arthroplasty (THA) is one of the most problematic complications. A recent study reported that dual mobility cup (DMC) reduces postoperative dislocation. The aim of this study was to evaluate the clinical and radiographic results of cemented DMC in primary and revision THA. A total of 105 THA (primary 76, revision 29: mean age 81 years) performed with cemented DMC were included. At least two patient-dependent risk factors for instability were present in each case. Clinical outcome was assessed using the Harris Hip Score (HHS). Radiographic outcome included measurement of component positioning and the incidence and progression of demarcation around the acetabulum. At a mean follow-up of 21 months (6-36 months), the preoperative HSS improved significantly. Bulk autograft for acetabular reconstruction with screw fixation was used in 67% of primary THAs in patients with dysplasia. DMC was cemented into the KT plate in 10% of primary THAs and 83% of revision THAs. Only one dislocation was observed after revision THA for multiple dislocations requiring revision surgery. Direct cementation of DMC into the bony acetabulum provided stable fixation without progressive demarcation of aseptic loosening in dysplastic patients. Reconstruction of the acetabular defect with a KT plate and cemented DMC showed excellent results in preventing instability after primary and revision THA. The cemented DMC is an excellent surgical option for primary and revision THA in elderly patients at high risk for instability.

**Hiroyuki Makita**, Yutaka Inaba. Department of Orthopaedic Surgery, International University of Health and Welfare Atami Hospital

**Results of Cemented THA Using Charnley-Kerboull Stem - its characteristics and clinical results** -[ Introduction ] There have been many reports that a cement mantle of 2 mm or more is required around the stem in order to obtain good long-term results. On the other hand, the good long-term results of line-to-line cemented stems have been reported and are referred to as the "French Paradox." In recent years, this theory has been proven that a thin cement mantle cooperates with the canal-filling stem to provide mechanical stability to the stem, which is primarily supported by cortical bone. We performed cemented THA using CMK stem (Zimmer-Biomet) with the line-to-line technique. [Patients and Methods] Primally THA was performed on 144 hips of 128 patients by a single surgeon and could be followed up for more than 8 years. Mean age of the patients was 67 years (40-85) years, and mean follow-up was 11.5 years (8-19.5). For all cases, surgery was performed using a lateral approach. For implants, all-polyethylene cups and CMK stems (Zimmer-Biomet) were used in all cases and were fixed with bone cement. Clinical and radiographic assessment was done. As part of the clinical evaluation, each patient was evaluated using the Japanese orthopaedic association hip score. Postoperative radiographs were examined for evidence of the implant loosening. [ Results ] The JOA hip score significantly improved from 37.5 points before surgery to 92.4 points at the time of the last investigation. There was no evidence of loosening or osteolysis. [ Conclusion ] The results of cemented THA using CMK stem according to the "French Paradox" theory were good. We achieved favorable results.

**Takuma Yamasaki;** Department of Orthopaedic Surgery, National Hospital Organization, Kure Medical Center, Hiroshima, Japan.

**Dynamic evaluation of iliopsoas using sonography in osteoarthritis due to hip dysplasia:** Groin pain in developmental dysplasia of the hip (DDH) is often attributed to intra-articular lesions or unstable hip unsuspectedly. However, extra-articular lesion could be pain generator as well. Iliopsoas muscle is one of the tissues involved in groin pain. The iliopsoas muscle consists of medial, lateral, and inferior bundles of iliacus muscle and psoas major muscle. The aim of this study was to investigate the influence of iliopsoas on symptoms in patients with osteoarthritis due to DDH by dynamic evaluation using sonography. Fourteen patients (17 hips) with osteoarthritis due to DDH in which iliopsoas was observed using sonography were included in the study. Rotational acetabular osteotomy (RAO) was performed in 15 hips, and conservative treatment was continued in 2 hips. Iliopsoas was observed by placing probe along inguinal ligament between anterior inferior iliac spine (AIIS) and iliopectineal eminence (IL). Internal snapping hip was observed in 4 hips. The distance between AIIS and IL was narrow in DDH, and the medial iliacus muscle and psoas tendon tended to overlap in hip motion. In RAO cases, snapping disappeared and no overlap of iliopsoas was observed. These results suggest that motion disturbance of iliopsoas may affect the symptom in DDH

**Takashi Ishida,** Hideki Honda, Yuki Ozawa, Yota Katsuyama, Hideo Kobayashi; Department of Orthopaedic Surgery, Saiseikai Yokohamashi Nanbu Hospital.

**Total hip arthroplasty after previous osteotomy through the minimally invasive anterior approach.** Objectives: The AMIS (anterior minimally invasive surgery) technique is a minimally invasive anterior approach to THA. The aim of this study is to evaluate short-term outcomes of patients who underwent THA after previous osteotomy using the AMIS technique. Methods: This study included 12 hips of 8 patients who underwent THA after previous osteotomy (periacetabular osteotomy in 8 hips and femoral osteotomy in 4 hips) using the AMIS technique (osteotomy group). For the control group, after matching gender and age, we included 32 hips of 27 patients who underwent primary THA for unoperated hip joints. Bulk bone grafting (BBG) was performed if there was an insufficient bony coverage of the acetabular component. Clinical assessment, radiographic assessment, and complications were investigated in each group. Results: BBG was performed in 2 hips (16.7%) in the osteotomy group and in 1 hip (3.1%) in the control group. Although the JOA hip score improved in both groups, the osteotomy group demonstrated significantly poor range of motion (ROM) at the last follow-up ($P<0.05$). The acetabular component was placed in the anatomical hip center in all cases, and there was no significant difference in postoperative hip rotation center between the 2 groups. As for complications, intraoperative calcar fracture occurred in 1 hip in each group. Conclusion: THA after previous osteotomy using the AMIS technique provides improved function with similar complication rates and clinical outcomes other than hip ROM, compared to primary THA for unoperated hip joints.

**Masakazu Okamoto**1, 2 Yoshinobu Uchihara1, Kenichiro Saito1,3, Yusuke Inagaki2, Pasuk Mahakkanukrauh4,5, Yasuhito Tanaka1. 1 Department of Orthopaedic Surgery, Nara Medical University, Kashihara, Nara, Japan 2 Department of Rehabilitation, Nara Medical University, Kashihara, Nara, Japan 3 Department of Orthopaedic Surgery, Higashiosaka City Medical Center, Higashiosaka, Osaka, Japan 4 Department of Anatomy Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand 5 Excellence Center In Osteology Research and Training Center (orct), Chiang Mai University, Chiang Mai, Thailand

**Optimal Retractor Insertion Point for Nerve Safety During Total Hip Arthroplasty: An Anatomical Study on the Femoral and Sciatic Nerves in Relation to Hip Motion**. Background Nerve injury, a serious complication of total hip arthroplasty (THA), may result from nerve compression or direct injury by an acetabular retractor. This study aims to determine the optimal retractor insertion position during THA to prevent nerve damage. Methods: Using an anterolateral approach, 28 hip joints from 14 cadavers were examined to measure the distance between nerves and the acetabular rim across various hip positions. Results: The femoral nerve was closest to the anterior acetabular margin at 90° and 120° extension, farthest at 30° flexion. The sciatic nerve was nearest the posterior margin at 90° and 120° flexion, farthest at 30° and 150° extension. Conclusion: To prevent nerve damage, retractors should be inserted where nerves are farthest, e.g., 30° and 150°. The femoral and sciatic nerves vary in their movements depending on the hip position. Therefore, the safe insertion of a retractor is recommended for hip flexion of the femoral nerve and extension of the sciatic nerve. Precise insertion along the acetabular margin, avoiding joint capsule penetration, is crucial. This study offers insights into nerve anatomy during hip motion, aiding safer THA techniques.

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**Saturday Morning - Silene Room - Shoulder 2 session 8:30 - 9:30**

**Kosei Ando,** Yoshinori Takemura, Narihito Kodama, Shinji Imai;Department of Orthopaedic Surgery, Shiga University of Medical Science

**Vascularized fibular grafts following bone tumor resection in upper extremity.** Objective: We report on skeletal reconstruction after bone tumor resection in upper extremity with vascularized fibular grafts (VFG). Methods: We targeted 6 cases with bone tumors (4 males and 2 females). The average age was 27.3 years, and the follow-up period was 59.2 months. The postoperative evaluation included the surgical method and time, intraoperative blood loss, length of the fibula, period to complete bone union, type of fibular transplantation (inlay/onlay/intercalary), postoperative complications, oncological prognosis (for osteosarcoma cases), and ISOLS/MSTS score, etc. Results: The follow-up mean period was 55 months. The average surgical time was 11.5 hours with an average blood loss of 1343 ml. The average length of the fibular graft was 14.1 cm, and the time to bone union averaged 7.9 months. The bone grafting types were as follows: 4 cases of inlay type and 2 cases of intercalary type. Bone union was achieved in 5 cases. Postoperative complications included one case each of transplanted bone fracture, claw toe deformity, and infection. The ISOLS/MSTS score averaged 92.8%. Reoperation was performed for the transplanted bone fracture. Among the 3 cases of osteosarcoma, 1 case resulted in death. Conclusion: VFG was beneficial for skeletal reconstruction in the upper limb for large defects following bone tumor resections. However, it is crucial to consider the selection of the transplanted bone, fixation materials, and appropriate postoperative rehabilitation to reduce the occurrence of pseudoarthrosis and graft fractures.

**Geoffroy Nourissat** Md Phd, Victor Messburger Md Clinique Des Maussins

**Osteoporosis doesn't impact stability of stemless RSA at 2 years FU.** Introduction: The use of stemless total shoulder arthroplasty reduces the operating time and limits bleeding. Long term functional outcomes are comparable to standard prostheses and ensures a sufficient bone stock in case of revision. One of the main concerns of the use of this implant in RSA condition is the stability of early fixation and the risk of migration which reasons are still unclear. We performed a retrospective radiological study analyzing correlation between stemless RSA migration and radiological analysis. The main objective was to correlate bone density and migration. The secondary objectives were to correlate early migration and implant positioning and sizing over the bone cut, and epidemiological data. Material and method We performed a radiological data analysis on a cohort for which clinical data have already been published in JSES 2023. We analyze bone quality by a validated previously published method correlating proximal bone density with cortical measurement seen on

postoperative radiographs (CBT AVG index). We also look for a correlation between the position of the corolla and of the polyethylene, the inferior tilt of the glenoid, and the size of the prosthesis and its risk of early displacement. Results Mean bone densities (SDs) were 6.5 (1.5) and 6.5 (1.3), respectively, in the 9 patients with humeral loosening at 24 months and in the 59 patients without humeral loosening. This difference was not significant (p=0.8351). There was no statistically significant difference (p=0.7073) in the proportion of probable osteoporosis (CBT AVG < 6 mm).

**Geoffroy Nourissat** Md Phd, Dr Chérif Kamoun Md., Dr Mark Mouchantaf Md, Dr Pierre Alban Bouché Md, Phd , Dr Victor Housset Clinique Des Maussins Paris

**Premorbid humeral head geometry should be useful defining optimal final positioning of the humerus in RSA.Background :** Planification of glenoid component in reverse shoulder arthroplasty (RSA) has demonstrated its benefit on shoulder range of motion and implant survival. Numerous studies have tried to optimize the position of the humeral component using simulation devices or have evaluated the influence of postoperative tuberosities location on clinical results. The aim of the current study was to determine whether there is a positioning of the premorbid humeral head center of rotation (H-COR) in relation to the RSA CoR, that positively impacts clinical results and to determine if this location can be estimated based on the radius of the premorbid head. Materials and methods : We conducted a retrospective multicentric study, including 68 stemless Easytec RSA implanted from 2016 to 2018, for primary or eccentric osteoarthritis. We analyzed clinical and radiological data available at minimum two years follow up. Clinical evaluation included Constant score, SSV and ASES progression. The size of glenosphere and Polyethylene were collected. Radiological evaluation was based on standard anteroposterior (AP) shoulder radiographs. We determined the theoretical center ( H-CoR) and radius (R) of the premorbid humeral head using the "best fit circle" method, and the center of rotation of the RSA-CoR, enabling us to measure the lateralization angle (LA) and to calculate the distalization index (DI). The distalization vector (DV) was the distance between the H-CoR and the RSA-CoR. The DI was the ratio between the DV and the radius of the premorbid humeral head radius (DI= DV/R).

**Katsumasa Nakazawa**, Tomoya Manaka, Yoshihiro Hirakawa, Yoichi Ito, Ryosuke Iio, Naoki Oi, Hiroaki Nakamura Department of Orthopaedic Surgery, Osaka Metropolitan University Graduate School of Medicine.

**Bone mineral density around cementless short stems after reverse shoulder arthroplasty: changes over time and its relationship to stem positioning.** Background: There are numerous reports of bone adaptation observed on plain radiography studies after the use of cementless short stems in reverse shoulder arthroplasty (RSA). However, reports on changes in bone mineral density (BMD) around the stem using dual-energy X-ray absorptiometry (DEXA) are prominently absent. In the present study, we measured BMD around the stem using DEXA and investigated changes over time from postoperative year 1 to year 2. Additionally, the relationship between BMD changes, filling ratio, and stem alignment was examined. Methods: Forty-seven patients with short cementless stems who could be assessed via DEXA at 1–2 years postoperatively were included. After dividing the zones around the stem into five, the BMD in each zone was measured, in addition to BMD changes and amount of change from postoperative year 1 to year 2. The relationship between filling ratio and stem alignment on postoperative plain radiography was assessed. Results: A significant decrease in BMD in zone 3 was observed between postoperative year 1 and year 2 (p=0.02). Regarding filling ratio and stem alignment, a negative correlation between valgus stem alignment and BMD change observed in zone 1 (r=-0.470, p<0.01). In addition, stem valgus greater than 6° correlated with a significant decrease in BMD in zone 1. (p=0.01). No significant differences were found in the other zones. Furthermore, there was no correlation between filling ratio and BMD change.

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**Saturday Morning - Louise Room - Knee 5 session: 9:30 – 10:30**

**Sebastien Lustig;** university of Lyon:

**Do I need a robot for the TKA I want to do?**

**Takeru Iwata,** Shuhei Otsuki, Osaka Medical and Pharmaceutical University

**Management and Strategy for Total Knee Arthroplasty Infection: Cases Reports**. Purpose: Factors influencing the postoperative outcome of the high tibial osteotomy (HTO) have been recognized, including age, weight, activity, the severity of osteoarthritis, preoperative range of motion, and patellar elevation. However, few reports have examined the impact of these preoperative factors on postoperative outcomes. This study aimed to examine preoperative factors that influence clinical outcomes after HTO surgery. Methods: We included 107 patients, 44 men, and 63 women, with first-time HTO at our institution in 2017-2020. Univariate analysis was performed using the Lysholm score at two years postoperatively as the dependent variable, and multivariate analysis was used to evaluate items with $p < 0.2$. Eleven items were evaluated: age at surgery, gender, Body Mass Index, Kellgren-Lawrence classification, activity, imaging (%Mechanical Axis, Caton-Deschamps index, Pelvic Incidence), and knee extension and flexion limitation. Results: The factors influencing clinical outcomes after HTO surgery were age, gender, low preoperative Lysholm score, limited knee extension/flexion in single regression analysis, and low preoperative Lysholm score and limited knee flexion/flexion in multiple regression analysis. Conclusion: When considering HTO surgery, patients with low preoperative Lysholm score and limited knee flexion may have poor postoperative outcomes, and it is essential to consider the indication for surgery carefully.

**Yukinobu Nishii**, Tsukasa Teramoto, Shota Harada, Yuichiro Nishino, Tomohiko Asahara, Kazutaka Otsuka, Yoshimasa Teramoto; Department of Orthopedic Surgery, Chikamori Hospital

**Clinical outcome of joint preserving surgery for advanced and end stage of the medial type knee osteoarthritis with Tibial Condylar Valgus Osteotomy**: Osteotomy, mainly HTO, is the most common joint-preserving surgery for osteoarthritis of the knee, but it is performed in cases up to the moderately stage of the disease. Tibial Condylar Valgus Osteotomy (TCVO) was first reported by Chiba in 1989 as a joint-preserving procedure for knee osteoarthritis, and it has been used in advanced and end-stage arthritis, including the first cases. TCVO is a technique that can be used to treat advanced and end-stage arthritis, including the first cases. In this report, we describe the results of TCVO for severe osteoarthritis of the knee. Patients were 104 knees with a %MA of 25% or less on standing full-length lower extremity radiographs, grade 3 or 4 according to the Kellgren-Laurence classification. The mean follow-up was 8 years and 5 months. Preoperative and postoperative radiographic findings, dynamic instability of the knee joint under fluoroscopic guidance, %MA and JOA scores at preoperative and final investigations were compared. The preoperative narrowed medial joint fissure remained narrowed postoperatively, but the opened lateral joint fissure was altered, and the femoral medial condyle and tibial medial articular surface and the femoral lateral condyle and tibial lateral articular surface were adapted to be nearly homogeneous, respectively. The varus/valgus instability seen preoperatively under fluoroscopic guidance was reduced or eliminated postoperatively. The %MA improved from -6.8% to 59.2% preoperatively, and the JOA score improved from 45.3 points preoperatively to 81.1 points postoperatively.

**Tomohiro Tomihara,** Yusuke Hashimoto, Masatoshi Taniuchi, Junsei Takigami, Hiroshi Katsuda. Department of Orthopaedic Surgery, Shimada Hospital

**Risk factors for graft maturation after anterior cruciate ligament reconstruction using bone-patellar tendon-bone autograft: A consecutive post-operative 3.0T MRI study.** Several factors such as osseous morphologies could lead to increased stress on a graft during a healing process after anterior cruciate ligament reconstruction (ACL-R). The purpose of this study is to elucidate the associated risk factors for ACL graft maturation on MRI. Ninety-four patients who underwent ACL-R using bone-patellar tendon-bone autograft, CT one week after ACL-R, and post-operative 3.0T MRI at 6, 12, and 24 months after ACL-R were included. The signal-to-noise quotient (SNQ) values at the intra-articular 3 sections (proximal, middle, and distal) of the ACL graft on MRI were calculated. Osseous morphologies (lateral tibial slope, femoral condyle offset, and femoral notch index) and graft bending angle (GBA) on CT were measured. Multivariate logistic regression analysis was conducted to determine the association of patient variables with the SNQ values. The SNQ values at all 3 sections of the ACL graft gradually decreased with time after ACL-R. Increased GBA significantly increased the SNQ values at 6 months ($P<0.05$) whereas any osseous morphologies were not associated with the SNQ values. Increased GBA was an associated risk factor for ACL graft maturation and should be reduced during ACL-R.

**Yuki Yamanashi**, Hirotaka Mutsuzaki, Arata Watanabe, Masataka Deie, Tomonori Kinugasa; The Department of Orthopaedic Surgery, Aichi Medical University.

**Early ACL Reconstruction in Young Athletes: Do Patients with ACL Injury Really Have to Wait for Surgery?** Purpose: Although previous reports have reported that early anterior cruciate ligament (ACL) reconstruction is associated with an increased risk of stiffness, recommendations to delay surgery are based on outdated literature. The advent of arthroscopic surgery and accelerated rehabilitation protocols warrants a reexamination of optimal surgical timing. To investigate complications in early ACL reconstruction after injury for young athletes. Methods: Patients who had ACL reconstruction under 25 years old with a Tegner activity score of over 6 were included and classified into three groups according to time from injury (within 1 week of injury, 3 to 6 weeks, and 3 to 6 months after injury). We evaluated the rates of complications such as graft rupture, contralateral injury, need of manipulation up to 2 years postoperatively. In addition, we investigated postoperative ROM, muscle strength, Lysholm score, Tegner activity score, and period of the return to sport from injury. Results: A total of 87 patients were included. Patients in the early group had lower ROM than in other groups at pre-operation. However, the 1-month postoperative ROM was comparable between groups. The period of return to sport from injury in the delayed group was longer than other groups. There were no statistically significant differences for the postoperative complications rate, muscle strength, and Lysholm score. Conclusion: ACL reconstruction performed within 1 week of injury in young athletic patients indicated the rate of various complications did not increase in comparison with other groups

Rene Verdonk, M Schurhoff, T Kyriakidis,s Griffin, P Verdonk; Ulb Bruxelles, Orteq, Uantwerpen

**Meniscus scaffold update Indication, longer term results in litterature and future directions:** Meniscal tears are some of the most frequently encountered knee injuries in orthopaedic practice and their surgical management results in one of the highest procedure volumes in orthopaedic surgery. Primary repair has been advocated by international consensus as imperative, however, partial meniscectomy and associated meniscal tissue loss remains a global challenge in patients, who develop symptoms from meniscal insuffiency. The risk of degenerative consequences remains and meniscus restoration constitutes a treatment goal for long-term knee health. Meniscal scaffolds have shown promising results with short-, mid-, and long-term benefits reported in a significant body of evidence. Results are robust and comparable to other meniscus procedures. The use of synthetic or biologic scaffold widens the treatment spectrum within a meniscus-preservation algorithm and provides solutions for symptomatic mid-substance meniscus tissue loss with the goal to prevent or delay the need for future arthroplasty. Support is needed from Medical societies and Educational programs that play an important role in clinical adoption, institutional acceptance, regulatory approval and reimbursement.

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## Saturday morning - Silene Room - Hip and Knee Session 9:20 - 10:30

**Kei Ishii**, Yoshinori Ishii, Ishii Orthopaedic & Rehabilitation Clinic.

**Characteristics of preoperative arteriosclerosis evaluated by cardio-ankle vascular index in patients with osteoarthritis before total knee arthroplasty.** Purpose: Cardiovascular disease (CVD) is a major risk factor for mortality in patients with osteoarthritis (OA), and comorbidities increase postoperative complications after total knee arthroplasty (TKA). Arteriosclerosis (AS) plays a main role in hemodynamic dysfunction and CVD; however, AS has not been preoperatively evaluated before TKA using the cardio–ankle vascular index (CAVI). In this study, we evaluated the degree of preoperative AS using the CAVI in patients undergoing TKA, as well as its correlations with several preoperative patient factors. Methods: AS was evaluated in 209 consecutive patients (251 knees) with OA who underwent TKA at our institution between May 2011 and June 2022. The CAVI was measured in the supine position 1 day before TKA, and the correlations between the CAVI and several clinical factors were analyzed. Results: The CAVI was normal in 62 knees (25%), borderline in 71 knees (28%), and abnormal in 118 knees (47%). Univariate analysis revealed a moderate positive correlation between preoperative CAVI and age ($r = 0.451$, $p < 0.001$) and a weak negative correlation between preoperative CAVI and body weight ($r = -0.306$, $p < 0.001$) and body mass index (BMI) ($r = -0.319$, $p < 0.001$). Multivariate analysis showed that age ($\beta = 0.349$, $p < 0.001$) and BMI ($\beta = -0.235$, $p < 0.001$) were significantly correlated with preoperative CAVI. Conclusion: AS should be carefully managed intraoperatively and postoperatively in patients with OA undergoing TKA, particularly in older patients and patients with a low BMI.

**Takashi Toyoda,** Kenichi Oe, Kansai Medical University A.

**Risk factors for cortical hypertrophy in cemented triple taper stems** 【Objective】 The cause of cortical hypertrophy (CH) that occurs after total hip arthroplasty (THA) is still unknown. The aim of this study is to identify the risk factors in cemented triple taper stems. 【Method】 Between May 2006 and December 2016, we retrospective evaluated consecutive 1613 patients (1959 hips) who were performed primary THA with triple taper stems at a minimum of 5 years (follow-up rate:76.1%). Age, sex, body mass index, stem types（C-stem (Johnson & Johnson, United State of America) or SC stem (Kyocera, Japan) ), femoral head diameter (22mm or 26mm) , periprosthetic femoral fractures, Japanese Orthopaedic Association score (JOA score) were used for clinical assessment. In radiographic findings, CH was defined as the change where the transverse femoral diameter at 5 years increased more 10% compared to the preoperative. Stem malalignment was defined as over 3 degrees. Statistical analysis was used the Student's t test, the Chi-square test and the Fisher's exact test for comparison between hips with and without CH. Cox regression analysis was performed to identify the risk factors. 【Result】 Both the improvement of JOA score at 5 years and the incidence rates of periprosthetic femoral fractures have no significant differences between with and without CH cases. Risk factors for the incidence of CH were female (HR:2.26, $p<0.05$), C stem (HR:2.25, $p<0.05$), stem varus malalignment (HR:1.79, $p<0.05$), and stem valgus malalignment (HR:3.37, $p<0.05$). 【Conclusion】 Considering our clinical results, CH may not have any negative effects.

**Atsuhiro Fujie**, Yushi Maruiwa, Takuto Hatakeyama, Asahi Sujino, Arihiko Kanaji, Kengo Harato, Masaya Nakamura, and Akihito Oy; Department of Orthopaedic Surgery, School of Medicine, Keio University

**Distal plug technique to prevent cement leak in conversion cemented total hip arthroplasty after failed fixation for intertrochanteric fractures.** Conversion to cemented total hip arthroplasty (THA) for failed fixation of intertrochanteric fractures are increasing in incidence. Cement leak from distal screw holes, however, had been an inevitable complication, despite it could leads to nerve compression or poor cement infusion pressure. The aim of current study is to introduce a unique technical trick to prevent cement leak in conversion to cemented THA for failed fixation of intertrochanteric fractures. We had prospectively followed 3 cases of conversion cemented THA for failed fixations of trochanteric fractures (2 Cephalomadullary nail, 1 Sliding hip screw with plate). In 2 out of 3 cases, posterolateral approach was utilized for conversion. After hardware removal, Hyarulonic Acid / Poly-L-Lactic Acid (HA/PLLA) screws were inserted to distal screw holes, and screw shaft was cut by Kerrison Rongeur intramedullary, to leave the screw tip on medial cortex. Lag screw hall was plugged with Apacerum plug. After plugging all distal screw holes with HA/PLLA screws, general cementing procedure was conducted. Although this novel method was performed only in 3 cases thus far, cement extrusion from distal screw holes was prevented in all cases (100%). No early loosening of cemented implant was observed, and clinical results were excellent. Our original method with HA/PLLA screws is efficient to prevent cement extrusion in conversion of cephalomedullary nail / sliding hip screw fixation to cemented total hip arthroplasty. We would like to introduce tips and potential pitfalls of this distal plug technique.

**Mayu Suzuki**, Toru Nishiwaki, Kitamura Akihiro,Saitama Hospital A

**Involvement of neuropathic pain and nociplastic pain in patients with hip osteoarthritis**【Introduction】The pain associated with osteoarthritis of the hip has generally been considered nociceptive pain. However, recent reports indicate the involvement of elements of neuropathic pain (NeP) and nociplastic pain (NoP) in osteoarthritis pain. This study investigates the frequency of neuropathic pain and nociplastic pain in patients with hip osteoarthritis and examined their impact on pain at rest and during movement. 【Subjects and Methods 】The diagnosis of neuropathic pain utilized the Pain DETECT score (PDQ) as a screening tool. Although there is no established screening tool for nociplastic pain, we employed the Central Sensitization Inventory (CSI), a screening tool for central sensitization suspected to contribute to nociplastic pain. The study included 321 patients (53 males, 268 females, average age 66.7 years) who underwent total hip arthroplasty at our institution from 2018 to 2023, and preoperative responses to CSI, PDQ, and Numerical Rating Scale (NRS) at rest and during movement were obtained. Based on previous reports, cutoff values were set, classifying patients as follows: CSI≦30, PD≦19 in the normal group (Group A), CSI＞30, PD≦19 in the nociplastic pain group (Group B), CSI≦30, PD＞19 in the neuropathic pain group (Group C), and CSI＞30, PD＞19 in the mixed pain group (Group D). 【

Results】The distribution of patients was as follows: Group A 235 (73.2%), Group B 53 (16.5%), Group C 19 (5.9%), and Group D 14 (4.4%). Resting NRS scores were 2.94 for Group A, 4.19 for Group B, 6.42 for Group C, and 7.43 for Group D.

**Haruka Fuji**, Kyowakai Hospital

**Comparison of Procedure Time for Cup Placement Between Robotic-arm Assisted THA and CT-based Navigation THA:** THA with MAKO robotic-arm-assisted system or CT-based navigation is thought to increase surgical time. However, for cup placement, robotic-arm control may potentially reduce time compared to manual control. In this study, we investigated the detailed cup placement times of both systems. We conducted a retrospective study on patients who underwent primary THA with either Robotic or Navigation at our hospital between August 2021 and February 2024, and for whom detailed surgical times were recorded. The study included 290 joints in the Robotic (mean age 67.8 years ± 10.0) and 82 joints in the Navigation (mean age 63.9 years ± 12.4), all using Trident PSL cups. We subdivided the cup placement process into four stages (pelvic registration, acetabular reaming, cup trial, final cup placement), measured the time required for each stage, and compared. There were no significant differences between the two groups for pelvic registration times (5.1 minutes±2.6 vs 5.2 ± 2.5, p = 0.73) and cup trial times (2.8 ± 1.8 vs 2.7 ± 1.8, p = 0.61) . Acetabular reaming times (2.7 ± 1.9 vs 6.0 ± 4.6, p < 0.0001) and final cup placement times (1.6 ± 1.3 vs 4.1 ± 2.2, p < 0.0001) were significantly shorter in the Robotic group than the Navigation group. In THA, the Robotic and Navigation systems differ in their ability to control the important cup anteversion and inclination angles. Robotic allows for easy reaming with one size, and the surgeon can focus on reaming and impaction. The results show that the surgical time for cup placement in Robotic and Navigation is shortened by Robotic.

**Michel Bercovy** · Luc Kerboull

**Satisfactory mid- to long-term outcomes of TKA aligned using conventional instrumentation for flexion gap balancing with minimal soft tissue release.** Purpose To describe a technique for flexion gap management in total knee arthroplasty (TKA) using conventional instru- mentation with minimal soft tissue release, by aligning the femoral component to restore close-to-native posterior condylar angle (PCA). The hypothesis was that this technique renders consistent outcomes, regardless the preoperative deformity or intraoperative parameters. Methods In a consecutive series of 152 TKAs, the femoral component was rotated to restore anatomic PCA of 2° ± 2° and the flexion gap was balanced with a final lateral flexion laxity of 1–3 mm. Patients were assessed using the Knee Society Score (KSS), the Oxford Knee Score (OKS) and University of California Los Angeles (UCLA) activity score at a minimum follow-up of 4 years. Uni- and multivariable analyses were performed to determine associations between clinical scores and patient demographics, PCA, laxity, pre- and postoperative hip–knee–ankle (HKA) angle, and preoperative femoral mechani- cal angle (FMA) and tibial mechanical angle (TMA). Results Intraoperative measurements indicated a target PCA of 2.9° ± 1.0° (range 0°–6°) with a final lateral flexion laxity of 1.5 ± 0.6 mm (range 0–3). The target PCA was achieved in 145 knees (95%) and the desired final lateral flexion laxity was achieved in 151 knees (99.3%). Except for OKS which increased with target PCA, it was not possible to demonstrate significant differences in postoperative clinical outcomes between knees within the target PCA range and outliers. This was in relation with a stronger influence of clinical factors like age, gender, BMI, patellar resurfacement and sports activities. Conclusions In this consecutive series of 152 TKAs performed with minimal ligament release, the target PCA and final lateral flexion laxity were simultaneously achieved in 95% of knees.

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**Saturday Morning - Louise Room - Hip 4 session 11:00 - 12:30**

**Kenichi Oe,** Hirokazu Iida, Yosuke Otsuki, Takashi Toyoda, Tomohisa Nakamura, Takanori Saito; Department of Orthopaedic Surgery, Kansai Medical University

**The modified Spitzy shelf acetabuloplasty for the dysplastic hip: A retrospective study of 144 hips:** Purpose: Although there are various pelvic osteotomies for acetabular dysplasia of the hip, shelf operations offer effective and minimally invasive osteotomy. Our study aimed to assess outcomes following modified Spitzy shelf acetabuloplasty. Methods: Between November 2000 and December 2016, we retrospectively evaluated 144 consecutive hip procedures in 122 patients a minimum of 5 years after undergoing modified Spitzy shelf acetabuloplasty for acetabular dysplasia including osteoarthritis (OA). Our follow-up rate was 92%. Mean age at the time of surgery was 37 years (13 to 58 years), with mean follow-up of 11 years (5 to 21 years). Advanced OA

(Tönnis grade ≥2) was present preoperatively in 16 hips (11%). The pre-operative lateral centre-edge angle ranged from -30° to 20°. Prosthesis survival was determined by Kaplan-Meier analysis, using conversions to total hip arthroplasty as the endpoint. Risk factors for joint space narrowing less than 2 mm was analysed using a Cox proportional-hazard model. Results: The mean Merle d'Aubigné score improved from 11.6 points preoperatively to 15.9 points at the last follow-up. The survival rates were 95% (95% CI, 91 to 99) and 74% (95% CI, 50 to 97) at 10 and 20 years. Multivariate Cox regression analysis provided an age range (HR, 2.85; 95% CI, 1.05 to 7.76; p = 0.0398), a preoperative joint space (HR, 2.41; 95% CI, 1.35 to 4.29; p = 0.0029), and a preoperative OA (HR, 8.34; 95% CI, 0.94 to 73.77; p = 0.0466). Conclusion: Our shelf acetabuloplasty is an effective joint-preserving surgery with a wide range of potential indications.

**Takuya Kubo**, Hirotsugu Ohashi, Tenroku Orthopedic Clinic
**Simultaneous bilateral total hip arthroplasty versus unilateral total hip arthroplasty using direct anterior approach**. Introduction: Advocates of simultaneous bilateral total hip arthroplasty (THA) suggest that it leads to an overall reduced hospital stay, faster rehabilitation and improved cost-effectiveness. It is argued, however, that it is associated with an increased rate of complications, including deep-vein thrombosis (DVT), and increased medical morbidity, leading to a suboptimal functional outcome. We therefore conducted a comparative case-control study between simultaneous bilateral THA (b-THA) and unilateral THA (u-THA), comparing intraoperative bleeding, postoperative recovery, and complications. Materials and methods: Thirty-six b-THA in 18 patients and 104 u-THA were investigated. All surgeries were performed using direct anterior approach. Intraoperative bleeding, postoperative hemoglobin level, functional recovery, hospital stay, and early (<2 months) complications were investigated. Results: Intraoperative blood loss was higher and postoperative hemoglobin level was lower in b-THA. Two cases in b-THA and one case in u-THA needed blood transfusion. Functional recovery and hospital stay were same in both groups. There was no complication in both groups. Discussion and conclusion: B-THA showed no adverse effects for postoperative recovery. Considering that u-THA is required for two times hospitalizations, b-THA is an acceptable strategy for patients presenting with disabling bilateral hip osteoarthritis

**Yuji Yasunaga**, Seigo Ohshima, Md, Takeshi Shoji, Md, Sotaro Izumi Md, Nobuo Adachi Md, Mitsuo Ochi Md, Department of Orthopaedic Surgery, Hiroshima Prefectural Rehabilitation Center, Hiroshima, Japan.
**Thirty-year follow-up study of rotational acetabular osteotomy for pre- and early osteoarthritis secondary to dysplasia of the hip.** We report the 30-year results of rotational acetabular osteotomy (RAO) for osteoarthritis (OA) secondary to dysplasia of the hip in pre- or early-stage OA. Between 1987 and 1994, we treated 47 patients (55 hips) with RAO. Of those patients, 8 patients (11 hips) with pre- OA (follow-up rate: 79%) and 27 patients (32 hips) with early-stage OA (follow-up rate: 78%), in total 35 patients (43 hips) (follow- up rate: 78%), were available at a minimum of 28 years after surgery. In the pre-OA group, the mean Merle d'Aubigne score improved significantly from 14.5 points preoperatively to 17.4 points (p< 0.01). Radiologically, Hip index was significantly improved in both groups. Progression of OA occurred in two hips in the pre-OA group and 18 hips in the early stage. Kaplan-Meier analysis, with radiological progression of OA as the endpoint, predicted a survival rate of 81.8% at 30 years in the pre-OA group and in the early-stage group, 42.2% at 30 years. The survival rate was 51.5% at 30 years and with conversion to THA as the endpoint, the survival rate was 74.0%. For younger patients with the pre-OA, joint preservation o

**Akihiro Kitamura**, Toru Nishiwaki, Mayu Suzuki; Shizuoka Red Cross Hospital, National Hospital Organization Saitama Hospital.
**Early outcome of using a novel intra-operative referencing technique with fluoroscopy in anterior total hip arthroplasty.** Aim of the study The utilization of fluoroscopy to validate implant location and leg length is a notable advantage of employing the anterior approach in the supine position for total hip arthroplasty (THA). However, it is difficult to accurately assess the leg length because the position and angle of the fluoroscopy relative to the pelvis and the rotation of the femur may change during the surgery. We introduced a novel intraoperative referencing technique (our technique) to solve these problems and report the outcome after six months of use. Method This is a retrospective, two-arm controlled study and we conducted a comparative analysis of the data of 33 patients each who had undergone surgery before and after the introduction of our technique. Patients were required to have at least half a year of postoperative visits for inclusion.Baseline preoperative characteristics, objective/subjective leg length, operative time, and blood loss were evaluated.

Result There was no statistically significant difference in subjective or objective leg length between the two groups. In the group that underwent our technique, there was a statistically significant difference in short operative time (67min vs. 80min, p<0.01) and less blood loss (120ml vs. 180ml, p=0.02). Conclusion Our technique demonstrates similar short-term outcome compared with using X-ray photographs to assess the leg length. The simplicity of the procedure results in a reduction in blood loss and shortened surgical time. This outcome shows that our technique could possibly solve the trouble in fluoroscopy use in THA.

**Kerboull Luc;** Espace Médical Vauban; Paris;
**THA: results of AMISK with 10 years follow-up**

**Yuichi Kuroda**; Kobe University Graduate School of Medicine
**Radiographic Factors Predictive of Distinguishing Between Hip Arthroscopy and Periacetabular Osteotomy in Patients with Borderline Developmental Dysplasia of the Hip.** Background: The guidelines for hip arthroscopy (HA) or periacetabular osteotomy (PAO) in patients with borderline developmental dysplasia of the hip (BDDH) remain controversial. Therefore, this study aimed to retrospectively examine patients who achieved good outcomes after HA and PAO for BDDH at our institution and to compare the radiographic measurements related to hip instability between the two groups. Methods: We retrospectively analyzed consecutive patients with BDDH who underwent HA or PAO at our institution between January 2012 and October 2019. All patients were followed up for at least two years. Radiographic measurements including lateral center-edge angle, acetabular roof obliquity (ARO), cliff sign, femoral epiphyseal acetabular roof (FEAR) index, and vertical center anterior angle were compared between the HA and PAO groups. The cutoff values were calculated using a receiver operating characteristic curve. Results: Sixty-three hips were analyzed in this study (HA: 31, PAO: 32). The ARO and FEAR indices were significantly higher in the PAO group (P<0.001, P15.1° and FEAR index>1.3° are predictors of hip instability in patients with BDDH. Our findings may be very useful in differentiating between the unstable and stable forms of BDDH, which would be valuable to surgeons involved in the decision-making process for treating patients with BDDH, such as those considering HA or PAO.

**Olivier Guyen,** MD, Ph.D. Clinique de Genolier, Genolier, Switzerland Clinique de Montchoisi, Lausanne, Switzerland
**Femoral de-escalation in revision THA: is there a place for shortened femoral stems?** Introduction: Revision of THA is frequently technically highly demanding and reported with increased risk of complications. Management strategies for failed femoral components are based on bone defect and quality of the remaining bone stock. Achieving a rigid femoral fixation remains critical and replacement of the initial femoral component by a new stem with a more distal fixation is commonly used. However, this therapeutic escalation may be challenging and may lead to increased risk of perioperative complication. A more conservative option consisting of the use of a primary stem design has been described in some cases. This therapeutic de-escalation has been reported with satisfactory results. To date, the question whether shortened femoral stems can be use when revising a femoral component remains unclear. Materials & Methods: Cases of therapeutic de-escalation with the use of cemented or uncemented shortened femoral stems will be presented and discussed. Results & discussion: In our experience, de-escalation using a shortened femoral stem with metaphyseal anchoring provides encouraging clinical and radiological results at short to mid-term follow-up, with low morbidity. Despite longer follow-up is required, such an option may be helpful and should be considered in specific revision procedures. De-escalation should not be considered as routine procedure in revision THA, but is an interesting option to consider in selected patients with limited proximal bone loss and in specific revision procedures.

**Kenichiro Saito**, Yoshinobu Uchihara; Higashiosaka City Medical Center, Osaka, Japan
**A case of heterotopic ossification around the hip joint after spinal cord injury treated with preoperative arterial embolization and a 3D bone model.** Introduction: Surgical resection of heterotopic ossification around the hip joint after spinal cord injury is difficult when the heterotopic ossification involves blood vessels. We report that arterial embolization was performed before resection of this periprosthetic heterotopic ossification of the hip, and that the resection could be performed safely using a 3D bone model. Case: The patient is a 51-year-old male. At the age of 24 years, he fell from a height and sustained complete C6 paralysis. Subsequently, trauma led to

the development of heterotopic ossification of the right hip. The patient was referred to our department to remove the heterotopic ossification and improve the range of motion. On the preoperative day, embolization was performed on the arteries surrounding the resection site, including the femoral circumflex arteries, and a 3D bone model was created. Approach is the Smith Peterson approach. Intraoperative blood loss was 365 ml. Postoperatively, the patient showed marked improvement in range of motion. Six months after surgery, there was no recurrence of heterotopic ossification and the patient was doing well. Discussion: In this case, the amount of intraoperative blood loss was suppressed by preoperative embolization, as in previous reports. The 3D bone model facilitated preoperative and intraoperative information sharing between the surgeon and the assistant surgeon. Preoperative embolization and a 3D bone model were considered one of the most useful methods to safely perform resection of heterotopic ossification, which involves blood vessels

**Norikazu Yokoyama**; Omuro Orthopedic Spine & Joint Clinic Workstyle Reform in AMIS-THA in Japan: Surgical Support Using Rubber Bands 【Objective】Workstyle reform for physicians has been legislated in Japan from this fiscal year. Efficiency improvement is also necessary in the field of orthopedics. In Japan, in total hip arthroplasty (THA), surgery often requires three surgeons, and hospital stays can extend to more than two weeks. We report here on THA performed at our institution using the Anterior Minimally Invasive Surgery (AMIS) approach with a Leg Positioner (LP) and additional modifications, making surgery possible with only one primary surgeon and shortening the hospital stay. 【Methods and Techniques】In THA, placing the limb on the LP and performing overextension, external rotation, and adduction reduces the need for assistant surgeons. This approach involves muscle interval access, utilizing a self-retaining retractor for good field of view and skin protection using a Hohmann retractor. Rubber bands attached to pillars stabilize the retractor and facilitate operation. During femoral operation, the LP is used for overextension, external rotation, and adduction, while a Hohmann retractor inserted posteriorly in the neck is held by a pillar rubber, and a rubberized Hohmann retractor is inserted above the greater trochanter to protect the skin above. This eliminates the need for other retractors or muscle hooks. 【Results】Surgery was performed with an assistant physician or nurse in an average of 58.5 minutes without intraoperative or postoperative complications. 【Discussion】The The AMIS approach using an LP with rubber bands contributes to workstyle reform in THA surgery.

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## POSTERS

**1)** Hirokazu Tochigi, Mayu Suzuki1, Toru Nishiwaki 1)national Organization Saitama Hospital 2) Shizuoka Red Cross Hospital

**Posterior fracture-dislocation of the shoulder (PFDS) with ipsilateral olecranon fracture: A case report**.Posterior dislocation of the shoulder (PDS), which accounts for 1.5-3.8% of all shoulder dislocation is infrequently occurred. Moreover, PDS with other fractures is extremely uncommon. We experienced a 44-year-old man who had a PFDS with ipsilateral olecranon fracture. CT showed PFDS (Robinson type3). He underwent ORIF of PFDS and olecranon fracture 4 days after injury. Rehabilitation was started one week after operation. Final follow up, X-ray showed good bone union, and ROM of injured shoulder and elbow is almost the same compared to uninjured side, he successfully reintegrated to his work. Discussion) We can find few reports of PFDS with ipsilateral olecranon fracture. We consider the mechanism causing combined shoulder and elbow dislocation probably involves transmission of significant energy through the upper extremity with elbow flexed. For ORIF of PFDS, we recommended the posterior deltoid-splitting approach because this approach provides direct visualization of the engagement between the humeral head and the glenoid without disturbing the subacromial gliding mechanism, and also permits reduction of a completely detached humeral head, and in addition, blood vessels important to the proximal end of the humerus are not exposed. Conclusion) PFDS with olecranon fracture is extremely rare injury. Especially PFDS is a rare entity, also there is a high possibility of being neglected. Surgical treatment is recommended, with open reduction and internal fixation preferred in acute case.

**2)** Toru Nishiwaki Akihiro Kitamura Department of Orthopaedic Surgery.

**Risk of Hip Joint Damage in Adolescent Unicyclists: Insights from Two Cases**. Introduction: While previous research has highlighted an association between femoroacetabular impingement (FAI) and sports activities, its implications remain significant. Case report: Two cases of osteoarthritis in adolescents with prior involvement in unicycling are presented. Both girls exhibited bone morphology consistent with FAI, despite lacking histories of trauma or abnormal blood test results. One girl is a 100-meter hurdler and the other a table tennis player, both of whom participated in unicycling during elementary school. Following physiotherapy treatment, they were able to return to sports activities with reduced pain. The unique demands of unicycle competition may contribute to the development of early-stage hip joint symptoms and puberty-related coxarthrosis due to FAI. Conclusion: Adolescent unicyclists experiencing hip joint symptoms may face the risk of significant labral and articular cartilage damage, underscoring the importance of preventive measures and increased awareness.

**3)** Michihito Ishizawa, *hidetoshi Okabe, Tokuhiro Chano, Keiji Matsumoto, Shigeru Morimoto, Masaaki Egawa, Narihito Kodama, Kousei Andoh, Yoshinori Takemura, Shinji Imai, Yoshitaka Matsusue, Shinsuke Hukuda Shiga University of Medical Science :department of Orthopaedic Surgery , *department of Clinical Laboratory Medicine( Surrgical Pathology)

**Histopathological explanation of the MRI target sign in extra-axial schwannomas.** Background(Aims of the study): To better understand the nature of magnetic resonance imaging (MRI) findings in schwannomas, especially in the “target sign” of these findings, the histopathological investigation was performed. Methods: The MRI findings were correlated with histopathological features in 22 samples of schwannomas, which were mostly resected from the extremities. The histopathological analyses included alcian blue staining and immunohistochemical staining for S-100 protein, proliferating cell nuclear antigen (PCNA) and epithelial membrane antigen (EMA). Results: Seven of the 22 samples of schwannomas of the extremities exhibited target signs including a peripheral zone of homogeneously high signal intensity and a central zone of heterogeneous signal intensity in T2-weighted images. Gadolinium-enhanced T1–weighted images demonstrated a central heterogeneous enhancement and a peripheral ring of homogeneously low signal intensity. Histopathologically, S-100 and PCNA were positive only in the central heterogeneous signal area. In contrast, EMA was only stained on the degenerative epi/perineurium in the peripheral zone. Conclusion: In schwannomas of the extremities showing target sign in T2-weighted images, histopathologically, the peripheral areas were suggested to be mucinous degeneration of the epineurium or perineurium, while the central areas were composed of truly neoplastic cells.

**4)** Kiichi Sunouchi, Naoko Mizuno; Itami City Hospital

**A case of fatigue fracture of the femoral diaphysis in a high school athlete.** Purpose To report a case of fatigue fracture of the femoral diaphysis in a high school athlete. Case presentation 17-year-old male, high school track and field athlete. He had occasional pain in both knees and thighs. During the landing of a gymnastics vault, a small load was applied and pain occurred in the left thigh. An x-ray showed a displaced fracture in the center of the femoral diaphysis. CT showed thinning of the cortex at the fracture site, but MRI showed no tumor. We performed ORIF with an intramedullary nail. Seven months after surgery, bone union was observed and the patient returned to full athletic performance. Discussion Fatigue fractures of the femoral diaphysis are rare and are caused by sports such as sprinting and jumping. Fractures in young patients due to minor trauma should be considered as pathological fractures. The present case was also atypical due to minor trauma. CT and MRI showed no bone tumor, but cortical thinning was observed. It was suggested that there was an underlying fatigue fracture due to long-distance running, with minor trauma resulting in a displaced fracture.

**5)** Kohei Nakayama, Risako Yamamoto, Shigeo Joji, Mitsuru Motoyama, Yosuke Kozuma Ja; Yoshida General Hospital.

**A case of cervical disc herniation in a teenager:** The patient is a 16-year-old male. He had a neck pain suddenly, when he did bench press, and prevented him from moving his neck. The clinical manifestations of the patient was discomfort in his right forearm of the C7 segment with neck pain, but he had normal on manual muscle test (MMT) and reflexology. Cervical MRI revealed a right paravertebral herniation and a high signal in cervical cord at C5/6 level. We started with conservative treatment. 4 months later, the symptom was improved and cervical MRI, after improved, showed the disk herniation was reduced in volume. Cervical disc herniation is most commonly seen in patients in their thirties to fifties, however it can also occur in young people due to trauma or over exercise. We report a case of juvenile cervical disc herniation in a teenager, who showed improvement after conservative treatment, and discuss with reports.

**6)** Eiko Hashimoto, Nobuyasu Ochiai, Seiji Ohtori; Orthopedic Department, Chiba University Hospital.

**Correlation between baseplate positioning and clinical outcomes after Reverse Shoulder Arthroplasty**: Accurate positioning of glenoid component is crucial for good clinical results after reverse shoulder arthroplasty(RSA). However there are few reports of the correlation between baseplate positioning and clinical results after RSA. The purpose of this study was to evaluate the correlation between baseplate positioning and clinical outcomes after RSA for cases with cuff tear arthropathy or osteoarthritis. 192 shoulders with minimum 12 months follow-up were included in this study. 160 patients with cuff tear arthropathy, 32 patients with osteoarthritis or rheumatoid arthritis. Baseplate positioning was measured using postoperative 3D reformatted CT with 3 parameters: inclination, height, and version. The range of motion, UCLA and Constant scores were assessed as clinical outcomes and the correlation between the measurements of baseplate positioning and clinical outcomes was examined. The baseplate positioning with superior inclination of RSA has a significant negative correlation with anterior elevation, external rotation and adduction. Superior inclination also has a significant negative correlation with all clinical scores. Correlations of height or version with final ROM and clinical scores were found to be non-significant. Additionally 11.4° of superior inclination was the cutoff value for worse clinical outcome with a lower anterior elevation less than 110°. The AUC was 0.85 with moderate accuracy. We should pay attention to ensure correct baseplate positioning with less superior inclination to obtain good clinical outcomes after RSA.

**7)** Tomonori Kinoshita Md, Soya Nagao Md, Phd, and Kazuyoshi Nakanishi Md, Phd*. Itabashi Medical Association Hospital, Tokyo, Japan.

**Total elbow arthroplasty for comminuted distal humerus fracture in elderly patients -Report of three cases**: Distal humerus fracture (DHF) is relatively prevalent among the elderly. Open reduction and internal fixation (ORIF) for DHF can pose challenges, particularly in cases of distal and comminuted fractures. Furthermore, early postoperative rehabilitation presents difficulties in such scenarios. Three cases (88, 87, and 81 years, all female) with comminuted DHF underwent total elbow arthroplasty (TEA). Osteotomy was performed without triceps resection, and the elbow joint was replaced using semi-constrained TEA with bone cement. A plaster splint was applied for a week, followed by commencement of range of motion exercises in all cases postoperatively. Within

a month after surgery, patients could touch their face. Total elbow arthroplasty for DHF facilitated early initiation of range of motion training, as evidenced by the short-term outcomes observed in elderly patients.

**8)** Tetsuo Hayama, Toshiomi Abe, Ayano Amagami, Keigo Yonemoto, Hideki Fujii, Mitsuru Saito; Department of Orthopaedic Surgery,the Jikei University School of Medicine

**Results of total hip arthroplasty for DDH with cementless flat-taperd-wedge short stem -Comparison between short stem and standard length stem-** Background: We investigated THA for DDH results using the flat tapered wedge-shaped short femoral stem and compared the results with the standard stem of the same type,to consider the characteristics and problems of the flat tapered wedge-shaped short stem. Methods:We studied the postoperative clinical outcomes in primary THA in 350 hips using the Taperloc Complete Microplasty stem (TCM) and 110 hips using Taperloc Complete Standard stem (STD) for DDH in an Asian population (postoperative follow-up period: 2 to 11 years; mean .6 years).All cases were performed postero-lateral approach. Results: Favorable clinical functional outcomes were obtained in both groups.In radiological evaluation,there was no obvious significant difference in the rate of stem malalighment insertion (varus or valgus/flexed or extended) between the STD and TCM groups. Regarding intra and postoperative complications,calcur fractures were observed in 2 hips in the STD group and trochanteric fracture in 1 hip in the TCM group.In the TCM group,in the pre- and postoperative computed tomography measurements,the variability in stem anteversion postoperatively was significantly reduced compared to preoperative anatomical anteversion. Conclusion:If we can solute the short stem problems of mal-alignment and peri-operative complication and biological fixation,it is thought that TCM stem is advantageous in bone preservation and MIS approach.This flat-shaped short stem likely has high flexibility in positioning in cases of DDH, and can be easily positioned to avoid fractures while still achieving secure fixation.

**9)** Ken Sugita Akifusa Wada, Atsushi Matsuo, Mayuki Taketa, Akiko Oyamada, Hideaki Kubota; Saga Handicapped Children's Hospital.

**Outcomes of double arthrodesis (calcaneocuboid and talonavicular arthrodesis):** (Purpose) We evaluated the clinical and radiographic results of double arthrodesis (calcaneocuboid and talonavicular arthrodesis) in rigid hindfoot deformities and assessed the effect of locking plate fixation. (Patients and Methods) From 2013 to 2023, the osteotomy was performed on 35 patients and 47 feet. Of these, 28 patients and 37 feet who had their plates removed and were followed for more than 1 year were included in this study. The mean age at surgery was 15.5 years, and the mean follow-up period was 4.6 years. The underlying diseases included arthrogryposis multiplex congenita in 5 cases, spina bifida in 5 cases, cerebral palsy in 4 cases, congenital clubfoot in 3 cases, Charcot-Marie-Tooth disease in 2 cases, and others in 9 cases. The chief complaints were pain, pressure ulcers, abnormal gait, and difficulty wearing shoes and braces. (Results) Bone union was obtained in all cases. In two feet, the deformity recurred with growth and underwent reoperation, but in all cases the complaints improved and the foot became ulcer-free and plantigrade. (Conclusion) Although a comparative study with isolated talonavicular arthrodesis and triple arthrodesis is required in the future, double arthrodesis was effective in correcting hindfoot deformity.

**10)** Jumpei Hayama, Atsushi Sato , Jun Oike , Reo Nagasaka , Marika Mukunoki , Kanako Izukashi , Masataka Ota, Takayuki Okumo , Saki Yagura , Takayuki Koya , Koji Kanzaki; Showa University Fujigaoka Hospital

**Treatment Experience Using Telos Ligament for Patellar Tendon Rupture:** Patellar tendon rupture is considered a relatively rare and severe condition among sports injuries. The surgical approach for patellar tendon rupture varies depending on the manner of rupture. Additionally, postoperative rehabilitation is crucial, and its methods are diverse and not yet standardized. Traditionally, hamstring autografts or artificial ligaments such as the LK (Leeds-Keio) ligament have been frequently used for patellar tendon rupture. In this report, we present our experience using the Telos ligament (Aimedic) for treating patellar tendon rupture, along with a literature review. The Telos ligament is believed to have higher strength compared to other artificial ligaments. It is considered suitable for the treatment of the knee extension mechanism, which is subjected to forces up to 3000N, due to its lower incidence of foreign body sensation and vascular compromise, especially in the thin subcutaneous tissue of the knee anterior region. Furthermore, its potential for early initiation of rehabilitation makes it a useful method for both repair and reinforcement of patellar tendon rupture. The one case we experienced recovered

enough to complete a full marathon postoperatively, and another case is planned to return to soccer, indicating favorable outcomes.

**11)** Masataka Ota, Atsushi Sato, Jun Oike, Reo Nagasaka, Marika Mukunoki, Kanako Izukashi, Takayuki Okumo, Saki Yagura, Takayuki Koya, Fuiyoshi Kawashima, Toshiyuki Shirahara, Koji Kanzaki; Department of Orthopedic Surgery,showa University Koto Toyosu Hospital,department of Orthopedic Surgery,showa University Fujigaoka Hospital, department of Physiology, Showa University Graduate School of Medicine

**Investigation of Elongation Pattern in Augmented Reality-Based Navigation TKA:** Purpose This study aims to evaluate the elongation patterns of MCL/LCL during total knee arthroplasty(TKA) in osteoarthritis(OA) patients. Methods : 9 cases (11 knees) of varus knee osteoarthritis treated with TKA using the kinematic alignment technique between August 2022 and March 2023 were included. The TKA (Medacta GMK Sphere) was performed using the NextAR navigation system by Medacta. Preoperative 3D CT was used to identify MCL/LCL ligament attachments. In the literature, MCL is divided into anterior, intermediate(i), and posterior portions, hanges in the elongation patterns of iMCL/LCL pre- and post-implant insertion during knee flexion were evaluated. Results: Preoperative elongation patterns showed that iMCL remained mostly isometric regardless of flexion angle, while LCL shortened with increasing knee flexion angles in all cases. Post-implant insertion elongation patterns of iMCL remained relatively isometric regardless of flexion angle, whereas LCL shortened with increased flexion angle in five knees, remained isometric in one knee, lengthened duaring mid-flexion and shortened under high flexion in four knees, and shortened duaring mid-flexion and lengthened under high flexion in one knee. Conclusion: In varus knee OA patients, similar to healthy individuals, iMCL remained isometric regardless of flexion, while LCL tended to shorten with increased flexion. Moreover, post-implant insertion elongation patterns varied among cases, with some LCL patterns shortening with flexion.

**12)** Marika Mukunoki, Atsushi Sato 1.2, Reo Nagasaka 1, Kanako Izukashi 4, Masataka Ota 2, Jun Oike 2, Takayuki Okumo 1.3, Saki Yagura 1, Takayuki Koya 2, Koji Kanzaki 1 1.department of Orthopedic Surgery, Showa University Fujigaoka Hospital , 2. Department of Orthopedic Surgery, Showa University, Koto-toyosu Hospital, 3. Department of Physiology, Showa University Graduate School of Medicine, 4. Department of Physiology, Showa University Graduate School of Medicine.

**Experience of Pin Positioning System Utilization in Augmented Reality-Based Navigation Total Knee Arthroplasty. Objective:** This study aims to assess the efficacy of a new pin positioning system (PPS) in augmented reality (AR)-based navigation for total knee arthroplasty (TKA). Methods: AR-based navigation TKAs were conducted on 25 knees of unilateral osteoarthritis patients from August 2022 to September 2023, using the Medacta NEXTAR system and MyKnee PPS. Surgical time and complications were compared between 9 patients using PPS and 16 patients with manual pin fixation. Results: The mean surgical time was 125.9 minutes, with no occurrences of nerve or vascular damage or fractures. The PPS group (108.0 minutes) showed significantly shorter surgical times, and no complications were observed in either group. Conclusion: My Knee PPS, a 3D-printed guide set based on patient CT images, enables precise and reproducible implant placement. Its use facilitates safe and efficient pin insertion and camera fixation, contributing to reduced surgical times.

**13)** Yusuke Morishita, Yuki Yamanashi; Department of Orthopedic Surgery Aichi Medical University

**Two-stage surgical treatment for simultaneous rupture of patellar tendon and anterior cruciate ligament and medical collateral ligament :A case report.** Background:Simultanious ruputure of patellar tendon (PT),anterior cruciate ligament(ACL),and medial collateral ligament(MCL)is a relativity rare trauma.We present two-stage treatment for this trauma. Case oresentation: A 47-years old male who fell from 2m hight. The rupture part of patellar tendon was in poor condition and irreparable,therefore we reconstructured using quadriceps tendon-patellar bone at 1st stage.After 9 months,ACL reconstruction using semitendinosus tendon(ST) was performed as the second stage.18 months after 1st operation,range of motion of knee flexion was 125 degrees.X-ray showed bone graft incorporation was achieved and Insall-Salvation ratio was 1.11.Lachman test and pivot-shift test were negative. Conclusion: Using quadriceps tendon-patellar bone for patella tendon tear has several advantages. First,enthesis can be reconstrucured with healthy tissue and keep patellar tendon length; Second,autografts can be expected to incorporate; Third,ST can be preserved for ACL reconstruction and no invasion to the contralateral leg.

**14)** Morishima　Kohei Hashimoto Aichi Medical University Orthopaedic Surgery.

**Planning of Quadrilateral Surface Preserving Periacetabular Osteotomy.** Background There have been numerous reports indicating favorable outcomes in the prevention of progressive osteoarthritis in dysplastic hips through the use of pelvic osteotomy. However, there has been insufficient detailed examination of osteotomy design, leading to potential complications such as leg length discrepancy, lateralization of the femoral head, postoperative fractures, pseudoarthrosis of the pubic rami, and injury to the obturator artery. In order to address these complications, we have developed the Quadrilateral Surface Preserving Periacetabular Osteotomy (QSPPO). QSPPO is a modification of the Spherical Periacetabular Osteotomy (SPO) originally reported by Hara et al. in 2022. In QSPPO, we employ our novel osteotomy planning technique known as Three Zone planning (3Z). The surgical procedure utilizes OrthoMap 3D navigation (Stryker). QSPPO offers similar advantages to those reported for SPO by Hara et al. By preserving the Quadrilateral Surface (QS) without cutting the pubis, both the anterior and posterior columns of the pelvis are conserved, thereby maintaining a stable pelvic ring. This results in a larger osteotomy surface, which is favorable for bone healing. Furthermore, preserving QS and the pubis helps protect the primary obturator artery. The noteworthy feature of QSPPO lies in the osteotomy design, which is planned using the 3Z approach. This design allows for the quantification of postoperative leg shortening, prevention of femoral head lateralization, and provides a quantitative rotation plan. Objectives We will explain the basic concept of QSPPO

**15)** Junya Shimizu, Satoshi Nagoya, Ima Kosukegawa, Arata Kanaizumi, Naoya Nakahashi, Atsushi Teramoto; Department of Orthopaedic Surgery, Sapporo Medical University School of Medicine, Sapporo, Japan.

**The accuracy of cup placement in THA using an augmented reality-based navigation system**:【Background】 AR HIP Navigation System® (AR-navi) (Zimmer-Biomet, Warsaw, IN) is a portable navigation system employing augmented reality via a smartphone app, which developed in Japan. We retrospectively analyzed the accuracy of cup placement in total hip arthroplasty (THA) using AR-navi, and to investigate whether obesity is associated with absolute value error in cup placement angle. 【Methods】 We retrospectively analyzed 45 hips in 43 patients who underwent THA using AR-navi (AR-navi group) and compared them with 45 hips in 45 patients who underwent THA using alignment rods (conventional group). 【Results】 The mean absolute error of cup placement (AR-navi group vs. conventional group) found 2.60° (±2.11) in radiographic inclination (RI) for the AR-navi group and 4.61° (±3.28) for the conventional group, which indicates significant difference in the AR-navi group compared to that in the conventional group ($p = 0.0036$). The mean absolute error of radiographic anteversion (RA) was 3.57° (±3.36) for the AR-navi group and 3.87° (±2.97) for the conventional group ($p = 0.4732$).The mean absolute error of RI was 2.36° (±2.24) in the obese group and 3.16° (±2.03) in the nonobese group, and the mean absolute error of RA was 4.08° (±4.51) and 3.16° (±2.05) in the obese and nonobese groups, respectively. 【Conclusions】 Cup placement accuracy for THA using AR-navi was 2.60 ± 2.11° for RI and 3.87 ± 2.97° for RA. Compared to THA using the conventional method, the RI installation error was significantly improved with AR Navi.

**16)** Shuhei Ueno, Kentaro Iwakiri, akio Kobayashi, Shiraniwa Hospital.

**Effect of Discrepancy Between Preoperative Planning and Intraoperative Femoral Neck Osteotomy Level on Stem Alignment:** Background: The combined anteversion theory guides implant placement in total hip arthroplasty (THA). While most research emphasizes precise acetabular cup placement, less attention is given to stem alignment. This study aimed to explore how differences between preoperatively planned and actual femoral neck osteotomy levels during surgery affect stem alignment. Materials and Methods: The study involved 232 patients (258 joints) who underwent THA between April 2018 and December 2022. They were implanted with either ACTIS or Taperloc Complete stems. Three-dimensional templating software was used to evaluate preoperative planning and postoperative stem placement angles. The difference between the actual and preoperatively planned osteotomy levels was also measured. The effect of this difference in femoral neck osteotomy level on stem alignment was evaluated. Results: In ACTIS group, femoral neck osteotomy level correlated positively with varus/valgus alignment ($r=0.607$, $p<0.01$), weakly with anteversion ($r=0.236$, $p<0.01$). No correlation with flexion/extension. In Taperloc group, osteotomy level correlated with varus/valgus alignment ($r=0.476$, $p<0.01$), not with flexion/extension or anteversion. Conclusion: This study highlights how discrepancies between planned and actual femoral neck osteotomy levels influence stem alignment in THA using ACTIS and

Taperloc stems. We found that osteotomy level influenced varus/valgus alignment; mildly affected flexion/extension; and had no effect on anteversion.

**17)** Kazushi Takayama,Teruo Kita, Shigehiro Ikeda, Kodai Okano, Hideki Sakanaka; Dept. of Orthopaedic Surgery, Seikeikai Hospital, Osaka, Japan

**More than 12% of fragility fractures of the pelvis were initially unrecognized or misdiagnosed.** Introduction: Fragility fractures of the pelvis (FFP) are an increasingly common injury seen in the elderly. The clinical symptoms of FFP are frequently vague and nonspecific. In addition, plain radiographs are usually insufficient for the diagnosis. Therefore, accurate diagnosis of FFP is often difficult and consequently delayed. The aim of this study was to determine the rate of occurrence of initially unrecognized or misdiagnosed FFP in our hospital and to evaluate the characteristic findings in those patients. Materials and methods: This study was conducted with 409 patients consecutively, aged sixty years and older who were admitted with FFP at our hospital from January 2012 to February 2024. We evaluated the patients who were unrecognized or misdiagnosed at first visit or by previous doctors. Results: Fifty two patients (12.7%) were unrecognized or misdiagnosed initially. Forty six patients were female, and 6 were male. The mean age was 81.9 years (62-99 years). Sixteen patients had no traumatic events and 36 patients had a low-energy trauma, such as domestic falls. It took a mean period of 12.8 days (0-50) to diagnose. According to the Rommens classification, there were 13 type Ia, 2 type Ib, 22 type IIa, 14 type IIc, and 1 type IIIa fractures. Conservative treatment was carried out successfully in all patients. Conclusion: It is necessary to consider the possibility of FFP in cases of prolonged pain that can not be explained in elderly patients.

**18)** Susumu Tashiro, Naoya Takayama; Chiba University

**Bone regeneration using iPS cell-derived immortalized mesenchymal stem cells**: We have established a method to generate immortalized iPSC-derived mesenchymal stem cells (iPSC-imMSCs) with long-term proliferative potential by introducing c-MYC, BMI-1, and BCL-XL genes into human iPSC-derived mesenchymal stem cells (iPSc-MSCs). In this study, we aimed to evaluate the osteogenic potential of iPSC-imMSCs. We evaluated the bone differentiation potential of these cells in vitro and bone regeneration potential in vivo, and examined their potential application in bone regenerative medicine. As a result, iPSc-MSCs subjected to aging stress showed decreased osteoblastic differentiation ability, while iPS-imMSCs showed enhanced osteoblastic differentiation ability compared to early iPSc-MSCs, even under aging stress. RNA-seq analysis suggested that iPS-imMSCs may promote osteogenic potential through various signaling pathways. In vivo experiments in mice showed that iPS-imMSCs on scaffolds promoted bone formation compared to scaffolds alone. These findings suggest that iPS-imMSCs may be a promising resource for MSC regenerative medicine to address issues related to aging and functional decline. Additional studies on the safety and mechanistic aspects of functional recovery are required.

**19)** Naoko Mizuno Department of Orthopaedic Surgery, Toyonaka Municipal Hospital B

**Effect of scapular neck morphology on scapular impingement after reverse shoulder arthroplasty.** Background: Scapular impingement in RSA is a phenomenon that causes scapular notching and limited ROM. It may be influenced by the morphology of the scapular neck. The purpose of this study was to evaluate impingement-free ROM in adduction and rotation and to determine the effect of scapular neck morphology. Methods: Twenty-four shoulders with osteoarthritis or cuff tear arthropathy without glenoid defect were evaluated. Scapular neck angle (SNA) was measured according to Simovitch. SNA less than 100° was classified as a long neck group (group L) and 100° or more as a short neck group (group S). RSA implants were implanted virtually using 3D planning software with DICOM data. Impingement-free ROM was simulated in adduction, external rotation, and internal rotation and compared between 2 groups. The correlation between SNA and each ROM was also examined. Results: There were 11 shoulders in group L and 13 shoulders in group S. Mean adduction and mean external rotation were significantly larger in group L than in group S. Mean internal rotation was not significantly different between 2 groups. The correlation coefficient between SNA and adduction was -0.623, with external rotation -0.691, and with internal rotation -0.537, all showing significant negative correlations. Discussion: This study suggests that scapular impingement is likely to occur during adduction and external rotation in group S. Since significant negative correlations were observed between SNA and each ROM, the patients with large SNA require further treatment to prevent scapular impingement.

**20)** Satomi Abe, Masahiro Inoue, Takashi Mikami, Hidefumi Honke, Shoichi Kimura; Eniwa Hospital

**Mid-term outcomes of compaction autologous bone grafting with CORAIL stem.** Purpose: This study aimed to investigate bone reaction and mid-term outcomes following compaction autologous bone grafting in uncemented stems in primary THA. Materials and Methods: This study retrospectively reviewed patients with primary THA using CORAIL® collared stem and having ≥5 years follow-up. Patients were divided into the bone graft and control groups based on the use of compaction autologous bone grafting. Demographic characteristics, fracture risk, operation time, complications, revisions, and radiologic measures, such as stress shielding and reactive lines were compared between the groups. Results: A total of 140 cases (85% women, mean age: 63 years, mean follow-up: 72 months) were included. Autologous bone graft was used in 32 (23%) cases. No significant differences in terms of age, sex, diagnoses, follow-up duration, or operation time were observed between the groups. Stress shielding occurred in 9.4% of patients in the bone graft group at 5 years compared with 28.7% in the control group (p=0.0004). Reactive lines increased from 1y to 5y in both groups with no significant differences between groups. There were no instances of stem subsidence/loosening or stem revision in either group. Conclusions: Autologous compaction bone grafting achieved satisfactory fixation of the uncemented CORAIL® collared stem without requiring distal fixation and mitigated stress shielding.

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**Incidence of patellar clunk syndrome in mobile bearing posterior-stabilized total knee arthroplasty**: Patellar clunk syndrome (PCS) is a postoperative complication that arises due to the development of a fibrous nodule along the undersurface of the quadriceps tendon. The etiology of PCS is multifactorial, owing to the growing metrics that have associations with its incidence. The posterior stabilised TKA had been noted to have a higher incidence of this problem. Mobile-bearing posteriorly stabilised TKAs have been introduced to improve patellar tracking and related problems by a mechanism of self-alignment. We report one case of PCS after mobile-bearing posterior stabilized TKA. A 76-year-old man with degenerative arthritis of his left knee was treated with mobile-bearing posterior stabilized TKA. 11 months later, his diseased limb was overloaded when he stumbled during walking and he suddenly suffered knee pain. He felt painful catching of the patellar and audible clunk when the knee was moving from a flexed to an extended position. From the physical exams, the patient was diagnosed as PCS. Knee arthroscopy was performed. In surgery, a mass of scar tissue proximal to the superior pole of the patella. Arthroscopic debridement of the synovium and scar has yielded satisfactory results with no painful catching of the patellar and audible clunk. Two years after surgery, no recurrence was observed. Few factors associated with an increased incidence of post operative PCS were seen in this case, except the episode of sudden impact on the knee during walking.

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**Orthopaedics Pathway for the Differential Diagnosis of Obstetrical Brachial Plexus Palsy.** Aims: The purpose of this study was to examine the differential diagnostic algorithm for obstetric brachial plexus palsy (OBPP). Methods: This retrospective cohort study of 414 cases suspected of OBPP in the neonatal or infancy period from 1994-2021 at two pediatric orthopedic centers divided patients into OBPP and non-OBPP groups. Birth histories were compared, and physical findings of non-OBPP were investigated. Results: In the OBPP group were 387 patients (93%) and 27 cases (7%) were in the non-OBPP group. The final diagnoses in the non-OBPP group included congenital abnormalities such as arthrogryposis (6), hemiplegia (5), monoplegia including acute flaccid paralysis (4), trauma (4), intrauterine molding syndrome (4), spinal cord infarction (1), and intramuscular abscess (1). Reasons for denying the diagnosis of OBPP included joint contracture (9/27), abnormal distribution of the paralysis (8/27), absence of paralysis immediately after birth (7/27), and spinal cord abnormality demonstrated in MRI (1/27). In the remaining two cases, OBPP was ruled out. because the brachial plexus explored was normal in appearance and MRI findings were also normal, but a definite diagnosis could not be made. Conclusion: Although the birth histories of the two groups differed in some respects, there were no definite findings to distinguish the two groups. Differential diagnosis of OBPP was possible in 25 of the 27 patients with consideration of the physical examinations and clinical courses, while two patients required brachial plexus exploration.

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**Reliability and validity of rheology properties-based hardness instrument in healthy college students' lower limb muscles**: INTRODUCTION Rheological measurement is the study of the relationship between stress and deformation, and response stress is measured by applying simple shear deformation or tensile deformation. Instruments using rheological properties have been used in the industrial field, but there have been few attempts to use them on the human body. The purpose of this study was to verify the reliability and validity of the newly developed rheological hardness instrument in human lower limb muscles. METHODS The number of subjects was 37 healthy college students. The rectus femoris and gastrocnemius muscles were measured twice in total, one week apart, using a rheological hardness instrument. This instrument can measure three parameters: hardness (G), fibrosis (Gn), and fluidity (r) according to the concept of rheology. There are no units for each parameter. Muscle hardness of the same area was measured with a digital display muscle hardness tester, and skeletal muscle index was measured with a body composition analyzer (InBody S10). Reliability was examined by intraclass correlation coefficient (ICC) (3,1), and validity was examined by Pearson's correlation coefficient. RESULTS AND DISCUSSION ICC (3,1) values for each muscle ranged from .500 to .680 for G, .149 to .437 for Gn, and .260 to .469 for r. The Gn of the rectus femoris muscle was higher than the Gn of the gastrocnemius muscle. In the rheological hardness instrument, there were significant correlations among all parameters, with correlation coefficients of .560 to .722 for G and Gn, and 0.374 to 0.697 for r and others