ISOLS 2022

21st General Meeting of the International Society of Limb Salvage

UCLA Luskin Conference Center
Los Angeles, USA
6-9 September 2022

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Final Program

DAY 1 | Tuesday, 6 September 2022

Main Hall

ISOLS Young Surgeons' Day, Ewing's sarcoma

07:55-08:00 **Welcome and outline of the day and sessions**
Francis J. Hornicek (United States)
Philipp Theodor Funovics (Austria)

08:00-08:30 **Session 1: History and overview**
Catrin Wigley (United Kingdom): James Ewing
Mishil Parikh (India): Overview and historical perspective

08:30-09:00 **Session 2: Chemotherapy**
Arun Singh (United States)**:** Standard

09:00-09:30 **Session 3: Surgery, extremity**
Lee Jeys (United Kingdom)**:** Upper and lower limb surgery

09:30-10:00 *Coffee Break - e-Posters viewing*

10:00-10:30 **Session 4: Surgery, central**
Pete Rose (United States): Central

10:30-11:30 **Session 5: Radiation**
Raphael Yechieli (United States): Neo/adjuvant
Anusha Kalbasi (United States)**:** Proton, carbon and IMRT

11:30-12:00 **Session 6: The MDT**
Nicholas Bernthal (United States): Combination of therapeutic interventions and a multidisciplinary approach, sequencing of modalities

12:00-12:30 **Session 7: Research**
Michiel van de Sande (The Netherlands)**:** Salient research, future research, current issues

12:30-13:30 *Lunch Break*

13:30-15:30 **Session 8: Case Discussions**
Chairs: **Matthew Houdek** (USA) - **Daniel Kotrych** (Poland)

Toshifumi Ozaki (Japan)
Michiel van de Sande (The Netherlands)
Andrea Angelini (Italy)
Patrick Boland (United States)
Vasileios Kontogeorgakos (Greece)
Manish Agarwal (India)

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Main Hall

ISOLS Opening Ceremony & Presidential Address

15:00- 16:00 **Welcome Addresses**

Paganayiotis J. Papagelopoulos (Greece): ISOLS president
Francis Hornicek (United States): ISOLS 2022 Meeting President
Nick Bernthal (United States): UCLA Orthopaedic Surgery Chair
John Mazziotta (United States): MD Vice Chancellor, Health Sciences and CEO, UCLA Health
Johnese Spisso (United States): President, UCLA Health

16:00- 17:00 **Honorary Presidents Lectures**

Moderators: **Panayiotis J. Papagelopoulos** (Greece), **Francis J. Hornicek** (United States)

Franklin H. Sim (United *Moderators* States) | ISOLS: Past, Present and Future
Patrick Boland (United States) |Evolution of Musculoskeletal Oncology; a critical appraisal

17:00- 17:30 **Special Lecture**

Oleg Vyrva (Ukraine): Orthopaedics and oncology at war in Ukraine: bone defect management

17:30- 17:50 **Remembrance of Jeffery Eckardt**

Moderator: **Francis Hornicek**

Speaker: **Nicholas Bernthal** (United States)

17:50- 19:30 **UCLA Sarcoma group**

Frederick C. Eilber (United States) and **Nick Bernthal** (United States): A history of the UCLA sarcoma program
Nick Bernthal (United States): Lessons learned from Dr. Jeffrey J Eckardt
Anusha Kalbasi (United States): Advances in radiation therapy
Arun Singh (United States): Immunotherapies and targeted agents in sarcoma
Noah Federman (United States): Molecular profiling and a new paradigm for sarcoma
Jane Yanagawa (United States): Surgical removal of metastatic disease in sarcoma

19:30 **Welcome Reception at the Centennial Terrace** (3rd floor)

DAY 2 | Wednesday, 7 September 2022

Main Hall

08:00-09:00 **Flash Session 1 | Radiation Oncology & Implant Engineering**

Moderators: **Dimosthenis Andreou** (Austria) - **Elisa Pala** (Italy)

RADIATION ONCOLOGY

08:00	FS1.1	**How does bone strength change after radiation for metastatic disease and can we avert pathologic fractures? CT base biomechanical finite element analyses of patients with bone metastases to the femur** **Amir Sternheim**[1,4], Yair Gortzak[1,4], Solomon Dadia[1,4], Omri Merose[1,4], Ortal Segal[1,4], Zohar Yosibash[3], Uri Amit[2,4] *[1]National Unit of Orthopaedic Oncology, Tel-Aviv Medical Center, Tel-aviv, Israel; [2]Radiation Oncology, Tel-Aviv Medical Center, Tel-Aviv, Israel; [3]Computational Biomechanical Lab., Biomechanical Department, Tel-Aviv University, Tel-Aviv, Israel; [4]Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel*
08:03	FS1.2	**Long-term experience with intraoperative electron radiation therapy boost in extremity sarcoma** Brady Laughlin[1], Michael Golafshar[2], Keldon Lin[3], **Kimberly Roesler[4]**, Tamara Vern-Gross[1], Mahesh Seetharam[5], Krista Goulding[6], Isabella Zaniletti[5], Jonathan Ashman[1] *[1]Department of Radiation Oncology, Mayo Clinic, Phoenix, United States; [2]Department of Qualitative Health Sciences, Section of Biostatistics, Scottsdale, United State; [3]Mayo Clinic Alix School of Medicine, Scottsdale, United States; [4]Creighton University School of Medicine, Omaha, United States, [5]Department of Hematology and Oncology, Phoenix, United States; [6]Department of Orthopedic Surgery, Mayo Clinic, Phoenix, United States*
08:06	FS1.3	**Treatment outcomes of extraskeletal Ewing sarcoma: should radiotherapy be combined with chemotherapy and surgery in all patients?** Matthew Houdek, Mark Heidenreich, Samuel Broida, Brian Whaling, Safia Ahmed, Wendy Allen-Rhoades, Brittany Siontis, Steven Robinson, Ivy Petersen, **Peter Rose** *Mayo Clinic, Rochester, United States*
08:09	FS1.4	**Surgical outcomes in patients treated with 5-day neoadjuvant radiotherapy for primary soft tissue sarcoma** **Joe Kendal[1,4,5]**, Nicholas Peterson[1,5], Ricky Savjani[3], Lauren Wessel[1,4,5], Michael Shehata[2,5], Jie Deng[1,3,5], Vishruth Reddy[3,4,5], Joseph Crompton[2,4,5], Nicholas Bernthal[1,4,5], Fritz Eilber[2,4,5], Anusha Kalbasi[3,4,5] *[1]Department of Orthopaedic Surgery, UCLA, Santa Monica, United States; [2]Department of Surgery, Division of Surgical Oncology, UCLA, Los Angeles, United States; [3]Department of Radiation Oncology, UCLA, Los Angeles, United States; [4]UCLA Jonsson Comprehensive Cancer Center, Sarcoma Program, Los Angeles, United States; [5]David Geffen School of Medicine at UCLA, Los Angeles, United States*
08:12	FS1.5	**Clinical outcomes of local therapy for malignant pelvic bone tumors including surgery and carbon-ion radiotherapy** **Katsuhiro Hayashi**, Norio Yamamoto, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Yuta Taniguchi, Sei Morinaga, Yohei Asano, Hiroyuki Tsuchiya *Kanazawa University, Kanazawa, Japan*
08:15	FS1.6	**Lack of radiosensitivity predicts poor oncologic outcome in extremity myxoid liposarcoma** Matthew Houdek, **Katherine E. Mallett**, Safia K. Ahmed, Doris E. Wenger, Steven Robinson, Brittany Siontis, Ivy Petersen, Peter S. Rose *Mayo Clinic, United States*
08:18	FS1.7	**Ancillary role of radiotherapy for infiltrative soft tissue sarcoma** **Yutaka Nezu[1]**, Shintaro Iwata[2], Suguru Fukushima[2], Shuhei Osaki[2], Eisuke Kobayashi[2], Yutaka Inaba[3], Akira Kawai[2] *[1]Kanagawa Cancer Center, Yokohama, Japan; [2]National Cancer Center Hospital, Tokyo, Japan ; [3]Yokohama City Univercity, Yokohama, Japan*

IMPLANT ENGINEERING

08:21	FS1.8	**Indications and clinical outcomes of oncological patients treated with carbon-fiber plates: an international multi-institutional study** **Zeger Rijs[1]**, Santiago Lozano-Calderon[2], Olivier Groot[2], Emily Berner[2], Vania Oliveira[3], Giuseppe Bianchi[4], Eric Staals[4], Debora Lana[4], Davide Donati[4], Ortal Segal[5], Stefano Marone[6], Raimondo Piana[6], Simone De Meo[6], Pietro Pellegrino[6], Nicola Ratto[6], Carmine Zoccali[7], Maurizio Scorianz[8], Cecilia Tomai[8], Guido Scoccianti[8], Domenico Andrea Campanacci[8], Lorenzo Andreani[9], Silvia de Franco[9], Michele Boffano[10], Thomas Cosker[11], Varunprasanth Sethurajah[11], Manuel Peleteiro Pensado[12], Irene Barrientos Ruiz[12], Esperanza Holgado Moreno[12], Eduardo Ortiz-Cruz[13], Michiel van de Sande[1] *[1]Orthopaedic department, Leiden University Medical Center, Leiden, The Netherlands; [2]Orthopaedic department, Massachusetts General Hospital – Harvard Medical School, Boston, United States; [3]Orthopaedic department, Oporto University Hospital Center, Porto, Portugal; [4]Orthopaedic department, IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy; [5]Orthopaedic department, Tel Aviv Sourasky Medical Center, Tel Aviv, Israel; [6]Orthopaedic department, Centro Traumatologico Ortopedico, Turin, Italy; [7]Orthopaedic department, Regina Elena National Cancer Institute, Rome, Italy; [8]Orthopaedic department, Careggi University Hospital, Careggi, Italy [9]Orthopaedic department, University Hospital of Pisa, Pisa, Italy [10]Orthopaedic department, Regina Margherita Children's Hospital, Torino, Italy; [11]Orthopaedic department, Nuffield Orthopaedic Centre, Oxford, United Kingdom; [12]Orthopaedic department, Hospital Universitario La Paz, Madrid, Spain; [13]Orthopaedic department, MD Anderson Cancer Center, Madrid, Spain*
08:24	FS1.9	**Biomechanical analysis and design method for patient-specific reconstructive implants for large bone defects of the distal lateral femur** **Chen-wen Huang[1,3]**, Po-Kuei Wu[1,2], Wei-Ming Chen[1,2] *[1]Department of Orthopaedics, Taipei Veterans General Hospital, Taipei, Taiwan; [2]Orthopaedic Department School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan; [3]Taipei Tzu Chi Hospital, Taiwan*
08:27	FS1.10	**Transpelvic fixation using a custom made 3D printed titanium prosthesis: An option for radiotherapy affected bone** **Richard Boyle**, Maurice Guzman, Daniel Franks *Royal Prince Alfred Hospital, Sydney, Australia*

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08:30	FS1.11	**Early radiological outcomes of a fully porous bridging collar in lower limb endoprosthetic reconstructions: A case matched study** **Muhammad Ather Siddiqi**[1], Vicky Sheehy[1], Benjamin Kendrick[1], Duncan Whitwell[1], Gordon Blunn[2], Adrian Taylor[1], Sofia Thoma[3], Jonathan Stevenson[3] *[1]Oxford University Hospitals, Oxford, United Kingdom; [2]University of Portsmouth, Portsmouth, United Kingdom; [3]Royal Orthopaedic Hospital NHS Foundation Trust, Birmingham, United Kingdom*
08:33	FS1.12	**Rate of implant failure after treatment for metastatic disease of the femur: Larger diameter my not be better** **David Joyce**[1], Timothy Evans, Douglas Letson, Odion Binitie, Ryan Collier *Moffitt Cancer Center, Tampa, United States*
08:36	FS1.13	**A proposed classification system of custom 3D printed pelvic implants** Richard Boyle, **Paul Stalley**, Daniel Franks, Maurice Guzman, Corey Cunningham, Anthony Maher, Demien Broekhuis *Royal Prince Alfred Hospital, Sydney, Australia*
08:49	FS1.14	**Complex shoulder extra-articular resection and reconstruction – A novel design** Jan Lesensky[2], **Ana Cecilia Belzarena**[1] *[1]Oncology Orthopedic Department, Miami Cancer Institute, Miami, United States; [2]Charles University, University Hospital Na Bulovce, Prague, Czech Republic*
08:52	FS1.15	**Outcomes of Brachytherapy in soft tissue sarcoma of the extremities: Tips to burn the tumour and not our fingers with experience of 58 cases from a single institute** **Pramod Chinder Shekarappa**, Suraj Hindiskere, Belliappa Mapangada, Premitha R, Sridhar Papaiah *HCG Hospital & The Yellow Ribbon, Bangalore, India*

Laureate Room

08:00-09:00 Flash Session 2 | Surgery of Bone and Soft Tissue Tumours

Moderators: **Will Aston** (United Kingdom) - **G. Ulrich Exner** (Switzerland)

08:00	FS2.1	**Perioperative complication of total en bloc spondylectomy for spine tumor** **Satoru Demura**, Satoshi Kato, Noriaki Yokogawa, Motoya Kobayashi, Yohei Yamada, Satoshi Nagatani, Hiroyuki Tsuchiya *Kanazawa University, Japan*
08:03	FS2.2	**Quadriceps motor power recovery after nerve root dissection following L3 total en bloc spondylectomy** **Permsak Paholpak**, Taweechok Wisanuyotin, Wilasinee Sirichativapee, Winai Sirichativapee *Khon Kaen University, Thailand*
08:06	FS2.3	**How do the outcomes of radiation associated pelvic and sacral bone sarcomas compare to primary osteosarcomas following surgical resection?** Alexander Lazarides[1,2], Zachary Burke[1], Manit Gundavda[1], Rostislav Novak[3], Michelle Ghert[4], David Wilson[5], Peter Rose[6], Philip Wong[7], **Anthony Griffin**[1], Peter Ferguson[1], Jay Wunder[1], Matthew Houdek[6], Kim Tsoi[1] *[1]University of Toronto, Toronto, Canada; [2]Moffitt Cancer Center, Tampla, United States; [3]RAMBAM, Haifa, Israel; [4]McMaster University, Hamilton, Canada; [5]Dalhousie University, Halifax, Canada; [6]Mayo Clinic, Rochester, United States; [7]Princess Margaret Cancer Hospital, Toronto, Canada*
08:09	FS2.4	**Modified Capanna technique for salvage of lower limb tibial sarcoma defects in a paediatric population at a United Kingdom sarcoma unit** **Paul Caine**[1], Harsh Samarendra[1], Shameem Haque[1], Will Aston[2], Alex Woollard[1] *[1]Royal Free Hospital, London, United Kingdom; [2]Royal National Orthopaedic Hospital Stanmore, London, United Kingdom*
08:12	FS2.5	**Modification and outcomes of the Innocenti technique for epiphyseal fibula reconstruction in paediatric sarcoma defects** Harsh Samarendra[1], Shameem Haque[1], **Paul Caine**[1], Craig Gerrand[2], Alex Woollard[1] *[1]Royal Free Hospital, London, United Kingdom; [2]Royal National Orthopaedic Hospital Stanmore, United Kingdom*
08:15	FS2.6	**Sarcomas in the age of COVID- a needed dialogue** **Saminathan Suresh Nathan** *Limb Salvage and Revision Arthroplasty Surgery Pte Ltd Surgery, Singapore, Singapore*
08:18	FS2.7	**Bone tumors with aneurysmal content: Decision algorithm in primary surgical treatment** **Karen Voltan**[1], Carlos Eduardo Hideo Hanasilo[1], Diego Navarro E Paiva[2], Eliane M. Ingrid Amstalden[3], Mauricio Etchebehere[1] *[1]Department of Orthopedics and Traumatology, Faculty of Medical Sciences, The University of Campinas (FCM- UNICAMP), Brazil; [2]Department of Radiology. Faculty of Medical Sciences, The University of Campinas (FCM- UNICAMP), Brazil; [3]Department of Pathology. Faculty of Medical Sciences, The University of Campinas (FCM- UNICAMP), Brazil*
08:21	FS2.8	**Do high- and low-risk pediatric rhabdomyosarcoma survival estimates equalize 5 years after diagnosis? A cause-specific conditional survival analysis** **Mustafa Hashimi**, Christopher R. Halbur, Vanessa Webster, Dr Trevor R. Gulbrandsen, Benjamin J. Miller *University of Iowa Hospitals and Clinics, Iowa city, United States*
08:24	FS2.9	**Solitary vs. multiple bone metastases in the extremities: Are there any differences?** Thea Ladegaard, Michala Skovlund Sørensen, **Michael Mørk Petersen** *Musculoskeletal Tumor section, Department of Orthopedic Surgery, Rigshospitalet, University of Copenhagen, Denmark*
08:27	FS2.10	**The effects of surgical treatment with chondroblastoma in children and adolescents in open epiphyseal plate of long bones** **Dechao Yuan**, Xiang Fang, Wenli Zhang, Xiang Fang, Chongqi Tu, Senlin Lei *West China School of Medicine, West China Hospital, Sichuan University, Chengdu, China*

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08:30	FS2.11	**Combination of pretreatment systemic immune-inflammation index (SII) and prognostic nutritional index (PNI) as prognostic predictor for disease-specific survival in patients with soft tissue sarcoma** **Ronnakrit Maethungkul[1,2]**, Wichayan Chobchai[1], Punnawit Pinitchanon[1], Pongsiri Piakong[1], Bhasanan Sukanthanak[1], Piya Kiatisevi[1] *[1]Orthopaedic Oncology Unit, Institute of Orthopaedics, Lerdsin Hospital, Bangkok, Thailand; [2]Department of Orthopaedics Surgery, Faculty of Medicine Chiang Mai University, Maharaj Nakorn Chiangmai Hospital, Chiangmai, Thailand*
08:33	FS2.12	**Surgical factors to predict postoperative wound complications in localized soft-tissue sarcomas of the extremity** Manit Gundavda, Alexander Lazarides, Zachary Burke, **Anthony Griffin**, Kim Tsoi, Peter Ferguson, Jay Wunder *University of Toronto, Toronto, Canada*
08:36	FS2.13	**Survival, ambulation, and pain relief after arthroplasty for proximal femoral metastasis: improvement over 40-years** **John H. Healey**, Scott Runyon, Rayhan Saiani, Kelsey Young, Lee Rhea, Cara Cipriano, Joseph Lane *Memorial Sloan Kettering Cancer Center, New York, United States*
08:39	FS2.14	**Uncommon location for solitary osteochondromas: Scapula, ischium and ribs** **Juan P Zumarraga[1,2,3]**, Diego E Rubio[2,3], Felipe M Suntaxi[4] *[1]Universidad San Francisco de Quito, Quito, Ecuador; [2]Hospital Metropoliotano, Quito, Ecuador; [3]Hospital Monte Sinai, Cuenca, Ecuandor, [4]BioZhape Biomedical Engineering, Quito, Ecuador*
08:42	FS2.15	**Halving infection rates in endoprosthetic reconstructions by creating a targeted peri-operative antibiotic protocol** **Anthony Maher**, Richard Boyle, Paul Stalley, William McNamara, Daniel Franks, Maurice Guzman *Royal Prince Alfred Hospital, Sydney, Australia*
08:45	FS2.16	**Sarcopenia in soft tissue sarcoma population** **Michael Russell**, Benjamin Miller, Nathan Saxsby, Steven Leary *University of Iowa, Iowa City, United States*

Hall Optimist A & B

08:00-09:00 Flash Session 3 | Limb Salvage Surgery

Moderators: **Arne Streitbuerger** (Germany) - **Ahmad Shehadeh** (Jordan)

08:00	FS3.1	**Comparison of fixation techniques for rotationplasty** **Mikaela Sullivan**, Alexandra Arguello, Todd Milbrandt, Peter Rose, William Shaughnessy, Matthew Houdek *Department of Orthopedic Surgery, Mayo Clinic, Rochester, United States*
08:03	FS3.2	**Ankle stabilization by synthetic material after distal fibula resection in sarcoma patients** Mahmood Shaheen, Rajeev Pant, Saleh Alsulaimani, Ibrahim Alshaygy, **Mohammad Altayeb** *Department of Orthopedic Surgery, Musculoskeletal Oncology Unit, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia*
08:06	FS3.3	**What are the results of resection of forearm soft tissue sarcoma?** **Eiji Nakada**, Tomohiro Fujiwara, Toshiyuki Kunisada, Toshifumi Ozaki *Department of Orthopedic Surgery, Okayama University Hospital, Okayama city, Japan*
08:09	FS3.4	**The influence of the extent of surgical procedures on the outcome in soft tissue sarcoma** **Philipp Theodor Funovics**, Kevin Döring, Christoph Stihsen, Joannis Panotopoulos, Alexandra Kaider, Reinhard Windhager *Medical University of Vienna, Vienna, Austria*
08:12	FS3.5	**Core needle biopsy versus open biopsy of malignant bone tumor in diagnostic accuracy, complications, and cost-effectiveness: A systematic review and meta-analysis** **Shunichi Toki[1]**, Toshihiko Nishisho[1], Kunihiko Numoto[2] *[1]Department of Orthopedics, Tokushima University Graduate School, Tokushima, Japan; [2]Department of Orthopedic Surgery, Kochi Health Sciences Center, Kochi, Japan*
08:15	FS3.6	**Functional outcome and sports activity after soft tissue sarcoma of the lower extremities** **Dimitra Melissaridou[1]**, Stylliani Iliopoulou- Kosmadaki[1], Ioannis Trikoupis[1], Angelos Kaspiris[2], Dimitra Galani[1], Olga Savvidou[1], Vasileios Kontogeorgakos[1], Panayiotis Papagelopoulos[1] *[1]National And Kapodistrian University of Athens, Athens, Greece; [2]Laboratory of Molecular Pharmacology, School of Heath Sciences, University of Patras, Patras, Greece*
08:18	FS3.7	**Comparison of MRI and synovial fluid analysis with histopathological correlation in detecting joint involvement by extremity sarcomas** **Shashi Sah[1]**, Shah Alam Khan[1], Venkatesan Sampath Kumar[1], Shivanand Gamangatti[2], Asit Ranjan Mridha[3], Adarsh Barwad[3] *[1]Department of Orthopaedics, All India Institute of Medical Sciences (AIIMS), New Delhi, New Delhi, India; [2]Department of Radiodiagnosis, All India Institute of Medical Sciences (AIIMS), New Delhi, New Delhi, India; [3]Department of Pathology, All India Institute of Medical Sciences (AIIMS), New Delhi, New Delhi, India*
08:21	FS3.8	**Extensor mechanism reconstruction with the polypropylene mesh after closed resections of the knee** **Ahmet Salduz**, Serkan Bayram, Onur Kutlu *Istanbul University, Istanbul, Turkey*
08:24	FS3.9	**Allograft prosthetic composite reconstruction of bony defects following pelvic tumor resection** **Nathan Thomas**, Santiago Lozano Calderon *Harvard Medical School, Boston, United States*
08:27	FS3.10	**Durability of intercalary endoprosthesis for humeral reconstruction** **Joshua Labott**, Mark Heidenreich, Jonathan Barlow, Peter Rose, Matthew Houdek *Mayo Clinic, Rochester, United States*
08:30	FS3.11	**Management of fungating soft tissue tumours. What can be done to improve the clinical outcome of limb salvage surgery?** **Chiao Yee Lim[1]**, Suryasmi Duski[1], Maizatul Jamny Mahmood[2], Noraini Binti Mohd Dusa[3], Ping Ching Chye[1] *[1]Department of Orthopaedic and Traumatology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia; [2]Department of Radiology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia [3]Department of Pathology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia*

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08:33	FS3.12	**Treatment of a special type of femoral osteosarcoma in children** **Yao Weitao** *He Nan Cancer Hospital, Zheng Zhou City, China*
08:36	FS3.13	**Efficacy of inactivated reimplantation of osteosarcoma osteoarticular around the knee joint** **Yao Weitao** *He Nan Cancer Hospital, Zheng Zhou City, China*
08:39	FS3.14	**Total elbow replacement as bailout surgery for complex elbow fractures** **Prashant Narhari**, Sandeep Singh *Ministry of Health Malaysia, Georgetown, Malaysia*
08:41	FS3.15	**Rotated Massive Autograft Reconstruction for Bone Tumors: A Safe and Reproductible Technique** Pablo Stoppiello[1], Leticia Gaiero[1], Gottardo Bianchi[1], Ana Cecilia Belzarena[2], **Nicolas Casales**[1], Claudio Silveri[1] *[1]Instituto Nacional de Ortopedia y Traumatología, Montevideo, Uruguay; [2]Miami Cancer Institute, United States*

Main Hall

09:00-10:00 Flash Session 4 | Basic science and research

Moderators: **Francis J. Hornicek** (United States)-**Zhenfeng Duan** (United States)-**Eisuke Kobayashi** (Japan)

09:00	FS4.1	**Bone healing after autogenous bone grafting using 'high hydrostatic pressure' in posterolateral spinal fusion of rabbit** **Yohei Yamada**[1], Satoru Demura[1], Satoshi Kato[1], Noriaki Yokogawa[1], Motoya Kobayashi[1], Satoshi Nagatani[1], Masafuimi Kawai[1], Naoki Morimoto[2], Hiroyuki Tsuchiya[1] *[1]Department of Orthopaedic Surgery, Graduate School of Medicine, Kanazawa University, Japan; [2]Department of Plastic and Reconstructive Surgery, Graduate School of Medicine, Kyoto University, Japan*
09:03	FS4.2	**Sarcomas in teachers using 3D Printers** **Min Wook Joo**, Yong-Suk Lee, Yang-Guk Chung *Department of Orthopaedic Surgery, College of Medicine, the Catholic University of Korea, Seoul, Republic of Korea*
09:06	FS4.3	**Discoidin domain receptor tyrosine kinase 1 (DDR1) is a novel therapeutic target in liposarcoma** Dylan Dean, H. Thomas Temple, Francis Hornicek, **Zhenfeng Duan** *University of Miami, Miami, United States*
09:09	FS4.4	**Mutational analysis of primary, recurrent and metastatic chordoma tissue using next-generation sequencing** **Joe Kendal**[1], Zhenfeng Duan[2], Al Edward Ferreira[2], Arun Singh[1], Alireza Samiei[1], Scott Nelson[1], Slim Sassi[3], Elizabeth Lord[1], Brooke Crawford[2], Nicholas Bernthal[1], Francis Hornicek[2] *[1]University of California, Los Angeles Department of Orthopaedic Surgery, Santa Monica, United States; [2]University of Miami Department of Orthopaedics, Miami, United States; [3]Massachusetts General Hospital, Boston, United States*
09:12	FS4.5	**Effects of mechanical loading on the degradability and mechanical properties of the nanocalcium-deficient hydroxyapatite–multi(amino acid) copolymer composite membrane tube for guided bone regeneration** **Senlin Lei,** Xiang Fang, Xiang Fang, Wenli Zhang, Chongqi Tu, Dechao Yuan, Banskota Nishant *West China School Of Medicine/west China Hospital, Sichuan University*
09:15	FS4.6	**Genetic mutations related to chemosensitivity of osteosarcoma by next generation sequence analysis** Jir-You Wang[1,2], **Chao-Ming Chen**[1,2], Cheng-Fong Chen[1,2], Po-Kuei Wu[1,2], Wei-Ming Chen[1,2] *[1]Department Of Orthopaedics & Traumatology, Taipei Veterans General Hospital, Taipei, Taiwan; [2]Department of Orthopaedics, Therapeutical and Research Center of Musculoskeletal Tumor, Taipei Veterans General Hospital, Taiwan*
09:18	FS4.7	**Cyclin-dependent kinase 12 (CDK12) is a novel prognostic marker and therapeutic target in metastatic osteosarcoma** **Xiaoyang Li**[1], Shengji Yu[1], Francis John Hornicek[2], Zhenfeng Duan[2] *[1]Department of Orthopedics, National Cancer Center/National Clinical Research Center for Cancer/Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China; [2]Sarcoma Biology Laboratory, Department of Orthopaedics, Sylvester Comprehensive Cancer Center, and the University of Miami Miller School of Medicine, Miami, United States*
09:21	FS4.8	**Establishment and application of osteosarcoma organoids** **Xiaolei Ren**, Chao Tu, Ruiqi Chen, Zhongyue Liu, Lin Qi, Tang Liu, Zhihong Li *The Second Xiangya Hospital of Central South University, Changsha, China*
09:24	FS4.9	**The effective distance and cooling rate of liquid nitrogen-based adjunctive cryotherapy for bone tumors ex vivo** **Chen-wen Huang**[1,3], Po-Kuei Wu[1,2], Wei-Ming Chen[1,2] *[1]Orthopedic Department, Taipei Veterans General Hospital, Taipei, Taiwan; [2]Orthopedic Department of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan, 3Taipei Tzu Chi Hospital, Taiwan*
09:27	FS4.10	**Tumor-to-bone distance and radiomic features on MRI distinguish intramuscular lipomas from well-differentiated liposarcomas** **Chandhanarat Chandhanayingyong**[1], Narumol Sudjai[1], Palanan Sirivanarangsan[2], Wasan Yotchai[3], Rapin Phimolsarnti[1], Apichat Asavamongkolkul[1] *[1]Department of Orthopaedic Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkoknoi, Thailand; [2]Department of Radiology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkoknoi, Thailand; [3]Department of Pathology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkoknoi, Thailand*
09:30	FS4.11	**Novel CSF1R-positive tenosynovial giant cell tumor cell lines and their pexidartinib (PLX3397) and sotuletinib (BLZ945)-induced apoptosis** **Chandhanarat Chandhanayingyong**[1], Suyanee Thongchot[2], Chanitra Thuwajit[2], Peti Thuwajit[2], Rapin Phimolsarnti[1], Apichat Asavamongkolkul[1] *[1]Department of Orthopaedic Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkoknoi, Thailand; [2]Department of Immunology, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkoknoi, Thailand*

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09:33 FS4.12 **A novel nano-structured Surface increases osseointegration of titanium implants**
Richard Boyle, Dan Barker
Royal Prince Alfred Hospital, Sydney, Australia

09:36 FS4.13 **Development of a clinical tracer for fluorescence-guided surgery of myxofibrosarcoma: An immunohistochemical and evaluation study**
Zeger Rijs[1], Cornelis Sier[2], Peter Kuppen[2], Alexander Vahrmeijer2, Pieter van Driel[3], Michiel van de Sande[1]
[1]Orthopaedic department, Leiden University Medical Center, Leiden, The Netherlands; [2]Department of Surgery, Leiden University Medical Center, Leiden, The Netherlands; [3]Orthopaedic department, Isala hospital, Zwolle, The Netherlands

09:39 FS4.14 **Evaluation of tumor immune microenvironment for PD-L1 score and tumor infiltrating lymphocytes in high grade osteosarcomas and their correlation with disease progression**
Venkatesan Sampath Kumar, Saad Salman, Asit Ranjan Mridha, Adarsh Barwad, Love Kapoor, Abhijit Behera, Sandeep Sehrawat, M C Sharma, Sameer Bakhshi, Shivanand Gamanagatti, Ekta Dhamija, Sameer Rastogi, Shah Alam Khan
All India Institute of Medical Sciences, New Delhi, India

09:41 FS4.15 **SKP2 targeted-inhibition therapy has antitumor activity and survival benefits in the osteosarcoma transgenic model**
Jichuan Wang[1,2], Alexander Ferrera[1,3], Swapnil Singh[1], Ranxin Zhang[1], Waleed Al-Hardan[1], Valentina Viscarret[1], Hasibagan Borihan[1], Osama Aldahamsheh[1], Jamet Tingling[1], Deyou Zheng[3], Hongling Zhao[4], Xiaoling Zi[5], Richard Gorlick[6], Rui Yang[1], David S. Geller[1], Bang H. Hoang[1]
[1]Department of Orthopedic Surgery, Montefiore Medical Center, New York, United States; [2]Musculoskeletal Tumor Center, Peking University People's Hospital, Beijing, China; [3]Institute for Clinical and Translational Research, Department of Genetics, Albert Einstein College of Medicine, New York, United States; [4]Department of Developmental and Molecular Biology, Albert Einstein College of Medicine, New York, Unites States; [5]Department of Urology, University of California, Irvine Medical Center, California, United States; [6]Division of Pediatrics, University of Texas MD Anderson Cancer Center, Houston, United States

Laureate Room

09:00-10:00 Flash Session 5 | Surgery of bone and soft tissue tumours

Moderators: **Dundar Sabah** (Turkey) - **Miguel Angel Clara-Altamirano** (Mexico) - **Marcus Galli Serra** (Argentina)

09:00 FS5.1 **Despite education orthopaedic surgeons still perform unplanned resections**
Ana Cecilia Belzarena[1], **David M. Joyce**[2]
[1]Miami Cancer Institute, United States; [2]Moffitt Cancer Center, United States

09:03 FS5.2 **Is reconstruction necessary following iliosacral resection? A comparison of outcomes from two tertiary sarcoma centers**
Matthew Houdek[1], Kim Tsoi[2], Rachel Honig, Anthony M. Griffin[2], Jay S. Wunder[2], Peter S. Rose[1], Peter C. Ferguson[2]
[1]Mayo Clinic, United States; [2]Division of Orthopaedic Surgery, Department of Surgery, University of Toronto, Toronto, ON, Canada. University Musculoskeletal Oncology Unit, Mount Sinai Hospital, Toronto, Canada

09:06 FS5.3 **Clinical features and a predictive nomogram for cancer-specific survival of synovial sarcoma: based on the SEER database and a Chinese validation cohort**
Jin Yuan, Xiaoyang Li, Xinxin Zhang, Shengji Yu
National Cancer Center/national Clinical Research Center for Cancer/cancer Hospital, Chinese Academy of Medical Sciences, Beijing, China

09:19 FS5.4 **MSTS Member Survey: Intra-operative peripheral margins in soft tissue sarcoma**
Lauren Zeitlinger, **Steven Thorpe**, Robert Randall, Robert Canter
University of California, Davis, Sacramento, United States

09:12 FS5.5 **Intra-Operative Margin Sampling in Soft Tissue Sarcoma**
Lauren Zeitlinger, **Steven Thorpe**, Robert Randall, Robert Canter, Morgan Darrow, George Chavez
University of California, Davis, Sacramento, United States

09:15 FS5.6 **An osteosarcoma national update: 40 years of incidence and survival trends**
Trevor R. Gulbrandsen, Christopher R. Halbur, Mustafa Hashimi, Vanessa Webster, Benjamin J. Miller
University of Iowa Hospitals and Clinics, Iowa City, United States

09:18 FS5.7 **Female presenting trends in oncology orthopedics – An analysis of the past 5 years**
Rosell C. Okubo, Sarah N. Joseph, **Ana Cecilia Belzarena**
Miami Cancer Institute, United States

09:21 FS5.8 **Impact of insurance status on chondrosarcoma diagnostic stage in the United States: Implications for detection and outcomes**
Puja Yatham[1], Jacklyn Garcia[1], Valeria Fagundo[1], Grettel Castro[1], Pura Rodriguez de la Vega[1], **Ana Cecilia Belzarena**[2], Juan Ruiz Pelaez[1]
[1]Herbert Wertheim College of Medicine, FIU, United States; [2]Miami Cancer Institute, United States

09:24 FS5.9 **Evaluating surgical care pathways for patients with metastatic bone disease: A comparison of clinical outcomes following elective versus emergent surgery**
Annalise Abbott[1], Joseph Kendal[2], Benjamin Wajda[1], Shannon Puloski[1], Michael Monument[1]
[1]University of Calgary, Calgary, Canada; [2]University of California Los Angeles, Los Angeles, United States

09:27 FS5.10 **Role of ultrasound guided needle biopsy for bone tumors**
Divesh Jalan[1], Dharmendra Kumar Singh[2], Geetika Khanna[3], Ashish Rustagi[1], Nishith Kumar[2], Rajni Prasad[3], Loveneesh G Krishna[1]
[1]Central Institute of Orthopaedics, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India, New Delhi, India; [2]Department of Radiodiagnosis, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India; [3]Department of Pathology, CIO, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India

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09:30	FS5.11	**Common comorbidities and a comparison of four comorbidity indices in orthopaedic oncology surgical patients** **Shalin Patel**, Theresa Nalty, Spencer Frink, Justin Bird, Valerae Lewis *UT MD Anderson Cancer Center, Houston, United States*
09:33	FS5.12	**Recurrence after extended curettage for giant cell tumors of bone: before and after demosumab era** Yang-Guk Chung[1], Jae-Hak Lim[1], **Hyo-Jin Lee[1]**, MIn Wook Joo[2], Seung-Han Shin[1] *[1]Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, South Korea; [2]St. Vincent Hospital, Suwon, South Korea*
09:36	FS5.13	**Comparison of clinician-reported Karnofsky Performance Status and patient-reported Physical Health in orthopaedic oncology patients** **Shalin Patel[1]**, Nicole Montgomery[2], Theresa Nalty[1], Alexander Penny[1], Spencer Frink[1], Valerae Lewis[1], Justin Bird[1] *[1]UT MD Anderson Cancer Center, Houston, United States; [2]Houston Methodist Hospital, Department of Orthopedics and Sports Medicine, Houston, United States*
09:39	FS5.14	**Can machine learning technique be used for prediction of 1-year survival in patients with osteosarcoma?** Thomas Baad-Hansen[3], **Christina Holm[1]**, Clare F. Grazal[2], Jonathan A. Forsberg[2], Michala Skovlund Soerensen[1], Michael Moerk Petersen[1] *[1]The Musculoskeletal Tumor Section, Department of Orthopedic Surgery, Rigshospitalet, University of Copenhagen, Denmark; [2]Orthopaedics, USU-Walter Reed Department of Surgery, Bethesda, MD, United States; [3]Department of Orthopaedic Surgery, Tumor Section, Aarhus University Hospital, Aarhus, Denmark*
09:42	FS5.15	**Clinical follow-up of myxofibrosarcoma patients and evaluation of the relationship between surgical margin distance and local recurrence** Alparslan Yurtbay[1], Hüseyin Sina Coşkun[2], Ferhat Say[1], **Nevzat Dabak[1]** *[1]Samsun Training and Research Hospital, Samsun, Turkey; [2]Ondokuz Mayıs University, Samsun, Turkey*

Optimist A & B

09:00-10:00 Flash Session 6 | Limb salvage surgery

Moderators: **Herrick Siegel** (United States), **Martin Roche** (United States)

09:00	FS6.1	**Incidental finding of an atypical cartilaginous tumor in an adult female with recurrent patellar dislocation: Single-stage extended curettage using freezing nitrogen ethanol composite followed by medial patello-femoral ligament reconstruction** **Daniela Kristina Carolino**, Abigail Tud, Richard Rotor *Philippine Orthopedic Center - Musculoskeletal Tumor Service, Quezon City, Philippines*
09:03	FS6.2	**Functional outcomes of limb salvage surgery in patients with giant cell tumor of bone of the lower extremities: A cross-sectional comparative study** **Daniela Kristina Carolino**, Abigail Tud, Ana Margarita Guevara, Richard Rotor *Philippine Orthopedic Center - Musculoskeletal Tumor Service, Quezon City, Philippines*
09:06	FS6.3	**Zoledronic acid given as neo-adjuvant therapy for GCTB reduces post-operative recurrence rate** **Sandeep**, Shah Alam Khan, Venkatesan Kumar Sampath, Love Kapoor, Abhijit Behera *All India Institute of Medical Sciences, New Delhi, India*
09:09	FS6.4	**Acral Merkel cell carcinoma: Recurrence and survival after multidisciplinary treatment** Samuel Broida, **Xiao T. Chen**, Brian Wahlig, Steven Moran, Matthew Houdek, Kareme Alder *Mayo Clinic, Rochester, United States*
09:12	FS6.5	**Case of recurrent fungating sacrococcygeal chordoma with perineural invasion of the sciatic nerve – highlighting role of multidisciplinary teleconference in treating spinal tumors during COVID-19 era** Jean Marice Lim, Mamer Rosario, Geoffrey Battad, Jerome Vergil Paez, Adrianne Carmel Cabrera, Mark Angelo Briccio Alcantara, Andrew Bonae Valdez, Avelino Alomesen, **Loren Josephine Lantin** *East Avenue Medical Center, Quezon City, Philippines*
09:15	FS6.6	**Mid-term outcomes of total hip arthroplasty after hemipelvectomy and iliofemoral arthrodesis** **Lauren Dittman**, Cory Couch, Matthew Abdel, Peter Rose, Matthew Houdek, David Lewallen *Mayo Clinic, Rochester, United States*
09:18	FS6.7	**Outcomes of vascular resection and reconstruction in extremity bone and soft tissue sarcoma** **Anand Raja**, Chandra Kumar Krishnan *Cancer Institute (WIA), Chennai, India*
09:21	FS6.8	**Result of mesh suspension of the humerus following scapulectomy for malignant tumors of the shoulder-girdle** **Sandeep**, Shah Alam Khan, Venkatesan Sampath Kumar, Love Kapoor, Abhijit Behera *All India Institute of Medical Sciences, New Delhi, India*
09:24	FS6.9	**Reconstruction after distal ulna tumor resection is still an enigma among the orthopaedic oncologists. We present the outcomes of ulnar buttress arthroplasty without stabilization of the ulna stump in GCTB of the distal ulna.** **Sandeep**, Shah Alam Khan, Venkatesan Sampath Kumar, Love Kapoor, Abhijit Behera *All India Institute of Medical Sciences, New Delhi, India*
09:27	FS6.10	**Reconstruction using recycled bone tumor treated by liquid nitrogen – 28 cases treated at Santa Casa Medical School of Sao Paulo** **Eduardo Sadao Yonamine**, Anderson Rodrigues Santos, Bruna Buscharino, Danta Galvanese Amato Santa Casa Medical School of Sao Paulo - Brazil, Sao Paulo, Brazil
09:30	FS6.11	**Reconstruction with extracorporeally irradiated autograft after intercalary resection of femur and tibia malignant bone tumors** **Hüseyin Kaya**, Hakan Koray Tosyalı, Dündar Sabah *[1]Orthopedics and Traumatology /Ege University, Medical Faculty, İzmir, Turkey*

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09:33	FS6.12	**Total femur replacement as a limb salvage surgery** **Hüseyin Kaya**[1], Tahsin Sami Çolak[2], Dündar Sabah[1] *[1]Ege University Faculty of Medicine, İzmir, Turkey; [2]Necmettin Erbakan University, Meram Faculty of Medicine, Konya, Turkey*
09:36	FS6.13	**Defining minimally important differences in functional outcomes for musculoskeletal oncology patients undergoing lower extremity endoprosthetic reconstruction** **Aaron Gazendam**, Patricia Schneider, Mohit Bhandari, Jason Busse, Michelle Ghert *Mcmaster University, Hamilton, Canada*
09:39	FS6.14	**Mid-Long term results of surgical treatment for primary malignant pelvic bone tumors** **Weifeng Liu**, Lin Hao, Tao Jin, Yang Sun, Yongkun Yang, Zhiping Deng, Yuan Li, Feng Yu, Qing Zhang, Xiaohui Niu *Beijing Ji Shui Tan Hospital, Peking University, Beijing, China*
09:42	FS6.15	**Intercalary reconstruction with vascularized fibula after resection for primary bone tumors of the humerus** Francesco Muratori[1], Dr Roberto Scanferla[1], Matteo Innocenti[1], Guido Scoccianti[1], Serena Puccini[1], Marco Innocenti[2], Rodolfo Capanna[3], Domenico Andrea Campanacci[1], **Maurizio Scorianz**[3] *[1]Orthopaedic Oncology and Reconstructive surgery Unit, Florence, Italy; [2]Plastic Surgery, Istituto Ortopedico Rizzoli, Bologna, Italy; [3]Orthopaedic Clinic, Pisa, Italy*

10:00-10:30 Coffee Break / e-Posters viewing

Main Hall

10:00-11:30 ISOLS Partnership Society: SLATME

Moderators: **Eduardo Botello** (Chile) - **Juan Pablo Zumarraga** (Ecuador)

10:00 - 10.10 *SLATME in today's world*
Eduardo Botello (Chile)

10.10 - 10.25 *Impact of preoperative virtual planning on tumor recurrence in oncological patients*
Marcus Galli Serra (Argentina)

10.25 - 10.40 *Oncological reconstructions in orthopedic oncology*
Carlos Cuervo (Mexico)

10.40 - 10.55 *Tips and tricks for safe performance of pedicle freezing in malignan bone tumor*
Nicolás Casales (Uruguay)

10.55 - 11.10 *Use of the COMPRESS system: a real alternative for prosthetic fixation?*
Tomás Zamora (Chile)

11.10 - 11.25 *Saving function when limb salvage fails: Functional ablative surgery and updates in amputation surgery*
Santiago Lozano-Calderon (United States)

Laureate Room

10:30-11:30 Flash Session 7 | Surgery of bone and soft tissue tumours

Moderators: **Samuel Kenan** (United States) - **Praveen Gupta** (India)

10:30	FS7.1	**Thematic analysis of online discussion forums for bone sarcomas** **Ambika Paulson**[1], Alexandra Stein[2], Joseph Kendal[3], Nicholas Bernthal[3], Lauren Wessel[3] *[1]School of Medicine, Georgetown University, Washington, United States; [2]Faculté de Médecine, Université de Paris, Paris, France; [3]Department of Orthopaedic Surgery, University of California Los Angeles, Santa Monica, United States*
10:33	FS7.2	**Tourniquet use in patients undergoing oncologic resection and endoprosthetic reconstruction of the knee** Aaron Gazendam[1], Patricia Schneider[1], Roberto Vélez[2], **Michelle Ghert**[1] *[1]Mcmaster University, Hamilton, Canada; [2]Vall d'Hebron Institut de Recerca, Barcelona, Spain*
10:36	FS7.3	**Application of 3D printing in guided pelvic resections: Experience from 2 tertiary referral centres in the UK** **Muhammad Ather Siddiqi**[1], Harriet Branford White[1], Sarah McMahon[2], Thomas Cosker[1], Duncan Whitwell[1], Jonathan Perera[2], Rob Pollock[2] *[1]Oxford University Hospitals, Oxford, United Kingdom; [2]Royal National Orthopaedic Hospital, London, United Kingdom*
10:39	FS7.4	**Evaluation of the surgical management of the skeleton in patients with Ollier's disease and Mafucci syndrome** **Lee Zuckerman**[1], J. Dominic Femino[1], Mark Agulnik[1], Nadine Williams[2] *[1]City Of Hope National Medical Center, Duarte, United States; [2]Loma Linda University Medical Center, Loma Linda, United States*

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10:42	FS7.5	**Do patients with sarcoma utilize referrals to mental health professionals during their disease course?** Elizabeth Polfer[2], Yesne Alici[1], Raymond Based[1], John Healey[1], **Meredith Bartelstein[1]** *[1]Memorial Sloan Kettering Cancer Center, New York, United States; [2]William Beaumont Army Medical Center, Fort Bliss, United States*
10:45	FS7.6	**Cemented versus uncemented tumor endoprostheses at the knee, a systematic review and meta-analysis** **Yazan Kadkoy**, Joseph Ippolito, Jennifer Thomson, Claire Park, Kathleen Beebe, Joseph Benevenia *Rutgers, New Jersey Medical School, Newark, United States*
10:48	FS7.7	**Long-term follow-up analysis of surgical treatment for osteosarcoma in distal radius** **Weifeng Liu**, Yongkun Yang, Tao Jin, Yang Sun, Feng Yu, Xiaohui Niu *Beijing Ji Shui Tan Hospital, Peking University, Beijing, China*
10:52	FS7.8	**Should larger stem diameter be prioritized over cement mantle thickness? An analysis of risks for failure in cemented endoprostheses with minimum five-year follow-up** **Joseph Ippolito[1]**, Yazan Kadkoy[1], Gregory Schneider[1], Claire Park[1], Jennifer Thomson[1], Kathleen Beebe[1], Francis Patterson[2], Joseph Benevenia[1] *[1]Rutgers, New Jersey Medical School, Newark, United States; [2]Hackensack University Medical Center, Hackensack, United States*
10:55	FS7.9	**Custom reconstruction lowers risk of mechanical failure following pelvic tumor resection: A meta analysis and systematic review of the literature** **Yazan Kadkoy**, Jennifer Thomson, Joseph Ippolito, Claire Park, Kathleen Beebe, Joseph Benevenia *Rutgers, New Jersey Medical School, Newark, United States*
10:58	FS7.10	**Reduction of blood loss by tranexamic acid in cases of lower extremity tumor resection and modular tomor endoprosthesis** **Burkhard Lehner**, Franz Reichel *Orthopedic University Clinic, Heidelberg, Germany*
11:01	FS7.11	**Medicare advantage may be associated with worse outcomes in patients with soft tissue sarcoma** Jennifer Wang[1], Amit Piple[1], Brandon Gettleman[2], Matthew Chen[1], Lawrence Menendez[1], Nathanael Heckmann[1], **Alexander Christ[1]** *[1]Keck School of Medicine of USC, Los Angeles, United States; [2]University of South Carolina School of Medicine, Columbia, United States*
11:04	FS7.12	**Long-term outcome and patient related outcome measurements in patients with modular distal femoral and proximal tibial megaprostheses** **Burkhard Lehner**, Georg Omlor *Orthopedic University Clinic, Heidelberg, Germany*
11:07	FS7.13	**Limb-saving treatment of bone metastases in the lower extremity using a modular implant system** **Burkhard Lehner**, Georg Omlor *Orthopedic University Clinic, Heidelberg, Germany*
11:10	FS7.14	**Treatment of osteosarcoma in children and adolescents in an atypical location** **Andrzej Szafranski[1]**, Karolina Rosolowicz[2], Kaja Gizewska-Kacprzak[2], Jaroslaw Peregud-Pogorzelski[2] *[1]Children's Memorial Health Institute, Warsaw, Poland; [2]Department of Pediatric Orthopedics and Oncology of the Locomotor System of the Pomeranian Medical University, Szczecin, Poland*

Laureate Room

11:30-12:30 Flash Session 8 | Surgery of bone and soft tissue tumours

Moderators: **Michelle Ghert** (Canada), **Christos Vottis** (Greece)

11:30	FS8.1	**Bone overgrowth and limb deformity after osteochondroma resection** **Ana Cecilia Belzarena[1]**, David Alcoloumbre[2], John S. Blanco[2] *[1]Miami Cancer Institute, United States; [2]Hospital for Special Surgery, United States*
11:33	FS8.2	**The influence of costal resection on pulmonary function after total en bloc spondylectomy for spine tumor** **Satoru Demura**, Satoshi Kato, Noriaki Yokogawa, Hiroyuki Tsuchiya *Kanazawa University, Japan*
11:36	FS8.3	**Pre-operative embolization is not mandatory in single posterior approach total en bloc spondylectomy** **Permsak Paholpak**, Taweechok Wisanuyotin, Wilasinee Sirichativapee, Winai Sirichativapee *Khon Kaen University, Thailand*
11:39	FS8.4	**Surgical efficacy and prognosis of 54 patients with spinal metastases from breast cancer** **Yao Weitao** *He Nan Cancer Hospital, Zheng Zhou City, China*
11:42	FS8.5	**Opioid use in musculoskeletal oncology** **Aaron Gazendam[1]**, Michelle Ghert[1], Kenneth Gundle[2], James Hayden[2], Yee-Chen Duong[2] *[1]Division of Orthopaedic Surgery, McMaster University, Hamilton, Canada; [2]Oregon Health and Science University, Department of Orthopaedics and Rehabilitation, Portland, United States*
11:45	FS8.6	**Do cemented standard-length femoral stems have enough longevity for the pathological fractures of the femoral neck with metastatic lesions? A retrospective study** **Pakjai Tuntarattanapong**, Khanin Iamthanaporn, Theerawit Hongnaparak, Varah Yuenyongviwat *Department of Orthopedics, Prince of Songkla University, Hatyai, Thailand*
11:48	FS8.7	**Scoring criteria for prediction of neoadjuvant chemotherapy response in osteosarcoma: A multicenter international validation study** **Mustafa Hashimi[1]**, Obada Hasan[3], Tomas Zamora[2], Ahmet Salduz[4], Benjamin J Miller[1] [1]University Of Iowa Hospitals & Clinics, Iowa City, United States [2]Pontificia Universidad Catolica de Chile, Santiago, Chile *[3]Pir Abdul Qadir Shah Jeelani Institute of Medical Sciences, Khairpur, Pakistan; [4]Istanbul University, Istanbul, Turkey*

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11:52	FS8.8	**Neoadjuvant chemotherapy and endoprosthetic reconstruction for lower extremity sarcomas: Does timing impact complication rates?** Aaron Gazendam[1], Patricia Schneider[1], Andre Spiguel[2], Michelle Ghert[1], David Slawaska-Eng[1] *[1]McMaster University, Hamilton, Canada; [2]Department of Orthopaedics and Rehabilitation, University of Florida College of Medicine, Gainesville, United States*
11:55	FS8.9	**Osteofibrous dysplasia-like adamantinoma of the tibia progressing into classic adamantinoma after 36 years. Reconstruction by modified Capanna technique.** **G. Ulrich Exner**[1], Pascal A Schai[2], Tobias C Buehler[3], Michael O Kurrer[4], Natasha Forster[5] *[1]Orthopaedie Zentrum Zuerich, Zurich, Switzerland; [2]Luzerner Kantonspital Wolhusen, Wolhusen, Switzerland; [3]Kantonsspital Baden, Baden, Switzerland; [4]Pathologikum Zuerich, Zurich, Switzerland, 5Swissparc AG, Zurich, Switzerland*
11:58	FS8.10	**Microscopic emboli is one of the worst prognostic factors in non-metastatic osteosarcoma** **Wirin Tieosirisap**[1], Science Methadilogkul[1], Voranuch Thanakit[2], Worapitak Thaisitti[3], Jeerawat Praytongyam[4], Piya Kiatisevi[1] *[1]Institute of Orthopaedics, Lerdsin hospital, Bangkok, Thailand; [2]Department of pathology, Chulalongkorn University, Bangkok, Thailand; [3]Department of Pediatrics, Lerdsin Hospital, Bangkok, Thailand; [4]Department of Medicine, Lerdsin Hospital, Bangkok, Thailand*
12:01	FS8.11	**Hip joint stability after hip replacement surgery due to metastatic bone disease. A retrospective cohort study evaluating different hip joint options** **Afrim Iljazi**, Michala Skovlund Sørensen, Thea Hovgaard Ladegaard, Michael Mørk Petersen *Rigshospitalet, Copenhagen, Denmark*
12:04	FS8.12	**Clinical outcomes in elderly patients over 80 years with soft tissue sarcomas** **Kunihiro Ikuta**[1], Yoshihiro Nishida[1], Satoshi Tsukushi[2], Eiji Kozawa[3], Tomohisa Sakai[1], Hiroshi Koike[1], Kan Ito[1], Shiro Imagama[1] *[1]Orthopedic Surgery, Nagoya University Hospital, Nagoya, Japan; [2]Orthopedic Surgery, Aichi Cancer Center Hospital, Nagoya, Japan; [3]Orthopedic Surgery, Nagoya Memorial Hospital, Nagoya, Japan*
12:07	FS8.13	**Risk factors for all-cause early re-operations in patients undergoing tumor resection and endoprosthetic reconstruction: a secondary analysis from the PARITY trial** **Joe Kendal**[1], David Slawaska-Eng[2], Aaron Gazendam[2], Tricia Schneider[2], Lauren Wessel[1], Michelle Ghert[2], Nicholas Bernthal[1] *[1]University of California, Los Angeles, Santa Moncia, United States; [2]McMaster University, Hamilton, Canada*
12:10	FS8.14	**Bone marrow aspiration and biopsy in the initial staging of extraskeletal Ewing sarcoma** Brian Wahlig[1], **Samuel Broida**[1], Peter Rose[1], Steven Robinson[2], Brittany Siontis[2], Matthew Houdek[1] *[1]Mayo Clinic Department of Orthopedic Surgery, Rochester, United States; [2]Mayo Clinic Department of Medical Oncology, Rochester, United States*

Optimist A & B

11:30-12:30 Flash Session 9 | Limb salvage surgery

Moderators: **Joseph Benevenia** (United States), **Hazem Wafa** (Belgium)

11:30	FS9.1	**Hybrid reconstruction with modular cemented intercalary prosthesis and plating for metastatic disease of the humerus provides durable fixation and excellent functional outcome** **Alexander Christ**[2], Caleb Yeung[1], Talia Chapman[1], Meredith Bartelstein[1], John Healey[1], Prof Nicola Fabbri[1] *[1]Memorial Sloan Kettering Cancer Center, New York, United States; [2]Orthopaedic Surgery, University of Southern California Keck School of Medicine, Los Angeles, United States*
11:33	FS9.2	**Joint preservation limb sparing surgery in children with malignant bone tumors about the knee joint. Preoperative surgical margin assessment using a three-dimensional printed model in performing safe osteotomy cut in highly selected patients. The biological solution** **Samuel Kenan**[1], Max Willinger[2], Annelise Bui[3], Shachar Kenan[1] *[1]Department of Orthopaedic Oncology. Northwell Health Zucker School of Medicine at Hofstra., New Hyde Park, United States; [2]Orthopaedic Residency at Zucker School of Medicine at Hofstra/Northwell Health, New Hyde Park, United States; [3]Zucker School of Medicine at Hofstra/Northwell Health, New Hyde Park, United States*
11:36	FS9.3	**Is an intercalary allograft alone to bridge a large segmental defect following wide resection for malignant bone tumors involving the tibial diaphysis sufficient?** **Samuel Kenan**, Shachar Kenan *Department of Orthopaedic Oncology, Northwell Health Zucker School of Medicine at Hofstra University, New Hyde Park, United States*
11:39	FS9.4	**Total condylar hemiarthroplasty of the knee in the growing child: Long-term outcomes in patients with primary malignant bone tumors** **Samuel Kenan**[1], Byeongho Jung[3], Michael Fitzgerald[2], Shachar Kenan[1] *[1]Department of Orthopaedic Oncology. Northwell Health Zucker School of Medicine at Hofstra University., New Hyde Park, United States; [2]Orthopaedic Residency at Zucker School of Medicine at Hofstra/Northwell Health, New Hyde Park, United States; [3]Zucker School of Medicine at Hofstra/Northwell Health, New Hyde Park, United States*
11:42	FS9.5	**Significance of joint preservation surgery in distal femur using liquid nitrogen-treated tumor-bearing bone for malignant bone tumors in AYA generation** **Norio Yamamoto**, Katsuhiro Hayashi, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Yoshihiro Araki, Hirotaka Yonezawa, Sei Morinaga, Yohei Asano, Hiroyuki Tsuchiya *Kanazawa University, Kanazawa, Japan*
11:45	FS9.6	**Combined surgical team approach for limb salvage in bone and soft tumors** **Praveen Gupta**, Umesh Bansal *Bhagwan Mahaveer Cancer Hospital & Research Center, Jaipur, India*
11:48	FS9.7	**Distal radius bone tumors; role of T plate fixation for ulna translocation** **Praveen Gupta** *Bhagwan Mahaveer Cancer Hospital & Research Center, Jaipur, India*

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11:52	FS9.8	**The prognostic importance of pathologic fracture in limb salvage surgery for primary bone sarcoma of the extremities** **Danielle Brown (Greig)**, Rishi Trikha, Joseph Kendal, Christopher Hamad, Jeffrey Eckardt, Nicholas Bernthal *University of California, Los Angeles, Los Angeles, United States*
11:55	FS9.9	**Long-term outcomes of proximal femoral replacement in the oncologic population** **Danielle Brown (Greig)**, Rishi Trikha, Joseph Kendal, Lauren Wessel, Christopher Hamad, Jeffrey Eckardt, Nicholas Bernthal *University Of California, Los Angeles, Los Angeles, United States*
11:58	FS9.10	**30-year follow-up results of 170 cemented endoprosthetic reconstructions for tumors of the upper extremity** **Danielle Brown (Greig)**, Rishi Trikha, Joseph Kendal, Lauren Wessel, Christopher Hamad, Jeffrey Eckardt, Nicholas Bernthal *University Of California, Los Angeles, Los Angeles, United States*
12:01	FS9.11	**3d printed implants for pelvic periacetabular tumors – early follow up and clinical outcome** **Adam Chrobok**, Patryk Tomasik, Jacek Matysiakiewicz, Daniel Kotrych *District Hospital of Orthopedics and Trauma Surgery, Piekary Slaskie, Piekary Śląskie, Poland*
12:04	FS9.12	**Reverse shoulder arthroplasty for proximal humerus bone tumors – clinical outcome of 19 patients** **Adam Chrobok**, Tomasz Zakrzewski, Daniel Kotrych, Patryk Tomasik *District Hospital of Orthopedics and Trauma Surgery, Piekary Slaskie, Katowice, Poland*
12:07	FS9.13	**Total femur replacement, the review of 10 clinical cases – clinical outcome, complications, indications** **Adam Chrobok**, Jacek Matysiakiewicz, Patryk Tomasik, Tomasz Zakrzewski, Daniel Kotrych *District Hospital of Orthopedics and Trauma Surgery, Piekary Slaskie, Piekary Śląskie, Poland*
12:10	FS9.14	**Unique characteristics of diaphyseal location in secondary osteosarcoma following retinoblastoma: Availability of bone scan in early detection** **Yongsung Kim**[1], Jong Woong Park[4], Hwan Seong Cho[1], Woo Young Jang[3], Ilkyu Han[2,5], Han-Soo Kim[2,5] *[1]Department of Orthopaedic Surgery, Seoul National University Bundang Hospital, Seongnam, South Korea; [2]Department of Orthopaedic Surgery, Seoul National University College of Medicine, Korea, South Korea; [3]Department of Orthopaedic Surgery, Korea University Anam Hospital, South Korea [4]Orthopaedic Oncology Clinic, National Cancer Center, South Korea; [5]Department of Orthopaedic Surgery, Seoul National University Hospital, South Korea*
12:13	FS9.15	**Endoprosthesis application versus nail cement spacer application for reconstruction after resection of tumors of proximal humerus: Is there any difference in functional outcome?** Abhijit Behera**,** Venkatesan Sampath Kumar, Shah Alam khan, **Shashi Sah** *Department of Orthopaedics, All India Institute of Medical Sciences (AIIMS), Delhi, India*
12:16	FS9.16	**Biological reconstruction for malignant bone tumours of the proximal femur in children less than 10years: A single institutional case series and technical note for using Allograft Prosthetic Composite and Pedicle frozen autograft** **Pramod Chinder Shekarappa**[1], Suraj Hindiskere[1], Laura Campanacci[2], Marco Manfrini[2] *[1]HCG Hospital & The Yellow Ribbon, Bangalore, India; [2]Istituto Ortopedico Rizzoli, Italy*

Main Hall

12:30-13:00 **ISOLS Lecture | Infection: Worst of all complications**

Chair: **Panayiotis J. Papagelopoulos** (Greece)

Infection: Worst of all complications
Lee Jeys (United Kingdom)

Main Hall

13:15-14:15 **Industry Lunch Symposium | Individual endoprosthetic treatments of tumour patients**

Chairman and Moderator: **Pietro Ruggieri** (Italy)

13:15-13:25 *3D printed glenoid implants and reverse shoulder arthroplasty for shoulder reconstruction after partial scapulectomy*
Panayiotis J. Papagelopoulos (Greece)

13:25-13:35 *Printed short stem solutions/individual joint sparing implants*
Arne Streitbuerger (Germany)

13:35-13:45 *Osseous involvement of soft tissue sarcoma - indications and results for megaprosthetic reconstruction*
Jendrik Hardes (Germany)

13:45 -13:55 *Minimally invasive approach for the treatment of metastatic bone disease some new concepts*
Joseph Benevenia (United States)

13:55-14:05 *LUMC midterm outcome of the LUMiC® partial pelvic prosthesis*
Michiel van de Sande (The Netherlands)

DAY 2 | Wednesday, 7 September 2022

Main Hall

14:30-16:00 Platform Session 1 | Limb salvage surgery

Moderators: **Nicholas Bernthal** (United States), **Rosanna Wustrack** (United States)

14:30	IL1	**Introductory Lecture** **Autobiologic reconstruction of the shoulder with a single vascularized fibula graft in the immature skeleton. A 20-year follow-up with functional evaluation** Örjan Berlin[1], Peter Bergh[1], Christina Berger[1], Jonas Lundberg[2], Hans Mark[2] *[1]Sahlgren University Hospial, Dept of Orthopedics, Gothenburg, Sweden; [2]Sahlgren University Hospial, Dept of Plastic Surgery, Gothenburg, Sweden*
14:42	OP1.1	**The effect of implant type on re-operation rates following endoprosthetic reconstruction surgery** Victoria Giglio[1], Aaron Gazendam[1], Patricia Schneider[1], Michelle Ghert[1], David Wilson[2] *[1]McMaster University, Hamilton, Canada; [2]Dalhousie University, Dalhousie, Canada*
14:47	OP1.2	**Extracorporeal irradiation and reimplantation of the distal tibia shortens the period of protected weight bearing for distal tibia reconstructions** Manish Agarwal, Ashik Bary, Amit Gupta *Nanavati Max Superspeciality Hospital, Mumbai, India*
14:52	OP1.3	**Outcome of the surgical treatment of chondrosarcoma outside the spine and pelvis** Philipp Theodor Funovics, Stephan Frenzel, Fabian Kuehhas, Kevin Staats, Alexandra Kaider, Joannis Panotopoulos, Christoph Stihsen, Reinhard Windhager *Medical University of Vienna, Vienna, Austria*
14:57	OP1.4	**Feasibility of novel in-situ local tumor ablation and recycling machine using radiofrequency dielectric heating** Min Wook Joo[1], Sangrok Jin[2], Yong-Suk Lee[1], Yang-Guck Chung[1] *[1]Department of Orthopaedic Surgery, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea; [2]School of Mechanical Engineering, Pusan National University, Busan, Republic of Korea*
15:02	OP1.5	**Frozen bone auto graft for reconstruction of bone and soft tissue sarcoma; our experience** Badaruddin Sahito, Azam Kamboh, Awais Abro, Asif Jatoi, Khalil Rehman, M Soughat Katto *Dow University of Health Sciences / Dr Ruth KM Pfau Civil Hospital Karachi, Karachi, Pakistan*
15:07	OP1.6	**Failures and management experience in proximal femur tumor endoprostheses** Osman Emre Aycan, Ümit Burak Alparslan *Baltalimanı Bone Disease Education and Research Hospital, Istanbul, Turkey*
15:12	OP1.7	**Reconstruction after pelvic bone massive resection: evolution and actuality of 3D-printed technology** Fabio Cosseddu, Sheila Shytaj, Lorenzo Andreani, Olimpia Mani, Antonio D'Arienzo, Rodolfo Capanna, Lorenzo Andreani *University Of Pisa, Pisa, Italy*
15:17	OP1.8	**Distal femur replacement with modular prosthesis. retrospective study of 75 patients** Dimitra Melissaridou, Ioannis Zafeiris, Ioannis Trikoupis, Panagiotis Gavriil, Olga Savvidou, Vasileios Kontogeorgakos, Panayiotis Papagelopoulos *National And Kapodistrian University of Athens, Athens, Greece*
15:22	OP1.9	**Long-term clinical outcome of prosthetic reconstruction for tumors of the distal tibia and fibula** Han-Soo Kim[1,2], Yongsung Kim[3], Woo Young Jang[4], Ilkyu Han[1,2] *[1]Seoul National University Hospital, Seoul National University School of Medicine, South Korea; [2]Department of Orthopaedic Surgery, Seoul National University Hospital, South Korea; [3]Department of Orthopaedic Surgery, Seoul National University Bundang Hospital, Seongnam, South Korea; [4]Department of Orthopaedic Surgery, Korea University Anam Hospital, Seoul, Republic of Korea, South Korea*
15:27	OP1.10	**Mid- term results of modular noninvasive expandable endoprosthesis after bone tumor resection in skeletal immature patients** Ioannis Trikoupis[1], Panagiotis Gavriil[1], Stavros Goumenos[1], Dimitra Melissaridou[1], Olga Savvidou[1], Christos Zambakidis[2], Vasileios Kontogeorgakos[1], Panayiotis Papagelopoulos[1] *[1]First Department of Orthopedic Surgery, National and Kapodistrian University of Athens, 'Attikon' University Hospital, Athens, Greece; [2]Department of Orthopedics, General Children's Hospital of Athens "P. & A. Kyriakou, Athens, Greece*
15:32	OP1.11	**Autobiologic reconstruction of the knee with dual vascularized fibula grafts in the immature skeleton. A 20-year follow-up with functional evaluation** Örjan Berlin[1], Peter Bergh[1], Christina Berger[1], Jonas Lundberg[2], Hans Mark[2] *[1]Sahlgren University Hospial, Dept of Orthopedics, Gothenburg, Sweden; [2]Sahlgren University Hospial, Dept of Plastic Surgery, Gothenburg, Sweden*

Laureate Room

14:30-16:00 Platform Session 2 | Surgery of bone and soft tissue tumours

Moderators: **Andrea Angelini** (Italy), **Jendrik Hardes (Germany)**

14:30	IL2	**Introductory Lecture** **Surgical treatment for pelvic bone metastatic disease from renal cell carcinoma** Guido Scoccianti, Roberto Scanferla, Maurizio Scorianz, Francesco Muratori, Federico Sacchetti, Domenico Andrea Campanacci *Careggi University Hospital, Firenze, Italy*

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14:42 OP2.1 **Which factors are associated with negative surgical margins in soft tissue and bone sarcoma patients? Results from a German-wide cohort study (PROSa study)**

Dimosthenis Andreou[1], Martin Eichler[3], Stephan Richter[3], Peter Hohenberger[4], Bernd Kasper[4], Daniel Pink[2], Henriette Golcher[9], Stephan Fung[5], Eva Wardelmann[6], Karin Arndt[7], Vitali Heidt[8], Leopold Hentschel[3], Maria Eberlein-Gonska[3], Martin Bornhaeuser[3], Jochen Schmitt[3], Markus Schuler[3]

[1]Department of Orthopaedics and Trauma, Medical University of Graz, Graz, Austria; [2] Helios Hospital Bad Saarow, Sarcoma Center Berlin-Brandenburg, Bad Saarow, Germany; [3]University Hospital and Medical Faculty Carl Gustav Carus, TU Dresden, Germany [4]Interdisciplinary Tumor Center Mannheim, Sarcoma Unit, University Medical Centre Mannheim, Mannheim, Germany; [5]University Hospital Duesseldorf, Duesseldorf, Germany; [6]Gerhard-Domagk-Institute of Pathology, University Hospital Muenster, Muenster, Germany; [7]Das Lebenshaus e.V., Bad Nauheim, Germany; [8]The Scientific Institute of Office-based Hematologists and Oncologists, Cologne, Germany; [9]University Hospital Erlangen, Erlangen, Germany

14:47 OP2.2 **Treatment delays are associated with an unfavorable outcome in patients with localized Ewing sarcoma: a retrospective analysis of data from the Euro-E.W.I.N.G.99 trial**

Dimosthenis Andreou[1], Andreas Ranft[2], Daniel Baumhoer[3], Henk van den Berg[4], Benedicte Brichard[5], P.D. Sander Dijkstra[6], Hans-Roland Duerr[7], Hans-Theodor Eich[8], Hans Gelderblom[7], Georg Gosheger[8], Jendrik Hardes[2], Wolfgang Hartmann[8], Lianne Haveman[9], Heribert Juergens[8], Atilla Kollar[10], Jarmila Kruseova[11], Thomas Kuehne[12], Ruth Ladenstein[13], Andreas Leithner[14], Michael Paulussen[15], Peter Reichardt[16], Arne Streitbürger[2], Beate Timmermann[17], Per-Ulf Tunn[16], Reinhard Windhager[18], Uta Dirksen[2]

[1]Department of Orthopaedics and Trauma, Medical University of Graz, Graz, Austria; Helios Hospital Bad Saarow, Sarcoma Center Berlin-Brandenburg, Bad Saarow, Germany; [2]West German Cancer Center, University Hospital Essen, Essen, Germany; [3]Bone Tumour Reference Center at the Institute of Pathology, University Hospital Basel, Basel, Swaziland; [4]Amsterdam University Medical Center, Amsterdam, The Netherlands
[5]Cliniques Universitaires Saint Luc, Brussels, Belgium; [6]Leiden University Medical Center, Leiden, The Netherlands; [7]Ludwig Maximilian University Munich, Munich, Germany; [8]Muenster University Hospital, Muenster, Germany; [9]Princess Maxima Center for Pediatric Oncology, Utrecht, The Netherlands; [10]Inselspital Bern, Bern, Swaziland; [11]Charles University, 2nd School of Medicine, Prague, Czech Republic; [12]University Children\'s Hospital Basel, Basel, Switzerland; [13]St. Anna Children\'s Hospital and St. Anna Kinderkrebsforschung, Medical University of Vienna, Vienna, Austria; [14]Department of Orthopaedics and Trauma, Medical University of Graz, Graz, Austria; [15]Vestische Kinder- und Jugendklinik Datteln, University Witten/Herdecke, Datteln, Germany; [16]Sarcoma Center Berlin-Brandenburg, Helios Hospital Berlin-Buch, Berlin, Germany; [17]West German Proton Therapy Center, Essen, Germany; [18]University Hospital of Vienna, Vienna, Germany

14:52 OP2.3 **A Re-evaluation of amputations versus rotationplasties in the reconstruction of tumors about the knee**

Abigail Tud[1], Tanveer Singh[2], Richard Servando Rotor[1], Saminathan Suresh Nathan[2]

[1]Philippine Orthopedic Center, Philippines; [2]Mount Elizabeth Medical Center, Singapore

14:57 OP2.4 **Impact of pulmonary metastasectomy on outcome of bone sarcoma patients with lung metastases. A retrospective, IPTW-weighted analysis**

Maria Anna Smolle[1], Angelika Kogler[1], Jörg Friesenbichler[1], Marko Bergovec[1], Christoph Castellani[2], Holger Till[2], Martin Benesch[3], Joanna Szkandera[4], Freyja-Maria Smolle-Juettner[5], Andreas Leithner[1]

[1]Department of Orthopaedics and Trauma, Medical University of Graz, Graz, Austria; [2]Department of Paediatric and Adolescent Surgery, Medical University of Graz, Graz, Austria; [3]Division of Paediatric Haematology/Oncology, Department of Paediatrics and Adolescent Medicine, Medical University of Graz, Graz, Austria; [4]Division of Oncology, Department of Medicine, Medical University of Graz, Graz, Austria; [5]Division of Thoracic and Hyperbaric Surgery, Department of Surgery, Medical University of Graz, Graz, Austria

15:02 OP2.5 **Which variables should be evaluated in surgical case report forms of prospective randomized trials in Ewing Sarcoma? A proposal of the Euro Ewing Consortium (EEC) surgical working group**

Dimosthenis Andreou[1], Michael Parry[2], Hendrik Hardes[3], Thomas Schubert[4], Francois Gouin[5], Michiel van de Sande[6], Olga Zaikova[7], Kellie Vernon[8], Abigail Evans[9], on behalf of the Euro Ewing Consortium Surgical Working Group

[1]Department of Orthopedics and Trauma, Medical University of Graz, Graz, Austria; [2]The Royal Orthopaedic Hospital NHS Foundation Trust, Birmingham, United Kingdom; [3]Department of Tumor Orthopedics, University Hospital Essen, Essen, Germany; [4]Department of Orthopedic Surgery, Institut de Recherche Expérimentale et Clinique (IREC), Cliniques Universitaires Saint Luc, Université Catholique de Louvain (UCLouvain), Brussels, Belgium; [5]Departement de Chirurgie, Onco-Orthopedie, Centre Leon-Berard, Lyon, France; [6]Leiden University Medical Center, Leiden, Netherlands; [7]Dept. of orthopedic oncology, the Norwegian Radium Hospital, Oslo, Norway; [8]Euro-Ewing-Consortium, London, United Kingdom; [9]Department of Oncology, University Hospital London, London, United Kingdom

15:07 OP2.6 **Chondrosarcoma in Norway 1990-2013; Risk stratification without histology**

Joachim Thorkildsen[1,4], Ingeborg Taksdal[2], Bodil Bjerkhagen[3], Ole Jacob Norum[1], Tor Age Myklebust[4,5], Øyvind Bruland[6,7], Olga Zaikova[1]

[1]Division of Orthopedic Surgery, Oslo University Hospital, Oslo, Norway; [2]Department of Radiology, Oslo University Hospital, Oslo, Norway; [3]Department of Pathology, Oslo University Hospital, Oslo, Norway; [4]Cancer Registry of Norway, Oslo, Norway; [5]Department of Research and Innovation, Møre and Romsdal Hospital Trust, Ålesund, Norway; [6]Department of Oncology, Oslo University Hospital, Norwegian Radiumhospital, Oslo, Norway; [7]Institute of Clinical Medicine, University of Oslo, Oslo, Norway

15:12 OP2.7 **Unplanned resections of soft tissue sarcomas – is further surgery necessary in every case?**

Julian Fromm[1], Alexander Klein[1], Maja Kirilova[1], Christof Birkenmaier[1], Boris Holzapfel[1], Silke Nachbichler[2], Lars Lindner[3], Sophia Samira Goller[4], Hans Roland Dürr[1]

[1]Department of Orthopaedics and Trauma Surgery, Musculoskeletal University Center Munich (MUM), University Hospital, LMU Munich, Munich, Germany; [2]Department of Radiation Oncology, University Hospital, LMU Munich, Munich, Germany; [3]Department of Medicine III, University Hospital, LMU Munich, Munich, Germany; [4]Department of Radiology, University Hospital, LMU Munich, Munich, Germany

15:27 OP2.8 **Surgical management of 144 diffuse-type tenosynovial giant cell tumor patients in a single institution: a 20-year cohort study**

Geert Spierenburg[1], Lizz van der Heijden[1], Monique Mastboom[1], Kirsten van Langevelde[2], Robert van der Wal[1], Hans Gelderblom[3], **Michiel van de Sande[1]**

[1]Department of Orthopedic Surgery, Leiden University Medical Center, Leiden, The Netherlands; [2]Department of Radiology, Leiden University Medical Center, Leiden, The Netherlands; [3]Department of Medical Oncology, Leiden University Medical Center, Leiden, The Netherlands

15:32 OP2.9 **Risk factors for surgical-site infection after soft-tissue sarcoma resection and development of a risk scoring system**

Shinji Miwa, Norio Yamamoto, Katsuhiro Hayashi, Akihiko Takeuchi, Kentaro Igarashi, Yuta Taniguchi, Sei Morinaga, Yohei Asano, Hiroyuki Tsuchiya

Department of Orthopedic Surgery, Graduate School of Medical Science, Kanazawa University, Kanazawa, Japan

15:37 OP2.10 **Perioperative complications of freezing nitrogen ethanol composite in treating bone tumors: Clinical experience from a single-center**

Hung-Kai Weng[1,2,3], Chao-Ming Chen[3,4,5], Po-Kuei Wu[3,4], Wei-Ming Chen[3,4]

[1]Department of Orthopaedics, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan; [2]Institute of Basic Medical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan; [3]Therapeutical and Research Center of Musculoskeletal Tumor, Department of Orthopaedics and Traumatology, Taipei Veterans General Hospital, Taipei, Taiwan; [4]Department of Orthopaedics, School of Medicine, National Yang-Ming University, Taipei, Taiwan; [5]Institute of Clinical Medicine, College of Medicine, National Yang-Ming University, Taipei, Taiwan

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15:42 OP2.11 **A single-center experience with giant cell bone tumors 2005-2021**
Vetra Markeviciute[1,2], Juste Ramonaite[2], Mindaugas Stravinskas[1]
[1]Hospital of Lithuanian University of Health Sciences, Kaunas Clinic, Department of Orthopaedics and Traumatology, Kaunas, Lithuania; [2]Lithuanian University of Health Sciences, Kaunas, Lithuania

15:47 OP2.12 **One- versus two-stage synovectomy of diffuse-type tenosynovial giant cell tumor of the knee: an international, retrospective, cohort study**
Geert Spierenburg[1], Floortje Verspoor[2], David King[3], Anthony Griffin[4], Jay Wunder[4], Matthew Houdek[5], Richard Boyle[6], Erik Geiger[7], Steve Thorpe[8], Jacob Priester[8], Erik Staals[9], Lizz van der Heijden[1], Bart Schreuder[10], Nicholas Bernthal[7], Hans Gelderblom[11], **Michiel van de Sande[1]**
[1]Department of Orthopedic Surgery, Leiden University Medical Center, Leiden, The Netherlands; [2]Department of Orthopedic Surgery, Amsterdam UMC, Amsterdam, The Netherlands; [3]Department of Orthopedic Surgery, Medical College of Wisconsin, Milwaukee, United States; [4]Department of Orthopedic Surgery, Mount Sinai Hospital, Toronto, Canada; [5]Department of Orthopedic Surgery, Mayo Clinic, Rochester, United States; [6]Department of Orthopedic Surgery, Royal Prince Alfred Hospital, Sydney, Australia; [7]Department of Orthopedic Surgery, UCLA Health, Los Angeles, United States; [8]Department of Orthopedic Surgery, UC Davis Health, Davis, United States; [9]Department of Orthopedic Surgery, Istituto Ortopedico Rizzoli, Bologna, Italy; [10]Department of Orthopedic Surgery, Radboud UMC, Nijmegen, The Netherlands; [11]Department of Medical Oncology, Leiden University Medical Center, Leiden, The Netherlands

15:52 OP2.13 **Unplanned excision of soft tissue sarcomas of the hand and the wrist**
Vasileios Kontogeorgakos[1], Ioannis Trikoupis[1], Stavros Goumenos[1], Panagiotis Gavriil[1], Anastasios Roustemis[1], Olga Savvidou[1], Dionysios Papachristou[2], Panayiotis Papagelopoulos[1]
[1]First Department of Orthopedic Surgery, National and Kapodistrian University of Athens, 'Attikon' University Hospital, Athens, Greece; [2]Anatomy and Histology Lab, University of Patras, Patra, Greece

Exploration Room

14:30-16:00 **ISOLS Board Meeting**

16:00-16:30 Coffee Break - e-Posters viewing

Main Hall

16:30-18:00 **Session: Advances in Medical and Radiation Oncology**
Chairpersons: **Francis Hornicek** (United States)**, Arun Singh** (United States)

Advances in medical oncology
Jonathan Trent (United States)

Advances in radiation oncology
Raphael Yechieli (United States)

Laureate Room

16:30-18:00 **Platform Session 3 | Surgery of bone and soft tissue tumours**
Moderators: **Domenico Andrea Campanacci** (Italy) - **Lor Randall** (United States)

16:30 IL3 **Introductory Lecture**
Innovative surgical technique of sacral resections in treatment of bone sarcoma and its impact on function and overall survival
Daniel Kotrych
Center for Diagnostics and Therapy of Hereditary Tumors, Department of Children Orthopaedics and Orthopaedic Oncology, Pomeranian Medical University of Szczecin, Poland

16:42 OP3.1 **Clinical outcomes of chondroblastomas in the femoral head: a Japanese musculoskeletal oncology group (JMOG) study**
Jungo Imanishi[1], Hidetatsu Outani[3], Takashi Saisu[4], Hiroshi Kobayashi[5], Kunihiro Ikuta[6], Hiroyuki Kawashima[7], Makoto Endo[8], Keisuke Ae[9], Kenji Morii[10], Makoto Nakagawa[11], Kenji Sato[1], Yasuo Yazawa[2], Takafumi Ueda[12], Hirotaka Kawano[1], Tomoaki Torigoe[2]
[1]Teikyo University, Tokyo, Japan; [2]Saitama Medical University International Medical Center, Hidaka, Japan; [3]Osaka University, Osaka, Japan; [4]Chiba Children's Hospital, Chiba, Japan; [5]Tokyo University, Tokyo, Japan; [6]Nagoya University, Nagoya, Japan; [7]Niigata University, Niigata, Japan; [8]Kyusyu University, Fukuoka, Japan; [9]Cancer Institute Hospital for JFCR, Tokyo, Japan; [10]Kyorin University, Tokyo, Japan; [11]National Cancer Center Hospital, Tokyo, Japan; [12]Kodama Hospital, Takarazuka, Japan

16:47 OP3.2 **Prognostic factors for survival in patients with metastatic Ewing sarcoma: An insight from the surveillance, epidemiology, and end results (SEER) program database**
Robert Kamil, Gabriel Hanna, Reif Taylor, Derek Hansen
Hospital For Special Surgery, New York, United States

16:52 OP3.3 **New surgical approach for pelvic reconstructions and 3D printing technology on the expe-rience of 10 year follow up - how to avoid complications?**
Daniel Kotrych, A. Szafrański, A. Kamiński, A. Chrobok, A. Baryluk, A. Szwed, S. Zacha
Center for Diagnostics and Therapy of Hereditary Tumors. Department Children Orthopaedics, Poland

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16:57	OP3.4	**Total Femoral Replacement following prior oncologic or joint reconstruction is associated with increased risk for infection and limb-salvage failure** **Ippolito Joseph**[1], Yazan Kadkoy[1], Gregory Schneider[1], Francis Patterson[2], Kathleen Beebe[1], Joseph Benevenia[1] [1]Rutgers, New Jersey Medical School, Newark, United States *[2]Hackensack University Medical Center, Hackensack, United States*
17:02	OP3.5	**Decompressive surgery for spine metastases: factors related to clinical outcomes and neurologic recovery in 49 patients** **Andrea Angelini**, Riccardo Baracco, Maddalena Barbato, Maria Grazia Rodà, Pietro Ruggieri *Department of Orthopedics and Orthopedic Oncology, University of Padova, Padova, Italy*
17:07	OP3.6	**Orthopaedic-vascular multidisciplinary approach to improve patient safety in surgery for musculoskeletal tumors** **Andrea Angelini**[1], Michele Piazza[2], Giulia Trovarelli[1], Elisa Pala[1], Pietro Ruggieri[1] *[1]Department of Orthopedics and Orthopedic Oncology, University of Padova, Padova, Italy; [2]Department of Vascular and Endovascular Surgery, University of Padova, Padova, Italy*
17:17	OP3.7	**Pedicled vastus lateralis myocutaneous flap for sacropelvic defects after wide oncologic resection: surgical technique and outcomes** **Akash Shah**, Santiago Lozano-Calderon, Emily Berner, William Jr Austen, Jonathan Winograd, Nicholas Bernthal, Brooke Crawford, Francis Hornicek *Ronald Reagan UCLA Medical Center, Los Angeles, United States*
17:22	OP3.8	**Surveillance AFter Extremity Tumor Surgery (SAFETY): Results of the pilot international randomized controlled trial** **Michelle Ghert**, SAFETY Investigators *McMaster University, Hamilton, Canada*
17:27	OP3.9	**Oncological and functional outcome of patients with osteosarcoma proximal humerus treated by limb salvage and neoadjuvant chemotherapy** **Walid Ebeid**[1], Emad Ebeid[2], Ibrahim Khairy[1], Wesam Abousena[1], Mustafa Salah[1] *[1]Orthopaedic department, Cairo University, Cairo, Egypt; [2]Pediatric oncology department, National cancer institute, Cairo university, Cairo, Egypt*
17:32	OP3.10	**The safety and efficacy of en bloc rescetion of spinal gaint cell tumor with preoperative treatment of denosumab: a single-center experience** **Jin Wang**, Qinglian Tang, Xiaojun Zhu, Guohui Song, Hao Wu *Sun Yat-sen University Cancer Center, Guangzhou, Guangdong, China*
17:37	OP3.11	**The operative results of enchondroma, atypical chondroid tumor and low grade chondrosarcoma: Does it make any difference?** **Osman Emre Aycan**, Berkay Doğan, Muhammet Coşkun Arslan *Baltalimani Bone Diseases Training and Research Hospital, İstanbul, Turkey*
17:42	OP3.12	**Wound healing complication in soft tissue tumors: does it affect follow up and local recurrence?** **Michele Boffano**[1], Nicola Ratto[1], Pietro Pellegrino[1], Elena Boux[1], Stefano Marone[1], Andrea Ferro[1], Ugo Albertini[1], Tiziana Robba[2], Raimondo Piana[1] *[1]Orthopaedic Oncology AOU Città Della Salute E Della Scienza, Torino, Italy; [2]Radiology Dept AOU Città Della Salute E Della Scienza, Torino, Italy*
17:47	OP3.13	**Improving outcomes in proximal tibia replacements** **Antony Maher**, Paul Stalley, Richard Boyle, Daniel Franks, Maurice Guzman Royal Prince Alfred Hospital, Sydney, Australia
17:52	OP3.14	**Sacrectomy as a unique indication for 3-D printing custom prosthesis** Antony Maher, **Paul Stalley,** Richard Boyle, Daniel Franks, Maurice Guzman *Royal Prince Alfred Hospital, Sydney, Australia*

Optimist A & B

16:30-18:00 Platform Session 4 | Limb salvage surgery

Moderators: **Valerae O. Lewis** (United States)-**Reinhard Windhager** (Austria) - **Tomas Zamora** (Chile)

16:3	IL4	**Introductory Lecture** **Anna Kulidjian** (United States): Limb salvage - evolution of techniques
16:4	OP4.1	**Allograft versus autograft for econstruction after resection of primary bone tumors: A comparative study of long-term clinical outcomes and risk factors for failure of reconstruction** **Taweechok Wisanuyotin**, Permsak Paholpak, Winai Sirichativapee, Weerachai Kosuwon *Department of Orthopaedics, Faculty of Medicine, Khon Kaen University, Thailand*
16:4	OP4.2	**Long-term gait analysis after a rotationplasty, a cross-sectional follow up study** **Gitte Krebbekx**[1], Niels Waterval[2], Floortje Verspoor[1] *[1]Amsterdam UMC, University of Amsterdam, Department of Orthopaedic Surgery, Amsterdam Movement Sciences, Amsterdam, The Netherlands; [2]Amsterdam UMC, University of Amsterdam, Department of Rehabilitation Medicine, Amsterdam Movement Sciences, Amsterdam, The Netherlands*
16:5	OP4.3	**Oncologic outcomes in myxofibrosarcomas: The role of a multidisciplinary approach and surgical resection margins** **Isaac Rhee**[1], Benedetta Spazzoli[1,2], Jarrad Stevens[1], Annjaleen Hansa[3], Tim Spelman[4], Grant Pang[1], Gerard Powell[1], Peter Choong[1,5], Claudia Di Bella[1,5] *[1]Department of Orthopaedics, St Vincents Hospital, Melbourne, Australia; [2]Department of Musculoskeletal Oncology, Rizzoli Orthopaedic Institute, Bologna, Italy; [3]Department of Pathology, Sarcoma Unit, St Vincent's Hospital, Melbourne, Australia; [4]Department of Biostatistics, Burnet Institue of Medical Research, Melbourne, Australia; [5]Department of Surgery, The Universtiy of Melbourne, Melbourne, Australia*
16:5	OP4.4	**Long term outcome of limb salvage surgery, a single institution experience, analysis of 210 cases** **Ahmad Shehadeh** *King Hussein Cancer Center, Amman, Jordan, Jordan*

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17:0	OP4.5	**Tibia multiplanar deformities and growth disturbance following Expandable Endoprosthetic distal femur replacement** **Ahmad Shehadeh** *King Hussein Cancer Center, Amman, Jordan, Jordan*
17:0	OP4.6	**Local zoledronate improves the union of graft-host junctions of pasteurized bone autograft after limb-sparing surgery** **Piya Kiatisevi**, Bhasanan Sukanthanak, Pongsiri Piakong, Piyabuth Kittithamvongs, Punnawit Pinitchanon *Lerdsin Hospital, Bangkok, Thailand*
17:1	OP4.7	**The use of GMRS megaprosthesis: analysis of 131 cases in a single Center** Giulia Trovarelli, **Elisa Pala**, Andrea Angelini, Antonio Berizzi, Pietro Ruggieri *University of Padova, Padova, Italy*
17:1	OP4.8	**Development of an algorithm for medical management in reconstructions in children and adolescents with primary malignant bone tumors, using Implantcast growing endoprostheses** **Andrzej Szafranski[1,2]**, Daniel Kotrych[2] *[1]Children's Memorial Health Institute, Warsaw, Poland; [2]Department of Pediatric Orthopedics and Oncology of the Locomotor System of the Pomeranian Medical University, Szczecin, Poland*
17:2	OP4.9	**3 epochs in the use of Implantcast growing endoprosthesis - Experience of the Polish Group for the treatment of primary malignant bone tumors** **Andrzej Szafranski[1,2]**, Daniel Kotrych[2] *[1]Children's Memorial Health Institute, Warsaw, Poland; [2]Department of Pediatric Orthopedics and Oncology of the Locomotor System of the Pomeranian Medical University, Szczecin, Poland*
17:2	OP4.10	**Outcomes of Oncologic Scapular Resection and Reconstruction** **Matthew Houdek[1]**, Katherine E. Mallett[1], Mark D. Heidenreich[1], Jonathan D. Barlow[1], Eric R. Wagner[2], Joaquin Sanchez-Sotelo[1], Peter S. Rose[1] *[1]Mayo Clinic, United States; [2]Emory University, United States*
17:3	OP4.11	**Modified Hot Dog Technique for Epiphyseal Sparing Primary Malignant Bone Sarcomas of Femur; Recreation with Vascularised Composite of Recycled Tumor Bone and Pedicle Free Fibula Angiogenesis** **Praveen Gupta**, Umesh Bansal *Bhagwan Mahaveer Cancer Hospital & Research Center, Jaipur, India*
17:3	OP4.12	**Outcome of High-Grade Osteosarcoma Involving the Limbs Treated by Pedicle-Freezing Using a Novel Freezing Tank** **Po kuei Wu[1,2]**, Chao-Ming Chen[1,2], Wei-Ming Chen[1,2] *[1]Therapeutical and Research Center of Musculoskeletal Tumor, Taipei Veterans General Hospital, Taipei, Taiwan; [2]School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan*
17:4	OP4.13	**Biological Allograft Reconstruction following the Acetabulum Tumor Pelvic Resection** **Oleg Vyrva**, Roman Malyk *Sytenko Institute of Spine and Joint Pathology, Kharkiv, Ukraine*
17:4	OP4.14	**Predictors of functional recovery among usculoskeletal oncology patients undergoing lower extremity endoprosthetic reconstruction** **Aaron Gazendam**, Patricia Schneider, Diane Heels-Ansdell, Mohit Bhandari, Jason Busse, Michelle Ghert *Mcmaster University, Hamilton, Canada*

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Main Hall

08:00-09:00 Flash Session 10 | Surgery of bone and soft tissue tumours

Moderators: **Oleg Vyrva** (Ukraine) - **Fabrice Fiorenza** (France)

08:00	FS10.1	**Management of the oncogenic osteomalacia** **Ahmet Salduz**[1], Serkan Bayram[1], Hülya Hacişahinoğulları[2], Ayşe Kubat Üzüm[2], Refik Tanakol[2] *[1]Department of Orthopedics and Traumatology Istanbul University, Istanbul, Turkey, Istanbul, Turkey; [2]Department of Endocrinology and Metabolic Disorders, Istanbul University, Istanbul, Turkey, Istanbul, Turkey*
08:03	FS10.2	**Feasibility of super-thin flap method excision and reconstruction for the sarcoma management** **Yu-min Lin**[1,2,3], Yuan-Ya Liao[2] *[1]Taichung Veterans General Hopsital, Taichung, Taiwan [2]Institute of Medicine, Chung Shan Medical University, Taichung, Taiwan; [3]School of Medicine, National Chung Hsing University, Taichung, Taiwan*
08:06	FS10.3	**Prevalence of primary carcinoma, rates of pathologic fracture, and mortality in the setting of metastatic bone disease** **Alexander Christ**, Amit Piple, Jennifer Wang, Brandon Gettleman, Andy Duong, Nathanael Heckmann, Lawrence Menendez *University Of Southern California, Los Angeles, United States*
08:09	FS10.4	**The oncology orthopedist role – Where do we fit?** Gottardo Bianchi[2], Pablo Stoppiello[2], Leticia Gaiero[2], **Nicolas Casales**[2], Claudio Silveri[2], Melisa Camaño[2], Nicole Eiseler[1], Ana Cecilia Belzarena[1] *[1]Miami Cancer Institute, Miami, United States; [2]Unidad Patologia Oncologica Musculo Esqueletica, Universidad de la Republica, Montevideo, Uruguay*
08:12	FS10.5	**Arthroscopic resections for intramuscular hemangioma of the thigh near the knee joint** **Ukei Anazawa**[1], Itsuo Watanabe[1], Kazuki Nakamura[2], Michiro Susa[2], Hiraku Hotta[1], Ryoma Aoyama[1], Yuichiro Takahashi[1], Tetsuya Sekita[3], Robert Nakayama[3] *[1]Dept. of Orthop. Tokyo dental college Ichikawa general hospital, Ichikawa, Japan; [2]Dept. of Orthop. National defense medical college, Tokorozawa, Japan; [3]Dept. of Orthop. Keio Univ., Shinjyuku, Japan*
08:15	FS10.6	**Treatment and outcome of giant cell tumor of the femoral head and neck** **Maurizio Scorianz**, Francesco Raspanti, Guido Scoccianti, Francesco Muratori, Domenico Andrea Campanacci *Orthopedic Oncology Unit, Azienda Ospedaliero Universitaria Careggi, Firenze, Italy*
08:18	FS10.7	**Clinical results of wide resection of malignant bone and soft tissue tumors with femoral vessel reconstruction** **Keiichi Kato**[1], Atsushi Mihara[1], Ryuta Iwanaga[1], Keiichi Muramatsu[2], Koichiro Ihara[3], Takashi Sakai[1] *[1]Department of Orthopedic Surgery, Yamaguchi University School of Medicine, Ube, Japan; [2]Department of Orthopedic Surgery, Nagato General Hospital, Nagato, Japan; [3]Department of Orthopedic Surgery, Kanmon Medical Center, Shimonoseki, Japan*
08:21	FS10.8	**Surgical outcomes of bone and soft tissue sarcomas in chest walls** **Kohei Mizuta**, Yasunori Tome, Hiromichi Oshiro, Yuichi Tsuha, Yusuke Aoki, Kotaro Nishida *Department of Orthopedic Surgery, Graduate School of Medicine, University of the Ryukyus, Nishihara, Japan*
08:24	FS10.9	**The validity of the birmingham atypical cartilage tumour imaging protocol (bactip) to predict survival outcomes and guide surgical decision-making** **Motaz Alaqeel**[1], Amirul Adlan[2], Ali Ridha[2], Vineet Kurisunkal[2], Guy Morris[2], Scott Evans[2], Rajesh Botchu[2], Mark Davies[2], Lee Jeys[2] *[1]King Saud University, Riyadh, Saudi Arabia; [2]Royal Orthopaedic Hospital, Birmingham, United Kingdom*
08:27	FS10.10	**What is the influence of negative pressure wound therapy on high-risk wounds in pelvic oncology?** **Motaz Alaqeel**[1], Amirul Adlan[2], Lee Jeys[2], Jonathan Stevenson[2] *[1]King Saud University, Riyadh, Saudi Arabia; [2]Royal Orthopaedic Hospital, Birmingham, United Kingdom*
08:30	FS10.11	**Does size and percentage of dedifferentiated chondrosarcoma Influence survival?** **Motaz Alaqeel**[1,2], Koichi Ogura[2], Meera Hameed[2], John Healey[2], Patrick Boland[2] *[1]King Saud University, Riyadh, Saudi Arabia; [2]Memorial Sloan Kettering Cancer Center, New York, United State*
08:33	FS10.12	**Femoral shaft fracture secondary to a gunshot wound leading to chronic expanding hematoma with concomittant osteomyelitis: An unusual presentation of a pseudotumor** **Daniela Kristina Carolino**, Abigail Tud, Aquilino Pimentel *Philippine Orthopedic Center - Musculoskeletal Tumor Service, Quezon City, Philippines*
08:36	FS10.13	**How to manage infiltrative soft tissue sarcoma? Survey for the musculoskeletal oncology surgeons** **Shintaro Iwata** *National Cancer Center Hospital Japan, Cyuo-ku, Japan*
08:39	FS10.14	**Early functional outcomes following surgical resection of upper extremity soft tissue tumours** Bryan Huai Gu Loh, Dr Suraya Zainul-Abidin, Henry Soeharno, Mann Hong Tan, **Bryan Loh** *Singapore General Hospital, Singapore*

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Laureate Room

08:00-09:00 **Flash Session 11 | Surgery of bone and soft tissue tumours**

Moderators: **Walid Ebeid** (Egypt) - **Howard Rosenthal** (United States)

08:00	FS11.1	**Recurrence in Extremity osteosarcoma- Is there light at the end of tunnel?** **Anand Raja,** Chandra Kumar Krishnan *Cancer Institute (WIA), Chennai, India*
08:03	FS11.2	**Comparison of carbon fiber and titanium intramedullary nails in orthopaedic oncology** **Caleb Yeung**, Olivier Groot, Nelson Merchan, Erik Newman, Joseph Schwab, Kevin Raskin, Santiago Lozano-Calderon *Massachusetts General Hospital, Boston, United States*
08:06	FS11.3	**Prospective evaluation of tranexamic acid in metastatic cancer patients with pathologic fractures treated with total hip arthroplasty or hemiarthroplasty** **Caleb Yeung**, Nikolas Baksh, Anthony Bozzo, Nicola Fabbri *Memorial Sloan Kettering Cancer Center, New York, United States*
08:09	FS11.4	**Post-operative outcomes using carbon fiber with reinforced polyetheretherketone (CFR-PEEK) nailing in orthopedic oncology patients** **Ryan Paul[1]**, **John A. Abraham[1,2,3]** *[1]Rothman Orthopaedic Institute, Philadelphia, United States; [2]Capital Health, Bordentown, United States; [3]Fox Chase Cancer Center, Philadelphia, United States*
08:12	FS11.5	**Carbon fiber with reinforced polyetheretherketone (CFR-PEEK) plating and nailing for intercalary resection with tibial allograft reconstruction in two oncologic patients** **Ryan Paul[1]**, John A. Abraham[1,2,3] *[1]Rothman Orthopaedic Institute, Philadelphia, United States; [2]Capital Health, Bordentown, United States; [3]Fox Chase Cancer Center, Philadelphia, United States*
08:15	FS11.6	**Cryo-ablation in the treatment of aneurysmal bone cysts – does it improve outcome?** **Amir Sternheim[1,2]**, Omri Merose[1,2], Ortal Segal[1,2], Solomon Dadia[1,2], Eran Levanon[3], Yair Gortzak[1,2] *[1]National Unit of Orthopaedic Oncology, Tel-aviv Medical Center, Tel-aviv, Israel [2]Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel [3]Faculty of Medicine, Ben-Gurion University, Beer-Sheva, Israel*
08:18	FS11.7	**Paraspinal sarcoma resection: a series of 13 cases in a single institute** Qinglian Tang, Xiaojun Zhu, **Jin Wang** *Sun Yat- Sen University Cancer Center, Guangzhou, China*

Optimist A & B

08:00-09:00 **Flash Session 12 | Limb salvage surgery**

Moderators: **Matthew Houdek** (United States) - **Florencio Segura** (Argentina)

08:00	FS12.1	**Long term outcomes of proximal femoral replacements with and without acetabular reconstruction** **Catrin H. Wigley**, Shahwanaz Khan, Panos Gikas *Royal National Orthopaedic Hospital, London, United Kingdom*
08:03	FS12.2	**One-year follow-up of upfront en bloc resection of stage 3 giant cell tumor of the proximal humerus reconstructed using clavicula pro humero technique – A case report** **Loren Josephine Lantin**, Mamer Rosario, Vincent Paul Gonzalez, John Ricardo Chua, Lilia Monina Jose, Avelino Alomesen, Geoffrey Battad *East Avenue Medical Center, Quezon City, Philippines*
08:06	FS12.3	**New adjustable modular hemipelvic prosthesis replacement with 3D-print osteotomy guide plate used in periacetabular malignant tumors** **Yi Shen** *Department of Orthopedics, The Second Xiangya Hospital of Central South University, Changsha, Hunan, China*
08:09	FS12.4	**Femoral Z osteotomy and rotation hip transposition with allograft for defect after pelvic tumor resection** **Hairong Xu**, Yuan Li, Feng Yu, Xiaohui Niu *Beijing Ji Shui Tan Hospital, Beijing, China*
08:12	FS12.5	**Revision for aseptic loosening of tumor prosthesis in lower limbs** **Feng Yu**, Hairong Xu, Yuan Li, Xiaohui Niu *Beijing Ji Shui Tan Hospital, Beijing, China*
08:15	FS12.6	**Outcomes of distal radial endoprostheses: A single centre experience over 15 years** **Rachel Mahoney,** Scott Evans, Vineet Kurinskal, Lee Jeys, Zeeshan Khan, Adesegun Abudu *Royal Orthopaedic Hospital, Birmingham, United Kingdom*
08:18	FS12.7	**Limb salvage surgery with liquid nitrogen pretreated bone tumor autograft - successful outcomes at low cost** Gottardo Bianchi[1], Leticia Gaiero[1], Pablo Stoppiello[1], Ana Cecilia Belzarena[2], Nicolas Casales[1], **Claudio Silveri[1]** *[1]Instituto Nacional de Ortopedia y Traumatología, Montevideo, Uruguay; [2]Miami Cancer Institute, United States*

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08:21	FS12.8	**Mapping the course of recovery following limb salvage surgery for soft tissue sarcoma of the extremities** Alexander Lazarides[1], Zachary Burke[2], Manit Gundavda[2], Marco Focaccia[2], Anthony Griffin[2], Kim Tsoi[2], **Peter Ferguson[2]**, Jay Wunder[2] *[1]Moffitt Cancer Center, Tampa, United States; [2]University of Toronto, Toronto, Canada*
08:24	FS12.9	**A massive destruction of aneurysmal bone cyst (ABC) of left hemipelvis in a 15 year old girl: How to treat?** **Chee Leong Choong[1]**, Farhan Yahaya[2], Nur Dini Mohd Yusof[2], Prashant Narhari[1], Azuhairy Azid[1] *[1]Orthopaedic Oncology Unit, Penang General Hospital, Georgetown, Malaysia; [2]Orthopaedic, Hospital Sultanah Bahiyah, Alor Setar, Malaysia*
08:27	FS12.10	**Having fish and bear's paw both- Could biological reconstruction in joint sparing of osteosarcoma around knee guarantee both limb function and oncological prognosis?** **Jun Wan,** Hong-bo He, Wei Luo, Can Zhang, Yu-peng Liu, Zhan Liao, Jian Tian, Feng Long, Qing Liu *Department of Orthopedics, Xiangya Hospital, Central South University, Changsha, Hunan Province, China*
08:30	FS12.11	**Challenging the conventional surgical corridors. Is there a need to revisit conventional pelvic resections?** **Shah Alam Khan**, Love Kapoor, Venkatesan Sampath Kumar *All India Institute of Medical Sciences, New Delhi, India*
08:33	FS12.12	**Total femoral prosthesis replacement following resection of femoral malignant tumors** **Dechao Yuan,** Xiang Fang, Xiang Fang, Wenli Zhang, Chongqi Tu, Senlin Lei, Bankota Nishant *West China School Of Medicine/west China Hospital, Sichuan University, Chengdu, China*
08:36	FS12.13	**Utility of pedicled functional latissimus flaps for reconstruction of the upper extremity following resection of soft-tissue sarcomas** Matthew Houdek, **Mikaela Sullivan**, Alexandra Arguello, Steven Moran *Mayo Clinic, Rochester, United States*
08:39	FS12.14	**Long-term results of femoral megaprostheses – follow-up for more than 15 years** **Ryu Terauchi**, Toshiharu Shirai, Shinji Tsuchida, Naoki Mizoshiri, Yuki Mori, Seiji Shimomura, Daichi Hayashi, Kenji Takahashi *Dept. of Orthopaedics, Kyoto Prefectural University of Medicine, Kyoto, Japan*
08:42	FS12.15	**Functional Outcomes of Scapular Resection: Is a New Classification System Needed?** **Rachel Honig,** Matthew Houdek, Samuel Broida, Katherine Mallett, Jonathan Barlow, Peter Rose, Joaquin Sanchez-Sotelc *Mayo Clinic, Rochester, Minnesota, United States*

Main Hall

09:00-10:30 Platform Session 5 | Medical oncology

Moderators: **Gina D'amato** (United States) - **Arun Singh** (United States)

09:00	IL5	**Introductory Lecture** **Ewing sarcoma and liquid biopsy: plasma ctDNA quantification by ddPCR for monitoring residual disease** Markus Seidel[1], **Andreas Leithner[2]**, Karl Kashofer[3], Tina Moser[4], Andrea Thueringer[3], Bernadette Liegl-Atzwanger[3], Joanna Szkandera[5], Martin Benesch[1], Amin El-Heliebi[6], Ellen Heitzer[4] *[1]Division for Pediatric Hematology-Oncology, Department of Pediatrics and Adolescent, Graz, Austria; [2]Department of Orthopedics and Trauma, Medical University of Graz, Graz, Austria; [3]Diagnostic and Research Institute of Pathology, Medical University of Graz, Graz, Austria; [4]Diagnostic and Research Institute of Human Genetics, Medical University of Graz, Graz, Austria; [5]Division of Oncology, Department of Internal Medicine, Medical University of Graz, Graz, Austria; [6]Division of Cell Biology, Histology and Embryology, Gottfried Schatz Research Center, Medical University of Graz, Graz, Austria*
09:12	OP5.1	**Therapeutic algorithm from diagnosis to management in Gorham-Stout disease: analysis of 352 cases** **Andrea Angelini**, Nicolò Mosele, Elisa Pagliarini, Elisa Pala, Giulia Trovarelli, Pietro Ruggieri *Department of Orthopedics and Orthopedic Oncology, University of Padova, Padova, Italy*
09:17	OP5.2	**Efficacy and Safety of JMT103 in Patients with Giant Cell Tumor of Bone: a multicenter, single-arm, open-label, phase Ib/II study** **Hairong Xu**, Yuan Li, Feng Yu, Xiaohui Niu *Beijing Ji Shui Tan Hospital, Beijing, China*
09:22	OP5.3	**Giant Cell Tumor grade III and Denosumab Effects; prospective study 94 patients** **Badaruddin Sahito**, Nauman Hussain, Awais Abro, Abdul Qadir, Jagdesh Kumar, Soughat Katto, Syed Jehanzaib *Dow University of Health Sciences / Dr Ruth KM Pfau Civil Hospital Karachi, Karachi, Pakistan*
09:27	OP5.4	**Anti-PD-1 antibody plus anlotinib versus anlotinib alone for refractory undifferentiated or high-grade conventional chondrosarcoma: A multicenter, non-randomized, controlled trial** **Binghao Li[1]**, Xiaobo Yan[1], Meng Liu[1], Xin Huang[1], Nong Lin[1], Yunxia Liu[2], Hui Dai[3], Zhaoming Ye[1] *[1]Department of Orthopaedics, The Second Affiliated Hospital of Zhejiang University School of Medicine, Hangzhou, China; [2]Department of Medical Oncology, Hangzhou Third People's Hospital, Hangzhou, China; [3]Department of Medical Oncology, Hangzhou Cancer Hospital, Hangzhou, China*
09:32	OP5.5	**Impacts of preoperative denosumab treatment on bone metabolism in young patients with giant cell tumor of bone** Min Wook Joo, Yong-Suk Lee, **Chiyoung Yoon** *Department of Orthopaedic Surgery, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea*
09:37	OP5.6	**Favorable outcome of high-dose chemotherapy and autologous hematopoietic stem cell transplantation in nonmetastatic osteosarcoma patients with less necrosis than 90% after neoadjuvant chemotherapy** **Han-Soo Kim[2,3]**, Kyung Taek Hong[1], Sung-Hye Park[5], Jeong Eun Cheon[6], Ilkyu Han[2,3], Yongsung Kim[4], Hyoung Jin Kang[1] *[1]Division of Hematology/Oncology, Department of Pediatrics, Cancer Research Institute, Seoul National University College of Medicine, Seoul National University Children's Hospital, Seoul, South Korea; [2]Department of Orthopaedic Surgery, Seoul National University College of Medicine, Seoul, South Korea; [3]Department of Orthopaedic Surgery, Seoul National University Hospital, Seoul, South Korea; [4]Department of Orthopaedic Surgery, Seoul National University Bundang Hospital, Seongnam, South Korea; [5]Department of Pathology, Seoul National University College of Medicine, Seoul, South Korea; [6]Department of Radiology, Seoul National University College of Medicine, Seoul, South Korea*

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09:42	OP5.7	**Tumor necrosis in soft tissue sarcoma following multimodal neoadjuvant therapy –is it chemo- or radiotherapy? Does it influence prognosis?** **Julian Fromm[1]**, Alexander Klein[1], Annika Bilgeri, Boris Holzapfel[1], Silke Nachbichler[2], Christof Birkenmaier[1], Lars Lindner[3], Sophia Samira Goller[4], Hans Roland Dürr[1] *[1]Department of Orthopaedics and Trauma Surgery, Musculoskeletal University Center Munich (MUM), University Hospital, LMU Munich, Munich, Germany; [2]Department of Radiation Oncology, University Hospital, LMU Munich, Munich, Deutschland; [3]Department of Medicine III, University Hospital, LMU Munich, Munich, Deutschland; [4]Department of Radiology, University Hospital, LMU Munich, Munich, Deutschland*
09:47	OP5.8	**A Deep Learning Model for Classification of Chondroid Tumors on CT-Images** Felix Gassert[1], **Julian Fromm[2]**, Hans Roland Dürr[2], Alexander Klein[2], Johanna Luitjens[2], Jan Peeken[1], Klaus Woertler[1], Stefan Bartzsch[1], Daniel Lang[1], Alexandra Gersing[1,2] *[1]TU Munich, Munich, Germany; [2]LMU Munich, Munich, Germany*
09:52	OP5.9	**Prognostic accuracy of 7th and 8th AJCC classification for soft tissue sarcomas. Results from a retrospective, multi-centre study** **Maria Anna Smolle[1]**, Michiel van de Sande[2], Per-Ulf Tunn[3], Andrew Hayes[4], Marko Bergovec[1], Henry G. Smith[4], Maya Niethard[3], Reinhard Windhager[5], Joanna Szkandera[6], Andreas Leithner[1] *[1]Department of Orthopaedics and Trauma, Medical University of Graz, Graz, Austria; [2]Department of Orthopaedic Surgery, Leiden University Medical Centre, Leiden, The Netherlands; [3]Sarcoma Centre, HELIOS Klinikum Berlin-Buch, Berlin, Germany; [4]Department of Surgery, Royal Marsden Hospital NHS Foundation Trust, London, United Kingdom; [5]Department of Orthopaedics and Traumatology, Medical University of Vienna, Vienna, Austria; [6]Division of Clinical Oncology, Internal Medicine, Medical University of Graz, Graz, Austria*
09:57	OP5.10	**Is it safe to discontinue the tyrosine kinase inhibitors in advanced sarcoma following a favorable tumor response to antiangiogenics therapy?** Qiyuan Bao, **Zhang Zhusheng,** Junxiang Wen, Yuhui Shen, Yuhui Zhang *Ruijin Hospital, Shanghai, China*
10:02	OP5.11	**Metastatic Bone Disease: The Relationship Between Demographic Variables, Prevalence, and Survival** Sarah E. Ryan, **Trevor R. Gulbrandsen**, Christopher R. Halbur, Qiang An, Benjamin J. Miller *University of Iowa Hospitals and Clinics, Iowa City, United States*

Laureate Room

09:00-10:30 Platform Session 6 | Robotics, 3D, PSI, Navigation

Moderators: **Christina D'Anjou** (United States) - **Juan P Zumarraga** (Ecuador)

09:00	IL6	**Introductory Lecture** **Is Mixed Reality beneficial in infiltrative soft tissue sarcoma surgery? – A proof-of-concept study** **Shintaro Iwata**, Akira Kawai *National Cancer Center Hospital Japan, Japan*
09:12	OP6.1	**Minimally Invasive Fixation of Pelvic Metastases by CT-Assisted Surgical Navigation Improves Pain and Maintains Function at One Year** **Caleb Yeung[1]**, Derek Hansen[3], Alexander Christ[2], John Healey[1], Nicola Fabbri[1] *[1]Memorial Sloan Kettering Cancer Center, New York, United States; [2]Orthopaedic Surgery, University of Southern California Keck School of Medicine, Los Angeles, United States; [3]The Hospital for Special Surgery, New York, United States*
09:17	OP6.2	**3D-printing and computer navigation in preoperative planning and surgical management of soft tissue sarcomas** **Juan P Zumarraga[1,2,3]**, Diego E Rubio[2,3], Felipe M Suntaxi[4] *[1]Universidad San Francisco de Quito, Quito, Ecuador; [2]Hospital Metropolitano, Quito, Ecuador; [3]Hospital Monte Sinai, Cuenca, Ecuador; [4]BioZhape Medical Bioengineering, Quito, Ecuador*
09:22	OP6.3	**3D virtual reality simulation for musculoskeletal tumors: reconstruction and simulated surgery. A preliminary 15 case study** **Juan P Zumarraga[1,2,3]**, Diego E Rubio[2,3], Jose D Brito[1,4], Felipe M Suntaxi[4] *[1]Universidad San Francisco De Quito, Quito, Ecuador; [2]Hospital Metropolitano, Quito, Ecuador; [3]Hospital Monte Sinai, Cuenca, Ecuandor; [4]BioZhape Biomedical Engineering, Quito, Ecuador*
09:27	OP6.4	**Custom made cutting guides and custom shaped allografts in joint sparing juxta articular resections of the knee** **Maurizio Scorianz**, Lorenzo Guariento, Guido Scoccianti, Francesco Muratori, Elisabetta Neri, Domenico Andrea Campanacci *Orthopedic Oncology Unit, Azienda Ospedaliero Universitaria Careggi, Firenze, Italy*
09:32	OP6.5	**Computer-aided surgical planning and patient specific cutting guides for accurate bone tumor resection in a patient with Ollier disease presenting with humeral deformity** **Pichaya Thanindratarn[1,2]**, Thanapon Chobpenthai[1,2] *[1]Chulabhorn Hospital, Chulabhorn Royal Academy, Bangkok, Thailand; [2]Princess Srisavangavadhana College of Medicine, Chulabhorn Royal Academy, Bangkok, Thailand*
09:37	OP6.6	**Deep learning algorithm for differentiation of enchondromas and atypical cartilaginous tumors in radiographs** **Sarah Consalvo[1]**, Florian Hintewimmer[2], Jan Neumann[3], Sebastian Breden[1], Ulrich Lenze[1], Carolin Knebel[1], Daniel Rueckert[2], Rüdiger von Eisenhart-Rothe[1], Rainer Burgkart[1] *[1]Department of Orthopaedics and Sports Orthopaedics, Klinikum rechts der Isar, Technical University of Munich, Munich, Germany; [2]Technical University of Munich, Institute for AI and Informatics in Medicine – Munich, Germany; [3]Department of Diagnostic and Interventional Radiology, Klinikum rechts der Isar, Technical University of Munich, Munich, Germany*

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09:42	OP6.7	**Mixed-reality assisted pelvic tumor surgery: pilot attempts and experiences** **Xinhui Du[1,2,3]**, Hua Wei[4], Guoxin Qu[1,2,3], Boya Zhang[1,2,3], Xu Liu[1,2,3], Shilei Gao[1,2,3], Fan Zhang[1,2,3], Yu Cheng[1,2,3], Weitao Yao[1,2,3], Qiqing Cai[1,2,3] *[1]Bone and Soft Tissue Department, The Affiliated Cancer Hospital of Zhengzhou University & Henan Cancer Hospital, Zhengzhou, China; [2]Key laboratory for digital assessment of spinal-pelvic tumor and surgical aid tools design (Zhengzhou), Zhengzhou, China; [3]Key laboratory for perioperative digital assessment of bone tumors (Henan), Zhengzhou, China; [4]Department of Anesthesiology, Pain and Perioperative Medicine, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China*
09:47	OP6.8	**Invasion-controlled surgery using a robot-assisted mini-open approach for the treatment of metastatic spinal lesions** **Wei David Xu,** Zhipeng Zhu, Pengru Wang, Jianru Xiao *Shanghai Changzheng Hospital, Shanhai, China*
09:52	OP6.9	**Mechanical Effects of Virtual Prophylactic IMN Fixation in Femurs with Metastatic Disease** Joshua Johnson[1], Ana V. Figueroa[2], Marc J. Brouillette[1], **Benjamin J. Miller[1]**, Jessica E. Goetz[1] *[1]University of Iowa, Iowa City, United States; [2]University of Nebraska, Lincoln, United States*
09:57	OP6.10	**Three dimensional (3D) printing in musculoskeletal tumor surgery** **Chandhanarat Chandhanayingyong**, Rapin Phimolsarnti, Apichat Asavamongkolkul *Department of Orthopaedic Surgery, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkoknoi, Thailand*
10:02	OP6.11	Improved virtual surgical planning with 3D-multimodality image for malignant giant pelvic tumors **Hong Duan,** Xiang Fang, Wenli Zhang, Chongqi Tu, Dechao Yuan *West China School Of Medicine/west China Hospital, Sichuan University, Chengdu, China*
10:07	OP6.12	**Virtual reality for patient-specific, multidisciplinary planning of complex orthopedic oncological surgery** **Joel Werier[1]**, Kevin Smit[2], James Villeneuve[3], Philippe Phan[1], Adam Sachs[4], Hesham Abdelbary[1], Yusra Kassim Al-Mosuli[5], Kawan Rakhra[6] *[1]Department of Surgery, Division of Orthopedic Surgery, The Ottawa Hospital, University of Ottawa, Ottawa Hospital Research Institute, Ottawa, Canada; [2]Department of Surgery, Children's Hospital of Eastern Ontario, University of Ottawa, Ottawa, Canada; [3]Department of Surgery, Division of Thoracic Surgery, The Ottawa Hospital, University of Ottawa, Ottawa Hospital Research Institute, Ottawa, Canada; [4]Department of Surgery, Division of NeuroSurgery, The Ottawa Hospital, University of Ottawa, Ottawa Hospital Research Institute, Ottawa, Canada; [5]Department of Surgery, Division of Orthopedic Surgery, Ottawa Hospital Research Institute, Ottawa, Canada; [6]Department of Radiology, The Ottawa Hospital, University of Ottawa, Ottawa Hospital Research Institute, Ottawa, Canada*
10:12	OP6.13	**Reconstruction with 3D printed implants in the pelvic bone tumors: Early experience of 6 cases** **Yang-Guk Chung[1]**, Seung-Han Shin[1], Min Wook Joo[2], Yong-Suk Lee[3] *[1]Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, South Korea; [2]St. Vincent Hospital, Suwon, South Korea; [3]Incheon St. Mary's Hospital, Incheon, South Korea*
10:17	OP6.14	**Does Navigation assisted tumor surgery improves margins in pelvic chondrosarcomas?** **Vineet Kurisunkal**, Jonathan Stevenson, Michael Parry, Lee Jeys *Royal Orthopaedic Hospital, Birmingham South, United Kingdom*
10:22	OP6.15	**Robot-Assisted Radiofrequency Ablation for the Treatment of Osteoid Osteomas** **Ka Li**, Jianmin Li, Zhenfeng Li, Qiang Yang *Qilu Hospital of Shandong University, Jinan, China*
10:27	OP6.16	**Outcomes of anterior minimally invasive (robotic & laproscopic) dissection of malignant bone tumours of the pelvis and sacrum: A multidisciplinary surgical approach** **Pramod Chinder Shekarappa**, Suraj Hindiskere, Prabhu Nesargikar, Jagannath Dixit, Tejas Chiranjeevi, Raghunath Krishnappa *HCG Hospital & The Yellow Ribbon, Bangalore, India*

Optimist A & B

09:00-10:30 Platform Session 7 | Surgery of bone and soft tissue tumours

Moderators: **Peter Rose** (United States) - **Vasileios Kontogeorgakos** (Greece)

09:00	IL7	**Introductory Lecture** **Orthoplastic approach with one-stage soft tissue reconstruction following sarcoma excision: analysis of 161 patients** Andrea Angelini[1], Cesare Tiengo[2], Antonio Berizzi[1], Elisa Pala[1], Giulia Trovarelli[1], **Pietro Ruggieri[1]** *[1]Department of Orthopedics and Orthopedic Oncology, University of Padova, Padova, Italy; [2]Clinic of Plastic Surgery, University of Padova, Padova, Italy*
09:12	OP7.1	**Use of Custom 3D Printed titanium prostheses in the pelvis: An Australian cohort of 124 cases** **Richard Boyle**, Paul Stalley, Maurice Guzman, Daniel Franks, Richard Carey-Smith, Scott Sommerville, Corey Scholes, Anthony Maher *Royal Prince Alfred Hospital, Sydney, Australia*
09:17	OP7.2	**Evolution in the strategy treatment of bone metastatic disease: what has been changed?** **Elisa Pala**, Giulia Trovarelli, Andrea Angelini, Antonio Berizzi, Pietro Ruggieri *Department of Orthopedics and Orthopedic Oncology, University of Padova, Italy, Padova, Italy*
09:22	OP7.3	**Curettage of locally advanced giant cell tumour of bone after denosumab therapy** **Bartlomiej Szostakowski**, Aneta Borkowska, Michal Wagrodzki, Pawel Rogala, Konrad Zaborowski, Piotr Rutkowski *Maria Sklodowska-Curie National Research Institute of Oncology, Warszawa, Poland*
09:27	OP7.4	**Outcomes from a tertiary orthopaedic oncology service for patients undergoing forequarter amputation for metastatic squamous cell carcinoma** **Peter Steadman[1,2]**, Scott Sommerville[1,2], Phillip Rowell[1,2], Martin Lowe[1,2], Nickolas Croker[1,2], Lisa Major[1,2] *[1]University of Queensland, Brisbane, Australia; [2]Queensland bone and soft tissue tumour service, Brisbane, Australia*

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09:32	OP7.5	**Dedifferentiated liposarcoma arising within an Atypical Lipomatous Tumour - is marginal resection enough?** Giuseppe Pastore[1], Alexandra Walton[2], **Peter Steadman[1]** *[1]Princess Alexandra Hospital, Orthopaedic Department, Brisbane, Australia; [2]Royal Brisbane and Women's Hospital, Department of Anatomical Pathology, Brisbane, Australia*
09:37	OP7.6	**Haemorrhagic soft-tissue sarcoma: oncological outcomes and prognostic factors for survival** **Lee Jeys**, Danielle Maes, Motaz AlAqeel, Michael Parry, Rajesh Botchu, Vaiyapuri Sumathi, Jonathan Stevenson *Royal Orthopaedic Hospital NHS Foundation Trust, Birmingham, United Kingdom*
09:42	OP7.7	**Surgical Treatment of Sacral Chordomas. A Retrospective Study of 26 cases** **Ioannis Trikoupis[1]**, Georgios Kakouratos[1], Stavros Kakouratos[1], Panagiotis Gavriil[1], Dimitra Melissaridou[1], Pavlos Gerasimidis[1], Konstantinos Soultanis[1], Pavlos Patapis[2], Vasileios Kontogeorgakos[1], Panayiotis Papagelopoulos[1] *[1]First Department of Orthopedic Surgery, National and Kapodistrian University of Athens, 'attikon' University Hospital, Athens, Greece; [2]Third Department of Surgery, University of Athens School of Medicine, Attikon University Hospital, Athens, Greece*
09:47	OP7.8	**Pseudotumors of the hip: diagnosis and treatment** **Maria Chiara Cerchiaro,** Andrea Angelini, Giulia Trovarelli, Elisa Pala, Antonio Berizzi, Pietro Ruggieri *Department of Orthopedics and Orthopedic Oncology, University of Padova, Padova, Italy*
09:52	OP7.9	**Reconstruction following Giant Cell Tumor of the extremity: Subchondral bone grafting decreases risk for arthritis and fracture compared with PMMA alone** Yazan Kadkoy[1], Joseph Ippolito[1], Luis Guinand[1], Jennifer Thomson[1], Kathleen Beebe[1], Francis Patterson[2], **Dr Joseph Benevenia[1]** *[1]Rutgers, New Jersey Medical School, Newark, United States; [2]Hackensack University Medical Center, Hackensack, United States*
09:57	OP7.10	**Intercalary Endoprosthetic Reconstruction: An Analysis of Complications** Yazan Kadkoy[1], Joseph Ippolito[1], Jennifer Thomson[1], Claire Park[1], Kathleen Beebe[1], Francis Patterson[2], **Joseph Benevenia[1]** *[1]Rutgers, New Jersey Medical School, Newark, United States; [2]Hackensack University Medical Center, Hackensack, United States*
10:02	OP7.11	**Correlation between the initial PET scan SUV and chondral lesion grading at resection** **Saumiyar Sivaji**, Maurice Guzman, Richard Boyle, Paul Stalley, Daniel Franks, Julian Maempel *Royal Prince Alfred Hospital, Sydney, Australia*
10:07	OP7.12	**Unicameral bone cysts at lesser trochanter level: A warning for pathological fractures** **Osman Emre Aycan**, Ozan Kaya, Muhammet Coşkun Arslan *Baltalimani Bone Diseases Training and Research Hospital, İstanbul, Turkey*
10:12	OP7.13	**Biohybrid bone grafts for pediatric oncologic patients: indications and results** **Michele Boffano**, Nicola Ratto, Pietro Pellegrino, Elena Boux, Ugo Albertini, Stefano Marone, Andrea Ferro, Raimondo Piana *Orthopaedic Oncology AOU Città Della Salute E Della Scienza, Torino, Italy*

10:30-11:00 Coffee Break - e-Posters viewing

Main Hall

11:00-11:30 **Key-Note Lecture**

Moderator: **Pietro Ruggieri** (Italy)

Evolution of three-dimensional technology in orthopedic reconstruction
Panayiotis J. Papagelopoulos (Greece)

Main Hall

11:30-12:30 **Osseointegration & Amputation**

Moderator: **Rosanna Wustrack** (United States)

Introductory Words: "Definition and History of Osseointegration"
Örjan Berlin (Sweden)

Orthopaedic osseointegration. History, present status and future options
Rickard Braanemark (United States)

Biologic Seal in OI with 3D Printed Foams
Ian Dickey (United States)

DAY 3 | Thursday, 8 September 2022

Laureate Room

11:30-12:30 Platform Session 8 | Basic science and research

Moderators: **Zhenfeng Duan** (United States) - **Han-Soo Kim** (Korea)

11:30	IL8	**Introductory Lecture** **A Systematic Review of Patient-reported outcomes used to measure Health-related Quality of Life in Soft-tissue Sarcoma** **Krista Goulding[1]**, Kedar Mate[2], Urska Kosir[3], Argerie Tsimicalis[4], Robert Turcotte[5] *[1]Department of Orthopedic Surgery - Mayo Clinic Arizona, Phoenix, United States; [2]Research coordinator, Centre for outcomes Research and Evaluation, McGill University Health Centre- Research Institute, Montreal, Canada; [3]PhD Candidate, Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom; [4]Ingram School of Nursing, McGill University, Montreal, Canada; [5]Department of Orthopedic Surgery, McGill University Health Centre, Montreal, Canada*
11:42	OP8.1	**Meaningful interpretation of Toronto Extremity Salvage Score in people with soft-tissue sarcoma using Rasch analysis** **Kedar Mate[1]**, Robert Turcotte[2], Nancy Mayo[3], Krista Goulding[3] *[1]Research coordinator, Centre for outcomes Research and Evaluation, McGill University Health Centre, Montreal, Canada; [2]Department of Orthopedic Surgery, McGill University Health Centre, Montreal, Canada; [3]Department of Orthopedic Surgery - Mayo Clinic Arizona, Phoenix, United States*
11:47	OP8.2	**The Sarcoma-Specific Quality of Life Study (SARC-QoL): Identifying key domains of Health-Related Quality of Life in adult patients with extremity soft tissue sarcoma** Urska Kosir[1], **Kedar Mate[2]**, Argerie Tsimicalis[3], Robert Turcotte[4], Carolyn Freeman[5], Fabio Cury[5], Thierry Alcindor[6], Nancy Mayo[7], Krista Goulding[7] *[1]PhD Candidate, Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom; [2]Research coordinator, Centre for outcomes Research and Evaluation, McGill University Health Centre, Montreal, Canada; [3]Ingram School of Nursing, McGill University, Montreal, Canada; [4]Department of Orthopedic Surgery, McGill University Health Centre, Montreal, Canada; [5]Department of Radiation Oncology, McGill University Health Centre, Montreal, Canada; [6]Department of Oncology, McGill University Health Centre, Montreal, Canada; [7]Department of Orthopedic Surgery - Mayo Clinic Arizona, Phoenix, United States*
11:52	OP8.3	**A Cryoprotectant-Gel Composite Designed to Preserve Articular Cartilage during Frozen Osteoarticular Autograft Reconstruction for Malignant Bone Tumors: An AnimalBased Study** **Chao Ming Chen** *Taipei Veterans General Hospital, Taipei City, Taiwan*
11:57	OP8.4	**Malignant giant cell tumours of bone** **Floortje Verspoor[1]**, Gitte Krebbekx[1], Vaiyapuri Sumathi[2], Scott Evans[2] *[1]Amsterdam UMC, Amsterdam, The Netherlands; [2]Royal Orthopaedic Hospital, Birmingham, United Kingdom*
12:02	OP8.5	**The relationship between lesion geometry and pathological fracture risk in a metastasis model of the femoral neck** **Ferhat Say[1]**, Murat Gölpınar[2], Fatih Başoğlu[3], Mevlüt Gürbüz[4], Mesut Öztürk[5], Mehmet Emirzeoğlu[6], Bünyamin Şahin[7] *[1]Department of Orthopaedics and Traumatology, Faculty of Medicine, Ondokuz Mayıs University, Samsun, Turkey; [2]Department of Anatomy, Faculty of Medicine, Hitit University, Çorum, Turkey; [3]Department of Civil Engineering, Faculty of Engineering, Ondokuz Mayıs University, Samsun, Turkey; [4]Department of Mechanical Engineering, Faculty of Engineering, Ondokuz Mayıs University, Samsun, Turkey; [5]Department of Radiology, Faculty of Medicine, Samsun University, Samsun, Turkey; [6]Department of Anatomy, Faculty of Medicine, Ondokuz Mayıs University, Samsun, Turkey; [7]Department of Anatomy, Faculty of Medicine, Gaziosmanpasa University, Tokat, Turkey*
12:07	OP8.6	**Design and mechanical behavior of 3D printed polymeric bone scaffolds to repair bone defect. Experimental study** **Pablo Arbelaez[1]** *Hospital Universitario San Ignacio, Bogota, Colombia*
12:12	OP8.7	**Tumor Microenvironment Reprogramming during neoadjuvant therapy in advanced osteosarcoma** **Hongmin Chen**, Jin Wang *Department of Musculoskeletal Oncology, Sun Yat-sen University Cancer Center, Guangzhou, China*
12:17	OP8.8	**Why certain pathological fractures do not heal well?: Sustained inflammation and deranged cytokine expression impair healing of pathological fractures in the presence of breast cancer cells** **Francis Lee**, Christopher Dussik *Yale University, United States*

Optimist A & B

11:30-12:30 Platform Session 9 | Implant engineering

Moderators: **Eric Zeegen** (United States) - **Dan Librot** (United States)

11:30	IL9	**Introductory Lecture** **3d printed plates in Orthopaedic Oncology Reconstruction: Are they worth the effort and cost?** **Manish Agarwal**, Ashik Bary, Amit Gupta *Nanavati Max Superspeciality Hospital, Mumbai, India*
11:42	OP9.1	**The outcome of 3-D printed implants in Joint sparing limb salvage surgery, review of 39 cases** **Ahmad Shehadeh** *King Hussein Cancer Center, Amman, Jordan*
11:47	OP9.2	**Design and biomechanical validation of a novel fusion-type proximal humeral prosthesis** **Jiaming Lin**, Xiaojun Zhu, Qinglian Tang, Jin Wang *Department of Musculoskeletal Oncology, Sun Yat-sen University Cancer Center, Guangzhou, China*

11:52	OP9.3	**Design elements of an intramedullary stem utilizing a mechanical integration rationale** John A. Abraham[1,2,3], David S. Geller[4], Andrew R. Fauth[5], Ryan Paul[1], Jon Bitter[5] *[1]Rothman Orthopaedic Institute, Philadelphia, United States; [2]Capital Health, Bordentown, United States; [3]Fox Chase Cancer Center, Philadelphia, United States; [4]Montefiore Medical Center, Bronx, United States; [5]OsteoCentric, Austin, United States*
11:57	OP9.4	**Mechanical Integration may provide an alternate means of fastening orthopedic oncology implants to compromised bone** John A. Abraham[1,2,3], David S. Geller[4], Andrew R. Fauth[5], Ryan Paul[1], Jon Bitter[5] *[1]Rothman Orthopaedic Institute, Philadelphia, United States; [2]Capital Health, Bordentown, United States; [3]Fox Chase Cancer Center, Philadelphia, United States; [4]Montefiore Medical Center, Bronx, United States; [5]OsteoCentric, Austin, United States*
12:02	OP9.5	**Effect of bone cement augmentation with different configurations of the dual locking plate for femoral allograft fixation: Finite element analysis and cadaveric validation study** Taweechok Wisanuyotin, Permsak Paholpak, Winai Sirichativapee, Wilasinee Sirichativapee, Kornchanok Netchalirat, Weerachai Kosuwon *Department of orthopaedics, Faculty of Medicine, Khon Kaen University, Thailand*
12:07	OP9.6	**Prostho-prosthetic composite Limb salvage for massive Chondrosarcoma of the proximal humerus- maiden use of 3D printing to reconstruct multiple bones around the shoulder: a video demonstration** Pramod Chinder Shekarappa[1], Suraj Hindiskere[1], Prashanth Puranik[1], Muralikrishna Nekkanti[2], B Chandramouli[3] *[1]HCG Hospital & The Yellow Ribbon, Bangalore, India; [2]Jayadeva Institute of Cardiovascular Sciences and Research, India;f [3]Kauvery Hospital, Bangalore*

Main Hall

12:30-13:00 **ISOLS Lecture - Translational research advances in sarcoma care**

Chairs: **Evanthia Galanis** (United States) - **Tsuchiya Hirohuki** (Japan)

Translational research advances in sarcoma care
Robert Hoffman (United States)

13:15-14:15 Lunch Break

Main Hall

14:30-16:15 **Orthopedic Oncology Training Worldwide**

Chairpersons: **Panayiotis J. Papagelopoulos** (Greece) - **Douglas Letson** (United States)

Orthopaedic oncology fellowship program in USA
Valerae O. Lewis (United States)

Education on sarcoma: worth the effort?
Andreas Leithner (Austria)

How to live with orthopedic oncologic complications
Eduardo Botello (Chile)

ISOLS as an international education body-what the future could look like
Peter Steadman (Australia)

16:15- 16:30 **Special Lecture**

Chairperson: Panayiotis J. Papagelopoulos (Greece)

How far the osteosarcoma cells travel in the bone and how far is the safe osteotomy range
Xiaohui Niu (China)

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Laureate Room

14:30-15:30 Flash Session 13 | Surgery of bone and soft tissue tumours

Moderators: **Philipp Theodor Funovics** (Austria) - **Gerard Powell** (Australia)

14:30	FS13.1	**Patient and surgical risk factors for surgical site infection in lower extremity oncologic endoprosthetic reconstruction: A secondary analysis of the PARITY trial data** David Slawaska-Eng[1], Aaron Gazendam[1], Tricia Schneider[1], Joseph Kendal[3], Ricardo Becker[2], Joao Paulo Fonseca de Freitas[4], Nicholas Bernthal[3], Michelle Ghert[1] *[1]McMaster University, Hamilton, Canada; [2]Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil, [3]University of California, Los Angeles, Los Angeles, United States; [4]University of Coimbra, Coimbra, Portugal*
14:33	FS13.2	**Structural allograft for benign bone tumors** Juan Carlos González-Saldivar[1], Adriana Hernandez-Lopez[1], Adrian Torres-Gaytan[2], Carlos Cuervo-Lozano[2] *[1]Orthopaedic Oncology Institute - Tec Salud, San Pedro Garza García, Mexico; [2]Universidad Autónoma de Nuevo Leon, Departamento de Traumatologia y Ortopedia, Monterrey, Mexico*
14:36	FS13.3	**Filling with alpha-tricalcium phosphate followed by curettage and phenol-ethanol ablation for appendicular giant cell tumor of bone** Hiromichi Oshiro, Yasunori Tome, Yuichi Tsuha, Yusuke Aoki, Kohei Mizuta, Kotaro Nishida *Graduate School of Medicine, University of the Ryukyus, Nishihara-cho, Nakagami-gun, Okinawa, Japan*
14:39	FS13.4	**Freezing in Florida – Are we ready for diversity?** Stephanie Zarate[1], Pablo Stoppiello[2], Gottardo Bianchi[2], Leticia Gaiero[2], Nicolas Casales[2], Claudio Silveri[2], Ana Cecilia Belzarena[1] *[1]Miami Cancer Institute, Miami, United States; [2]Universidad de la Republica, Montevideo, Uruguay*
14:41	FS13.5	**Oncological and functional outcomes of planned and unplanned excision of soft tissue sarcoma** Atsushi Mihara[1], Ryuta Iwanaga[1], Keiichi Muramatsu[2], Koichiro Ihara[3], Takashi Sakai[1] *[1]Yamaguchi University Graduate School of Medicine, Ube, Japan; [2]Nagato General Hospital, Nagato, Japan; [3]Kanmon Medical Center, Shimonoseki, Japan*
14:44	FS13.6	**Preoperative imaging determines necessity of tissue biopsy in extraperitoneal lipomatous tumor** Chindanai Hongsaprabhas[1], Todsapon Chancharoenchai[1], Chris Charoenlap[1], Aticha Ariyachaipanich[2], Chindarat Ratanakornphan[2], Numphung Numkarunarunrote[2], Anand Prugmahachaikul[3], Voranuch Thanakit[3] *[1]Department of Orthopaedics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand; [2]Department of Radiology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand; [3]Department of Pathology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand*
14:47	FS13.7	**Chondrosarcoma of the Pelvis: surgical management options and outcomes of 41 cases** Hong Duan, Xiang Fang, Wenli Zhang, Chongqi Tu, Dechao Yuan, Senlin Lei *West China School of Medicine/west China Hospital, Sichuan University, Chengdu, China*
15:00	FS13.8	**Surgical strategy for benign lesions in proximal femur: internal fixation or endoprosthetic replacement** Hong Duan, Xiang Fang, Wenli Zhang, Chongqi Tu, Yi Luo, Senlin Lei West China School of Medicine/west China Hospital, Sichuan University, Chengdu, China
15:03	FS13.9	**Surgical options and outcomes for pelvic bone metastasis** Dechao Yuan, Xiang Fang, Xiang Fang, Wenli Zhang, Chongqi Tu, Banskota Nishant West China School of Medicine/west China Hospital, Sichuan University, Chengdu, China
15:06	FS13.10	**Surgical management of metastatic lesions of the proximal femur with pathological fractures using intramedullary nailing or endoprosthetic replacement** Xiang Fang, Xiang Fang, Wenli Zhang, Chongqi Tu, Dechao Yuan, Senlin Lei, Banskota Nishant West China School of Medicine/west China Hospital, Sichuan University, Chengdu, China
15:09	FS13.11	**PET Imaging Versus Clinical Examination in Determining Lymph Node Involvement in Merkel Cell Carcinoma of the Extremity** Samuel Broida, Xiao T. Chen, Brian Wahlig, Steven Moran, Matthew Houdek Mayo Clinic, Rochester, United States
15:12	FS13.12	**Outcome of multidisciplinary treatment of merkel cell carcinoma of the lower extremity** Samuel Broida, Xiao T. Chen, Brian Wahlig, Steven Moran, Matthew Houdek Mayo Clinic, Rochester, United States
15:15	FS13.13	**Outcome of multidisciplinary treatment of merkel cell carcinoma of the upper extremity** Samuel Broida, Xiao T. Chen, Kareme Alder, Steven Moran, Matthew Houdek Mayo Clinic, Rochester, United States

Optimist A & B

14:30-15:30 Flash Session 14 | Limb salvage surgery

Moderators: **Paul Stalley** (Australia) - **Santiago Lozano-Calderon** (United States)

14:30	FS14.1	**En bloc resection and intercalary endoprosthetic reconstruction for palliative treatment of patients with diaphyseal long bone metastases** Joshua Johnson, Robert Satcher, Valerae Lewis, Bryan Moon, Patrick Lin *MD Anderson Cancer Center, Houston, United States*
14:33	FS14.2	**Distal femur pedicle frozen autograft reconstruction for malignant bone tumors** Juan P Zumarraga[1,2,3,4], Diego E Rubio[2,4], Estuardo J Barragan[1] *[1]Universidad San Francisco de Quito, Quito, Ecuador; [2]Hospital Metropolitano, Quito, Ecuador; [3]Hospital Vozandes, Quito, Ecuador; [4]Hospital Monte Sinai, Cuenca, Ecuador*

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14:36	FS14.3	**The short-term clinical efficacy of fused proximal humerus prosthesis** **Jiaming Lin**, Xiaojun Zhu, Qinglian Tang, Jin Wang *Department of Musculoskeletal Oncology, Sun Yat-sen University Cancer Center, Guangzhou, China*
14:39	FS14.4	**Serial radiographic appearance of cerament bone graft substitute in various orthopaedic surgery applications** **Bryeson Rodgers[1]**, Krista Goulding[2], Jonathan Flug[3], Jeremiah Long[3] *[1]Alix School of Medicine, Mayo Clinic, Scottsdale, United States; [2]Department of Orthopedic Surgery, Mayo Clinic, Phoenix, United States; [3]Department of Musculoskeletal Radiology, Mayo Clinic, Phoenix, United States*
14:41	FS14.5	**Which is the best tool for assessing functional outcome following endoprosthetic reconstruction around the knee in Indian population- MSTS 87, MSTS 93 or TESS?** **Venkatesan Sampath Kumar**, Love Kapoor, Roshan Banjara, Sandeep Sehrawat, Abhijit Behera, Shah Alam Khan *All India Institute of Medical Sciences, New Delhi, India*
14:44	FS14.6	**Does reverse total shoulder arthroplasty with allograft-prosthesis composite (APC) has surgical benefits over hemiarthroplasty with APC in patients with tumors of the proximal humerus?** **Yongsung Kim[1]**, Wan Lim Kim[2], Kunhyung Bae[2], Joo Han Oh[1,4], Ilkyu Han[3,4], Han-Soo Kim[3,4], Hwan Seong Cho[1] *[1]Department of Orthopaedic Surgery, Seoul National University Bundang Hospital, Seongnam-si, South Korea; [2]Department of Orthopaedic Surgery, Asan Medical Center, Ulsan University College of Medicine, Seoul, Republic of Korea, South Korea; [3]Department of Orthopaedic Surgery, Seoul National University Hospital, South Korea; [4]Department of Orthopaedic Surgery, Seoul National University College of Medicine, South Korea*
14:47	FS14.7	**Implant survival of 89% in custom 3D-printed ONKOS hemipelvis endoprostheses** **Bryeson Rodgers[1]**, Nathaniel Hinckley[2], Zachary Christopher[2], Christopher Beauchamp[2], Krista Goulding[2] *[1]Mayo Clinic Alix School of Medicine, Scottsdale, United States; [2]Department of Orthopedic Surgery, Mayo Clinic, Phoenix, United States*
14:50	FS14.8	**What is the infection risk of massive allograft reconstruction after bone tumor resection?** Leonardo Baroni, Francesco Muratori, Filippo Frenos[1] Mariagrazia Marsico, Guido Scoccianti, **Domenico Andrea Campanacci** *Orthopaedic Oncology Unit, Azienda Ospedaliera Universitaria Careggi, Firenze, Italy*
14:53	FS14.9	**Retrospective evaluation of silver coated tumour prostheses: about 56 cases with 53 months follow up** **Fabrice Fiorenza**, Jean Philippe Bernard, Jeremy Hardy, Pierre Gominard, Hélène Durox, Eric Denes, Christian Mabit *Dupuytren University Hospital, Limoges, France*
14:56	FS14.10	**Series of proximal humerus endoprosthesis reconstruction post tumour resection - Penang, Malaysia experience** **Chee Leong Choong**, Shun Herng Tan, Sanjeevan Radhakrishnan, Prashant Narhari, Azuhairy Azid *Orthopaedic Oncology Unit, Penang General Hospital, Georgetown, Malaysia*
14:59	FS14.11	**Survival of distal femur replacement for oncologic diseases. Does implant characteristic and type of tibial component affects survival?** Yousef Abuodeh[1], G Douglas Letson[2], Pongsiri Piakong[3], Piya Kiatisevi[3], **Brooke Crawford[1]**, H. Thomas Temple[1] *[1]University Of Miami, Miami, United States; [2]Orthopaedics, Moffitt Cancer Center, Tampa, United States; [3]Institute of Orthopaedics, Lerdsin Hospital, Bangkok, Thailand*
15:01	FS14.12	**Cost effective options of limb salvage in pediatric bone sarcomas: minding the problem and finding solutions in developing countries** **Venkatesan Sampath Kumar**, Love Kapoor, Roshan Banjara, Sandeep Sehrawat, Abhijit Behera, Sameer Bakhshi, Shivanand Gamanagatti, Shah Alam Khan *Department of Orthopedics, All India Institute of Medical Sciences, New Delhi, India*
15:04	FS14.13	**Joint sparing endoprostheses of the long bones in the treatment of musculoskeletal tumours** Saurabh Singh[2], **Will Aston**, Rob Pollock[1], Craig Gerrand[1] *[1]Royal National Orthopaedic Hospital, Stanmore, United Kingdom; [2]TSM Medical College and Hospital, Lucknow, India*
15:07	FS14.14	**Limb salvage after multiple local recurrences of pleomorphic sarcoma in the forearm** **Peter Luke,** David Yung, Kumaran Rasappan, Chung Ming Chan, Mark E Puhaindran *Div. of Musculoskeletal Oncology, Dept. of Orthopaedic Surgery, National University Hospital, Singapore, Singapore, Singapore*
15:10	FS14.15	**Limb Salvage following intercalary resection of malignant tumors using biological reconstruction methods: Functional & oncological outcomes of 48 patients** **Amit Gupta**, Manish Agarwal, Ashik Bary *Nanavati Max Superspeciality Hospital, Mumbai, India*
15:13	FS14.16	**Autobiologic reconstruction of the hip with dual vascularized fibula grafts in the immature skeleton. A 20-year follow-up with functional evaluation** Peter Bergh[1], **Örjan Berlin[1]**, Christina Berger[1], Jonas Lundberg[2], Hans Mark[2] *[1]Sahlgren University Hospial, Dept of Orthopedics, Gothenburg, Sweden; [2]Sahlgren University Hospial, Dept of Plastic Surgery, Gothenburg, Sweden*

Laureate Room

15:30-16:30 Flash Session 15 | Surgery of bone and soft tissue tumours

Moderators: **Theodore Kormas** (Greece) - **Nicolas Casales** (Uruguay)

15:30	FS15.1	**The efficacy of ADC map for the treatment outcome in patients with osteosarcoma** **Hiroshi Koike[1]**, Yoshihiro Nishida[2], Hiroshi Urakawa[1], Kunihiro Ikuta[1], Tomohisa Sakai[1], Kan Ito[1], Shiro Imagama[1] *[1]Department of Orthopedic Surgery, Nagoya University Hospital, Nagoya, Japan; [2]Department of Rehabilitation Medicine, Nagoya University Hospital, Nagoya, Japan*

DAY 3 | Thursday, 8 September 2022

15:33	FS15.2	**Clinical and imaging features affecting the necessity of tissue biopsy in pathological long bone fractures** **Todsapon Chancharoenchai[1]**, Chindanai Hongsaprabhas[1], Chris Charoenlap[1], Aticha Ariyachaipanich[2], Chindarat Ratanakornphan[2], Numphung Numkarunarunrote[2], Anand Prugmahachaikul[3], Voranuch Thanakit[3] *[1]Department of Orthopaedics, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand; [2]Department of Radiology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand; [3]Department of Pathology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand*
15:36	FS15.3	**Prognostic influence of rejection of (neo-) adjuvant sarcoma therapy** Franziska Mentrup[1], Alexander Klein[1], **Julian Fromm[1]**, Silke Nachbichler[2], Lars Lindner[3], Thomas Knösel[4], Hans Roland Dürr[1] *[1]Orthopaedic Oncology, Department of Orthopaedic and Trauma Surgery, LMU Munich, Germany; [2]Department of Radiation Oncology, LMU Munich, Germany; [3]Department of Medical Oncology, LMU Munich, Munich, Germany; [4]Department of Pathology, LMU Munich, Munich, Germany*
15:39	FS15.4	**Defining the management of bone and soft tissue sarcomas diagnosed during pregnancy using 38-year data collected in a single centre** **Chee Leong Choong**, Vineet John Kurisunkal, Jonathan Stevenson, Lee Jeys *Royal Orthopaedic Hospital NHS Trust, Birmingham, United Kingdom*
15:41	FS15.5	**Staged conversion of the tripod technique to cemented total hip arthroplasty: early experience. A retrospective study** **Waleed Al-Hardan[1]**, Nicket Dedhia[1], Kathryn Segal[2], Jichuan Wang[1], Bang Hoang[1], David Geller[1], Rui Yang[1] *[1]Montefiore Medical Center, Department of Orthopedic Surgery, Bronx, United States; [2]Albert Einstein College of Medicine, Bronx, United States*
15:44	FS15.6	**Topic use of vancomycin powder to cover megaprosthesic implants: an expedient to reduce the burden of infections** Lorenzo Andreani, **Lorenzo Andreani**, Giorgio Varchetta, Silvia De Franco, Olimpia Mani, Antonio D'Arienzo, Rodolfo Capanna *University of Pisa, Pisa, Italy*
15:47	FS15.7	**Moving toward an international sarcoma registry: Establishing data elements for the musculoskeletal tumor registry sarcoma module** Eric R Henderson[2], Nathan Mesko[4], **Benjamin J. Miller[5]**, George Calvert[3], Adam Levin[1], on behalf of the Musculoskeletal Tumor Registry Steering Committee[6] *[1]Johns Hopkins University, Baltimore, United States; [2]Dartmouth-Hitchcock Medical Center, Lebanon, United States; [3]Norton Healthcare, Louisville, United States; [4]Cleveland Clinic, Cleveland, United States; [5]University of Iowa, Iowa City, United States; [6]American Academy of Orthopaedic Surgeons, Rosemont, United States*
15:50	FS15.8	**Development of the metastatic bone disease module within the American academy of orthopaedic surgeons musculoskeletal tumor registry** George Calvert[2], Nathan Mesko[3], Eric R. Henderson[5], Adam Levin[1], **Benjamin J. Miller[4]**, on behalf of the Musculoskeletal Tumor Registry Steering Committee[6] *[1]Johns Hopkins University, Baltimore, United States; [2]Norton Healthcare, Louisville, United States; [3]Cleveland Clinic, Cleveland, United States [4]University of Iowa, Iowa City, United States; [5]Dartmouth-Hitchcock Medical Center, Lebanon, United States; [6]American Academy of Orthopaedic Surgeons, Rosemont, United States*
15:53	FS15.9	**Mythology to modular, history of endoprosthetic reconstruction and limb salvage of the distal femur** **Alberto Crimi[1]**, David Joyce[1], Odion Binitie[1], Pietro Ruggieri[2], Douglas Letson[1] *[1]Sarcoma Department, Moffitt Cancer Center, University of South Florida, United States; [2]Orthopedics and Orthopedic Oncology, Department of Surgery, Oncology and Gastroenterology DiSCOG, University of Padova, Italy*
15:56	FS15.10	**The infected megaprostheses: treatment strategies, results** Alexander Klein, **Julian Fromm**, Hans Roland Dürr *Hospital Of University Munich, Münich, Germany*
15:59	FS15.11	**Management of diffuse-tenosynovial giant cell tumor by combination of surgery and pexidartinib treatment: presentation of 3 clinical cases** **John H. Healey[1]**, R. Lor Randall[2], Nicholas M. Bernthal[3] *[1]Department of Orthopaedic Surgery, Memorial Sloan Kettering Cancer Center, New York, United States; [2]Department of Orthopaedic Surgery, University of California, Davis, Sacramento, United States; [3]Department of Orthopaedic Surgery, David Geffen School of Medicine at UCLA, Santa Monica, United States*
16:02	FS15.12	**A patient with diffuse intramuscular lipomatosis of a lower limb having pudendal nerve insufficiency – Successfully resected following vascular embolization** **Hanako Tsuji**, Jun Nishida, Yuichi Ichikawa, Takanori Hatanaka, Takashi Koyama, Kengo Yamamoto *Tokyo Medical University, Shinjuku-ku, Japan*
16:05	FS15.13	**Prognostic factors and outcomes of dedifferentiated chondrosarcoma—The University of Florida Experience** **Danielle Chun**, Andre Spiguel, Parker Gibbs, Mark Scarborough, Gregory LaChaud *University of Florida, Gainesville, United States*
16:08	FS15.14	**Pedicled sartorius flap and mesh (PSM) technique vs no reconstruction in reconstructing the defect after type III pelvic tumor resection: A retrospective study** **Xinhui Du[1,2,3]**, Guoxin Qu[1,2,3], Boya Zhang[1,2,3], Shilei Gao[1,2,3], Fan Zhang[1,2,3], Xu Liu[1,2,3], Xin Liu[1,2,3], Yu Cheng[1,2,3], Weitao Yao, Hua Wei *[1]Bone and Soft Tissue Department, The Affiliated Cancer Hospital of Zhengzhou University & Henan Cancer Hospital, Zhengzhou, China; [2]Key laboratory for digital assessment of spinal-pelvic tumor and surgical aid tools design (Zhengzhou), Zhengzhou, China; [3]Key laboratory for perioperative digital assessment of bone tumors (Henan), Zhengzhou, China; [4]Department of Anesthesiology, Pain and Perioperative Medicine, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China*
16:11	FS15.15	**Experience of utilizing a novel 3D digital model with CT and MRI fusion data in sarcoma evaluation and surgical planning** **Xinhui Du[1,2,3]**, Hua Wei[4], Guoxin Qu[1,2,3], Boya Zhang[1,2,3], Xiu Liu[1,2,3], Shilei Gao[1,2,3], Fan Zhang[1,2,3], Yu Cheng[1,2,3], Weitao Yao[1,2,3], Qiqing Cai[1,2,3] *[1]Bone and Soft Tissue Department, The Affiliated Cancer Hospital of Zhengzhou University & Henan Cancer Hospital, Zhengzhou, China; [2]Key laboratory for digital assessment of spinal-pelvic tumor and surgical aid tools design (Zhengzhou), Zhengzhou, China; [3]Key laboratory for perioperative digital assessment of bone tumors (Henan), Zhengzhou, China; [4]Department of Anesthesiology, Pain and Perioperative Medicine, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China*

16:14	FS15.16	**Does endothelial cell dysfunction decide surgical wound health in bone sarcoma? A prospective study evaluating factors predicting wound complications in bone sarcoma** **Shah Alam Khan**, Love Kapoor, Venkatesan Sampath Kumar *All India Institute of Medical Sciences, New Delhi, India*
16:17	FS15.17	**The effects of neoadjuvant or adjuvant radiation or chemotherapy on the local recurrence, distant metastasis and overall survival in myxofibrosarcoma patients: A meta-analysis of existing literature** Yousef Abuodeh, **Brooke Crawford**, H Thomas Temple University of Miami, Miami, United States

Optimist A & B

15:30-16:30 Flash Session 16 | Limb salvage surgery

Moderators: **Andrzej Szafranski** (Poland) - **Nichola Fabbri** (United States)

15:30	FS16.1	**Mid-term results of utilizing a magnetic lengthening nail for intercalary allograft reconstruction after tumor resection** **Lee Zuckerman**[1], J. Dominic Femino[1], Mark Agulnik[1], Nadine Williams[2] *[1]City Of Hope National Medical Center, Duarte, United States; [2]Loma Linda University Medical Center, Loma Linda, United States*
15:33	FS16.2	**Translation, validation, and cross-cultural adaptation of the Toronto extremity salvage score system into the Arabic language** **Musab Alageel**[1], Ibrahim AlShaygy[1], Motaz Alogayyel[1], Abdulrahman AlAseem[1], Abdulaziz AlSudairi[1], Khalid Murrad[1], Anthony Griffen[3], Mahmoud Shaheen[2], Mohammed AlTayeb[2], Fawzi Aljasir[1] *[1]Department of Orthopedic Surgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia; [2]Department of Orthopedic Surgery, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia; [3]Musculoskeletal Oncology Onit, Orthopedic Surgery, Mount Sinai Hospital, Toronto, Canada*
15:36	FS16.3	**Distraction osteogenesis for reconstruction of intercalary defects with a bone transport nail after tumor resection** **Lee Zuckerman**[1], J. Dominic Femino[1], Mark Agulnik[1], Nadine Williams[2] *[1]City of Hope National Medical Center, Duarte, United States; [2]Loma Linda University Medical Center, Loma Linda, United States*
15:39	FS16.4	**Reconstructions surgery with custom-made 3D-printed pelvic prosthesis due to malignancy or benign bone tumors involving the acetabulum. Single-center retrospective cohort study with clinical follow-up including patients from 2014 to 2020** **Müjgan Yilmaz**, Linda Fernandes, Michael Mørk Petersen *[1]Rigshospitalet, Copenhagen, Denmark; [2]Hillerød Hospital, Hillerød, Denmark*
15:41	FS16.5	**Comparing limb-salvage techniques for proximal tibia tumors: Allograft prosthetic composite associated with higher reoperation rate but longer survival than proximal tibial replacements** **Katherine Mallett**, Peter Rose, Matthew Houdek *Mayo Clinic, Rochester, United States*
15:44	FS16.6	**Clinical outcomes of a modular platform shoulder prosthesis used to perform reverse total shoulder arthroplasty for the treatment of complex fractures and proximal humeral bone loss** **C. Parker Gibbs**[1], Mark T. Scarborough[1], Pietro Ruggieri[2], Ms Josie Elwell[5], Christopher P. Roche[5], Pierre-Henri Flurin[4], Joseph D. Zuckerman[3], Thomas W. Wright[1] *[1]Department of Orthopaedics, University of Florida, Gainesville, United States; [2]Department of Orthopedics and Orthopedic Oncology, University of Padua, Padua, Italy; [3]Department of Orthopedic Surgery, NYU Langone Orthopaedic Hospital, New York, United States; [4]Department of Orthopedic Surgery, Bordeaux-Mérignac Clinic, Mérignac, France; [5]Exactech, Inc., Gainesville, United States*
15:47	FS16.7	**Prophylactic gracilis muscle free flap transfer in a high-risk ankle arthroplasty patient** **Arman Fijany**, Griffin Rechter, Sofia Olsson, Michael Downey, Maxim Pekarev *TCU School of Medicine, Fort Worth, United States*
15:50	FS16.8	**Wound complication risk factors of soft tissue sarcoma resection with neoadjuvant radiotherapy** **Zhengxiao Ouyang**[1,2], Sally Trent[3], Cosker Thomas[1], Duncan Whitwell[1], Harriet Branford White[1], CLMH Gibbons[1] *[1]Nuffield Orthopaedic Centre, Oxford University Hospitals Foundation Trust, Oxford, United Kingdom; [2]Department of Oncology, Churchill Hospital, Oxford University Hospitals Foundation Trust, Oxford, United Kingdom; [3]Department of Orthopedics, The Second Xiangya Hospital, Central South University, Changsha, Hunan, China*
15:53	FS16.9	**Secondary chrondrosarcoma of clavicle due to multiple hereditary exostosis in adolescent** **Badaruddin Sahito**, Asif Jatoi, Awais Abro, Nauman H Rajput, Asadullah Solangi, Maratib Ali *Dow University of Health Sciences / Dr Ruth KM Pfau Civil Hospital Karachi, Karachi, Pakistan*
15:56	FS16.10	**Frozen bone-tendon-bone autograft for reconstruction of extensor apparatus of the knee in a patient with soft tissue sarcoma** **Koichiro Ihara**[1], Takatomo Mine[1], Michio Shinohara[1], Ryutaro Kuriyama[1], Yasuhiro Tominaga[1], Takanori Yonehara[1], Ken-ichiro Murata[2] *[1]Department of Orthopaedic Surgery/Kanmon Medical Center/NHO, Shimonoseki, Japan; [2]Department of Pathology/Kanmon Medical Center/NHO, Shimonoseki, Japan*
15:59	FS16.11	**'Spare-parts' in surgery - optimising functional outcomes for below knee amputations with insufficient stump length** **Harry Burton**, Georgios Pafitanis *Guys And St Thomas NHS Trust, London, United Kingdom*
16:01	FS16.12	**A new technique for internal trifocal bone transport with two lengthening nails, for defects above 8-10 cm** Ulrik Kähler Olesen, **Michael Mørk Petersen**, Upender Martin Singh *Rigshospitalet, Copenhagen, Danmark*
16:04	FS16.13	**Biological reconstruction for parosteal osteosarcoma of the distal femur** **Dimitra Melissaridou**, Olga Savvidou, Stavros Goumenos, Ioannis Trikoupis, Panagiotis Gavriil, Panayiotis Papagelopoulos *National and Kapodistrian University of Athens, Greece*

DAY 3 | Thursday, 8 September 2022

16:07	FS16.14	**Limb salvage for infected T.K.A. using a modular silver coated arthrodesis implant** **Dimitra Melissaridou**, Olga Savvidou, Ioannis Trikoupis, Stavros Goumenos, Panagiotis Gavriil, Panayiotis Papagelopoulos *First Department of Orthopedic Surgery, National and Kapodistrian University of Athens, Greece*
16:13	FS16.15	**Endoprosthetic replacement of the proximal tibia for oncological conditions** Federico Sacchetti[1], **Will Aston[2],** Rob Pollock[2], Pierluigi Cuomo[3], Panos Gikas[2], Craig Gerrand[2] *[1]Ortopedia Oncologica E Ricostruttiva, Firenze, Italy; [2]Royal National Orthopedic Hospital, London, United Kingdom; [3]Department of Bioengineering, Imperial College, London, United Kingdom*
16:16	FS16.16	**What are long-term results of growth plate fibular transplantation in proximal humerus and distal radius reconstructions in paediatric age?** **Domenico Andrea Campanacci[1]**, Giuditta Cammelli[1], Elena Lucattelli[2], Roberto Scanferla[1], Francesco Muratori[1], Rodolfo Capanna[3], Marco Innocenti[2] *[1]Orthopaedic Oncology, Azienda Ospedaliera Universitaria Careggi, Firenze, Italy; [2]Plastic Surgery, Azienda Ospedaliera Universitaria Careggi, Firenze, Italy; [3]Ortopaedic Clinic, University of Pisa, Pisa, Italy*
16:19	FS16.17	**Bone reconstruction with a magnetically-driven, intramedullary bone transport nail: Novel application on intercalary femur defect after tumor resection. A case report** **Kourosh Zarghooni**, Peter Knöll, Sebastian Walter, Ayla Yagdiran, Peer Eysel *University Hospital Cologne, Köln, Germany*
16:22	FS16.18	**Indications and longevity of endoprosthetic reconstructions for patients with metastatic bone disease** **Christopher Hamad[1],** Joseph Kendal[1], Annalise Abbott[2], Danielle Greig[1], Lauren Wessel[1], Shannon Puloski[2], Michael Monument[2], Nicholas Bernthal[1] *[1]UCLA Department of Orthopaedic Surgery, Los Angeles, California, United States; [2]University of Calgary Section of Orthopaedic Surgery, Calgary, Alberta, Canada*

16:30-17:00 Coffee Break - e-Posters viewing

Main Hall

17:00-18:30 ***ISOLS General Assembly***

DAY 4 | Friday, 9 September 2022

Main Hall

09:00-10:00 Flash Session 17 | Surgery of bone and soft tissue tumours

Moderators: **Dimosthenis Andreou** (Austria) - **Douglas Letson** (United States)

09:00	FS17.1	**Postoperative function and walking ability of hip transposition arthroplasty following resection of pelvic sarcoma** **Toshiyuki Kunisada**, Eiji Nakata, Tomohiro Fujiwara, Masuo Senda, Toshifumi Ozaki *Okayama University, Okayama, Japan*
09:03	FS17.2	**Role of bone grafting, cementing in large Gd3 campanacci GCTumors of proximal tibia** **Vijay Titus** *Christian Medical Coolege and Hosp, Vellore, India*
09:06	FS17.3	The prevalence of iron deficiency anaemia, and association with peri-operative transfusion rates in patients undergoing resections of bone and soft tissue sarcomas and metastatic bone disease **Rachel Mahoney,** Usman Khattak, Ben Smith, Kuda Nyangoni, Scott Evans *Royal Orthopaedic Hospital, Birmingham, United Kingdom*
09:09	FS17.4	**Reconstruction of intercalary bone defect after resection of malignant bone tumor** **Frank Traub[1]**, Saskia Sachsenmaier[2], Wagner Daniel[1], Isabel Sperrhake[2], Philipp Drees[1] *[1]University Medical Center of the Johannes-Gutenberg-University Mainz, Germany; [2]Department of Orthopaedic Surgery, University of Tuebingen, Germany*
09:12	FS17.5	**Intralesional curettage and bone graft for the treatment of bone GCT. Experience in a single institution since 1982** **Laura Trullols Tarragó[1]**, Ana Peiró Ibañez[1], Pau Machado Granados[1], Javier Arenas Romera[1], Alfonso Mandía Martínez[1], Joan Sugrañes Camprubí[1], Ferran Abat Gonzalez[2], Marta Almenara Fernandez[1], Isidre Gracia Alegría[1] *[1]Hospital De La Santa Creu I Sant Pau, Barcelona, Spain; [2]Resport Clinic, Barcelona, Spain*
09:15	FS17.6	**Experience of interstitial permanent I (125) brachytherapy for extremity soft tissue sarcomas** Wenli Zhang[1], **Xiang Fang[1]**, Xiang Fang[1], Chongqi Tu[1], Yi Luo[1], Yong Zhou[1] *West China School of Medicine/west China Hospital, Sichuan University, Chengdu, China*
09:18	FS17.7	**Is a carbon enhanced polymer intramedullary nails safe to use for patients with metastatic bone disease in the femoral bone? A retrospective cohort study** Allan Villadsen[1,2], Arnold Chen[3], Jakub Jagiello[1], **Luke Johnson[1]** *[1]SA Soft Tissue and Bone Tumour Unit, Dept. of Orthopaedics, Flinders Medical Centre, Adelaide, Bedford Park, Adelaide, Australia; [2]University Hospital Rigshospitalet, Copenhagen, Denmark, [3]Flinders University, Adelaide, Australia*
09:21	FS17.8	**Enchondroma of acromion: Case report of an unusual tumor location** Safak Aydın Simsek[1], Tolgahan Cengiz[1], Oğuzhan Muslu[1], Alparslan Yurtbay[2], Farak Say[1], **Nevzat Dabak[1]** *[1]Orthopedics and Traumatology, Ondokuz Mayıs University, Turkey; [2]Orthopedics and Traumatology, Samsun University, Turkey*
09:24	FS17.9	**A rare diagnosis: osteoid osteoma in the metacarpal bone** Tolgahan Cengiz, Safak Aydın Simsek, Oğuzhan Muslu, Ercan Bayar, Farak Say, **Nevzat Dabak** *Orthopedics and Traumatology, Ondokuz Mayıs University, Turkey*
09:27	FS17.10	**Incidence and risk factors for recurrence giant cell tumour of tendon sheath in hand** **Sudhir Kumar Garg[1]**, Gagan DJ, Purnima Aggarwal, Rajeev Kansay *Government Medical College & Hospital, Chandigarh, India*
09:30	FS17.11	**Can the unipedicular approach replace bipedicular percutaneous balloon kyphoplasty for the management of metastatic vertebral lesions?** **Wence Wu**, Xiaoyang Li, Shengji Yu *National Cancer Center, National Clinical Research Center for Cancer, Cancer Hospital, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China*
09:33	FS17.12	**Evaluating the utilisation of biopsy in suspected chondrosarcoma** **Wentin Chen[1,2]**, Tania Kew[1,2], Mr Thomas Haider[1], Jonathan Stevenson[1], Michael Parry[1], Guy Morris[1], Lee Jeys[1,3] *[1]Royal Orthopaedic Hospital, Birmingham, United Kingdom; [2]College of Medical and Dental Sciences, University of Birmingham, Birmingham, United Kingdom; [3]School of Health and Life Sciences, Aston University, Birmingham, United Kingdom*
09:36	FS17.13	**Utility of targeted muscle reinnervation to reduce postoperative pain in patients undergoing hindquarter resections** Hiba Saifuddin[1], Elyse Brinkmann[2], **Mikaela Sullivan[1]**, Brian Carlsen[1], Matthew Houdek[1], Steven Moran[1] *[1]Mayo Clinic, Rochester, United States; [2]University of Washington, Seattle, United States*
09:39	FS17.14	**A proposed survival predicting system for breast cancer patients with bone metastases** **Jichuan Wang[1]**, Haije Liang[1], Jie Xu[1], Zhiqing Zhao[1], Rui Yang[2], Shu Wang[3], Xiaodong Tang[1], Wei Guo[1] *[1]Musculoskeletal Tumor Center, Peking University Peoples Hospital, Beijing, China; [2]Department of Orthopedic Surgery, Montefiore Medical Center, New York, United States; [3]Breast Disease Center, Peking University People's Hospital, Beijing, China*

DAY 4 | Friday, 9 September 2022

Laureate Room

09:00-10:00 **Flash Session 18 | Basic science and research**

Moderators: **Krista Goulding** (United States) - **Brooke Crawford** (United States)

09:00 FS18.1 **Knockout of SKP2 in pre-clinical transgenic mouse models of OS induces macrophage infiltration and improves survival**
Alexander Ferrena[1], Jichuan Wang[2], Ranxin Zhang[2], Waleed Al-Hardan[2], Swapnil Singh[2], Hasibagan Borjihan[2], Rui Yang[2], David Geller[2], Bang Hoang[2], Deyou Zheng[3,4]
[1]Institute for Clinical and Translational Research, Albert Einstein College of Medicine, Bronx, United States; [2]Department of Orthopedic Surgery, Montefiore Medical Center, Albert Einstein College of Medicine, Bronx, United States; [3]Department of Genetics, Albert Einstein College of Medicine, Bronx, United States [4]Department of Neuroscience, Albert Einstein College of Medicine, Bronx, United States

09:03 FS18.2 **Use of small molecule STING agonist immunotherapy for canine soft tissue sarcoma: A ross-species analysis**
Ye-Jean Park[1], Joseph Kendal[2], Karys Hildebrand[1], Carolina Salazar[1], Michael Monument[1]
[1]University of Calgary (Cumming School of Medicine), Calgary, Canada; [2]University of California (Department of Orthopaedic Surgery), Los Angeles, United States

09:06 FS18.3 **Variation in the administration and reporting of the MSTS score: evidence for the need of standardized outcome measurement guidelines**
Alysia Kemp[1], Theresa Nalty[2], **Grant McChesney[3]**, Valerae Lewis[2], Justin Bird[2]
[1]Karmanos Cancer Center, Detroit, United States; [2]The University of Texas MD Anderson Cancer Center, Houston, United States; [3]The University of Texas Medical Branch, Galveston, United States

09:09 FS18.4 **Reconstruction of large segmental defects at the femur: how does a modular intercalary prosthesis compare with massive allograft reconstruction? A biomechanical analysis**
Yazan Kadkoy[1], Gregory Schneider[1], Joseph Ippolito[1], Thomas Helbig[2], Jonathan Lopez[1], David Paglia[1], Joseph Benevenia[1]
[1]Rutgers, New Jersey Medical School, Newark, United States; [2]Robert Wood Johnson Medical School, New Brunswick, United States

09:12 FS18.5 **Patient-reported outcome measures to measure health-related quality of life in people with soft-tissue sarcoma: A systematic review of measurement properties of patient-reported outcomes**
Kedar Mate[1], Urska Kosir[2], Argerie Tsimicalis[3], Robert Turcotte[4], **Krista Goulding[5]**
[1]Research coordinator, Centre for outcomes Research and Evaluation, McGill University Health Centre- Research Institute, Montreal, Canada; [2]PhD Candidate, Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom; [3]Ingram School of Nursing, McGill University, Montreal, Canada; [4]Department of Orthopedic Surgery, McGill University Health Centre, Montreal, Canada [5]Department of Orthopedic Surgery - Mayo Clinic Arizona, Phoenix, United States

09:15 FS18.6 **Health-related quality of life of sarcoma patients at time of diagnosis**
Anouk Kruiswijk[1], Desiree Dorleijn[2], **Michiel van de Sande[2]**, Leti van Bodegom-Vos[1]
[1]Department of Biomedical Data Sciences, Leiden University Medical Center, Leiden, The Netherlands; [2]Department of Orthopedics, Leiden University Medical Center, Leiden, The Netherlands

09:18 FS18.7 **Study on predictive factors of valgus knee deformity in patients with multiple osteochondromas**
Kan Ito[1], Kunihiro Ikuta[1], Tomohisa Sakai[1], Hiroshi Koike[1], Shiro Imagama[1], Yoshihiro Nishida[2]
[1]Department of Orthopedic Surgery, Nagoya University Graduate School of Medicine, Nagoya, Japan; [2]Department of Rehabilitation, Nagoya University Hospital, Nagoya, Japan

09:21 FS18.8 **Accuracy of mri in evaluation of longitudinal intraosseous extent of primary malignant bone tumors**
Sudhir Kumar Garg, Purnima Aggarwal, Sarthak Sharma, RPS Punia, Kisley Dimri
Government Medical College & Hospital, Chandigarh, India

09:24 FS18.9 **Short and intermediate term outcomes with long bone allograft in Penang General Hospital, Malaysia**
Prashant Narhari, Azuhairy Azid
Ministry Of Health Malaysia, Georgetown, Malaysia

09:27 FS18.10 **Combining bacteriophage and vancomycin is more efficacious in treating MRSA aggregates formed in human synovial fluid compared to using vancomycin or bacteriophage alone**
Mariam Taha[1], **Hesham Abdelbary[2]**
[1]Ottawa Hospital Research Institute, Ottawa, Canada; [2]The Ottawa Hospital, Ottawa, Canada

09:30 FS18.11 **Microbial teamwork: Polymicrobial prosthetic joint infection with Staphylococcus aureus and Pseudomonas aeruginosa augments infection burden of both pathogens in a mouse model**
Zeinab Mamouei, Christopher Hamad, Nicholas Peterson, Joseph Kendal, Rahul Sobti, Jack Pearce, Alan Li, Jeremiah Taylor, Abdulrahman Almalouhi, Nicholas Bernthal
University of California, Los Angeles, California, United States

09:33 FS18.12 **Can antimicrobial implant coatings improve osseointegration in a murine model of knee arthroplasty?**
Zeinab Mamouei, Christopher Hamad, Nicholas Peterson, Joseph Kendal, Christopher Hart, Rahul Sobti, Jack Pearce, Parsa Asachi, Nicholas Bernthal
University of California, Los Angeles, California, United States

09:36 FS18.13 **Decreasing bacterial colonization: Non-eluting Zimmer Biotiguard® implant coating decreases burden of implant infection seven days after surgery**
Christopher Hamad[1], Zeinab Mamouei[1], Nicholas Peterson[1], Joseph Kendal[1], Alan Li[2], Jeremiah Taylor[2], Abdulrahman Almalouhi[2], Aaron Kavanaugh[1], Fabrizio Billi[1], Nicholas Bernthal[1]
[1]UCLA Department of Orthopaedic Surgery, Los Angeles, California, United States; [2]UCLA David Geffen School of Medicine, Los Angeles, California, United States

09:39 FS18.14 **Periprosthetic joint infection (PJI) promotes immunosuppression: Characterizing the peri-implant immune environment in a murine model of PJI**
Christopher Hamad[1], Joseph Kendal[1], Zeinab Mamouei[1], Nicholas Peterson[1], Michael Shehata[2], Alan Li[2], Jeremiah Taylor[2], Abdulrahman Almalouh[2], Michael Yeaman[3], Nicholas Bernthal[1]
[1]UCLA Department of Orthopaedic Surgery, Los Angeles, California, United States; [2]David Geffen School of Medicine, Los Angeles, California, United States; [3]Lundquist Institute for Infection and Immunity at Harbor UCLA Medical Center, West Carson, California, United States

DAY 4 | Friday, 9 September 2022

Optimist A & B

09:00-10:00 **Flash Session 19 | Medical oncology & Basic science and research**

Moderators: **Jonathan Trent** (United States) - **Arun Singh** (United States)

MEDICAL ONCOLOGY

09:00 FS19.1 **Mesenchymal chondrosarcoma; Single center study of oncologic outcomes and the effect of adjuvant treatment**
Chung Ming Chan[1], Elham Nasri[2], Cory Couch[4], Ian English[5], Andre RV Spiguel[3], Parker Gibbs[3], Mark Scarborough[3]
[1]Division of Musculoskeletal Oncology, Department of Orthopaedic Surgery, National University Hospital, Singapore; [2]Department of Pathology, University of Florida, Gainesville, United States; [3]Department of Orthopaedics and Rehabilitation, University of Florida, Gainesville, USA [4]Department of Orthopaedic Surgery, Mayo Clinic, Rochester, United States; [5]Department of Orthopaedic Surgery, Washington University in St Louis, St Louis, United States

09:03 FS19.2 **Overall survival of soft tissue sarcomas may be prolonged with 2nd line chemotherapy in succession**
Seiji Shimomura, Toshiharu Shirai, Ryu Terauchi, Naoki Mizoshiri, Yuki Mori, Daichi Hayashi, Kenji Takahashi
Kyoto Prefectural University of Medicine, Kyoto, Japan

09:06 FS19.3 **Phosphaturic mesenchymal tumours: A rare cause of oncogenic osteomalacia**
Suraya Zainul-Abidin, Yu Heng Kwan, Cheryl Gatot, Henry Soeharno, Mann Hong Tan
Singapore General Hospital, Singapore, Singapore

09:09 FS19.4 **Clinical outcomes of patients treated with carbon-fiber nails for oncologic indications in long-bones: An international multi-institutional study**
Santiago Lozano-Calderon[1], Zeger Rijs[2], Olivier Groot[1], Marie Su[1], Nelson Merchan[1], Caleb Yeung[1], Emily Berner[1], Vania Oliveira[3], Giuseppe Bianchi[4], Eric Staals[4], Debora Lana[5], Davide Donati[4], Ortal Segal[6], Stefano Marone[7], Raimondo Piana[7], Simone De Meo[7], Pietro Pellegrino[7], Nicola Ratto, Carmine Zoccali[8], Maurizio Scorianz[9], Cecilia Tomai[9], Guido Scoccianti[9], Domenico Campanacci[9], Lorenzo Andreani[10], Silvia de Franco[10], Michele Boffano[11], Thomas Cosker[12], Varunprasanth Sethurajah[12], Manuel Pensado[13], Irene Ruiz[13], Esperanza Moreno[13], Eduardo Ortiz-Cruz[13], Michiel van de Sande[2]
[1]Massachusetts General Hospital, Boston, United States; [2]Leiden University Medical Center, Leiden, The Netherlands; [3]Centro Hospitalar Universitário do Porto, Porto, Portugal; [4]IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy; [5]Ospedale Maggiore Trauma Center, Bologna, Italy; [6]Tel Aviv Sourasky Medical Center, Tel Aviv, Israel; [7]Centro Traumatologico Ortopedico, Turin, Italy; [8]Policlinico Umberto I Hospital-Sapienza, Rome, Italy; [9]Careggi University Hospital, Florence, Italy; [10]University Hospital of Pisa, Pisa, Italy; [11]Regina Margherita Children's Hospital, Torino, Italy; [12]Nuffield Orthopaedic Centre, Oxford, England; [13]Hospital Universitario La Paz, Madrid, Spain

09:12 FS19.5 **Determining pain and functional outcomes for percutaneous stabilization of metastatic pelvic lesions via photodynamic nails**
Santiago Lozano-Calderon[1], Alisha Sodhi[1], Marilee Clunk[2], Ryan Krueger[3], Emma Pfaff[4]
[1]Massachusetts General Hospital, Boston, United States; [2]University of Toledo College of Medicine and Life Sciences, Toledo, United States; [3]Harvard School of Engineering, Harvard University, Cambridge, United States; [4]Sargent College of Health and Rehabilitation Sciences, Boston University, Boston, United States

09:15 FS19.6 **Randomized placebo-controlled double-blind phase II study of zaltoprofen for patients with diffuse-type and unresectable localized tenosynovial giant cell tumors: the REALIZE study**
Akihiko Takeuchi[1], Makoto Endo[2], Akira Kawai[3], Yoshihiro Nishida[4], Ryu Terauchi[5], Akihiko Matsumine[6], Hisaki Aiba[7], Tomoki Nakamura[8], Susumu Tandai[9], Toshifumi Ozaki[10], Manabu Hoshi[11], Daiki Kayano[12], Miho Okuda[13], Kenichi Yoshimura[14], Akihiro Nomura[15], Toshinori Murayama[15], Hiroyuki Tsuchiya[1]
[1]Kanazawa University Graduate School of Medical Sciences, Kanazawa, Japan; [2]Department of Orthopaedic Surgery, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan; [3]Department of Musculoskeletal Oncology, National Cancer Center Hospital, Tokyo, Japan; [4]Department of Orthopaedic Surgery, Nagoya University School of Medicine, Nagoya, Japan; [5]Department of Orthopaedic Surgery, Kyoto Prefectural University of Medicine, Kyoto, Japan; [6]Department of Orthopaedics and Rehabilitation Medicine, Unit of Surgery, Division of Medicine, Faculty of Medical Sciences, University of Fukui, Fukui, Japan; [7]Department of Orthopaedic Surgery, Nagoya City University Graduate School of Medical Sciences, Nagoya, Japan; [8]Department of Orthopedic Surgery, Mie University School of Medicine, Mie, Japan; [9]Department of Orthopaedic Surgery, Asahikawa Medical University, Asahikawa, Japan; [10]Department of Orthopedic Surgery, Okayama University Graduate School of Medicine, Dentistry, and Pharmaceutical Sciences, Okayama, Japan; [11]Department of Orthopedic Surgery, Osaka City University Graduate School of Medicine, Osaka, Japan; [12]Department of Nuclear Medicine, Kanazawa University Hospital, Kanazawa, Japan; [13]Department of Radiology, Kanazawa University Graduate School of Medical Sciences, Kanazawa, Japan; [14]Future Medical Center, Hiroshima University Hospital, Hiroshima, Japan; [15]Innovative Clinical Research Center (iCREK), Kanazawa University Hospital, Kanazawa, Japan

09:18 FS19.7 **Case of giant cell tumor of distal femur with pathological fracture treated with postoperative denosumab following extended intralesional curettage – is there role for adjuvant denosumab?**
Loren Josephine Lantin, Mamer Rosario, May Faye Quinto, John Ricardo Chua, Lilia Monina Jose, Avelino Alomesen, Geoffrey Battad
East Avenue Medical Center, Quezon City, Philippines

09:21 FS19.8 **A single-arm phase II clinical trial of neoadjuvant anlotinib plus liposomal doxorubicin in local advanced soft tissue sarcoma**
Wei Sun, BiQiang Zheng, WenDing Huang, ZhengWang Sun, ChunMeng Wang, WangJun Yan, **Yong Chen**
Department of Musculoskeletal Surgery, Fudan University Shanghai Cancer Center, Shanghai, China

09:24 FS19.9 **Artificial intelligence algorithm can predict the clinical course of desmoid tumors based on baseline MRI- A feasibility study**
Amir Sternheim[1,2], Yair Gortzak[1,2], Solomon Dadia[1,2], Ortal Segal[1,2], Omri Merose[1,2], Rabeeh Fares[2,4], Moran Arzi[2,4]
[1]National Unit of Orthopaedic Oncology Tel-Aviv Medical Center, Tel-Aviv, Israel; [2]Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel; [3]Segol Brain Institute, Tel Aviv Medical Center, Tel-Aviv, Israel; [4]Radiology Division, Tel-Aviv Medical center, Tel-Aviv, Israel

09:27 FS19.10 **Progression on chemotherapy in extremity osteosarcoma- Outcomes and survival**
Anand Raja, Chandra Kumar Krishnan
Cancer Institute (WIA), Chennai, India

09:30 FS19.11 **Clinical effects of aromatase inhibitor on bone mineral density loss in patients with non-metastatic breast cancer; 5-year experience in Chulabhorn Hospital, Bangkok, Thailand**
Pichaya Thanindratarn[1,2], Thanapon Chobpenthai[1,2], Jomtana Siripaibun[3]
[1]Chulabhorn Hospital, Chulabhorn Royal Academy, Bangkok, Thailand; [2]Princess Srisavangavadhana College of Medicine, Chulabhorn Royal Academy, Bangkok, Thailand; [3]Chulabhorn Oncology Medical Center, Chulabhorn Hospital, Chulabhorn Royal Academy, Bangkok, Thailand

BASIC SCIENCE AND RESEARCH

09:33 FS19.12 **Predicting proximal femoral pathologic fractures from digitally reconstructed radiographs using deep learning in advanced cancer patients**
Yong-Suk Lee[1], Min Wook Joo[1], Taehoon Ko[2], Seung Han Shin[1], Yang-Guk Chung[1], Jae-Young Lee[1]
[1]Department of Orthopaedic Surgery, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea; [2]Department of Medical Informatics, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

10:00- 10:30 Coffee Break - e-Posters viewing

Main Hall

10:30-12:00 **Platform Session 10 | Surgery of bone and soft tissue tumours**
Moderators: **Andreas Leithner** (Germany) – **Mark Scarborough** (United States) - **Rosanna Wustrack** (United States)

10:30 IL10 **Introductory Lecture**
Identifying potential risk factors for stem breakage in distal femoral endoprosthetic replacements undertaken for primary bone tumours
Emma Carlisle Carlisle[3], Scott Sommerville[1,3], Peter Steadman[1,2,3], Martin Lowe[1,3]
[1]Queensland Bone and Soft Tissue Tumour Service, Woolloongabba, Australia; [2]School of Medicine- University of Queensland, St Lucia, Australia; [3]Orthopaedic Department- Princess Alexandra Hospital, Woolloongabba, Australia

10:42 OP10.1 **Amputation in patients with extremity soft tissue sarcoma: The experience of an East Asian referral center**
Yongsung Kim[3], Han-Soo Kim[1,2], Ilkyu Han[1,2]
[1]Department of Orthopaedic Surgery, Seoul National University Hospital, Seoul, South Korea; [2]Department of Orthopaedic Surgery, Seoul National University College of Medicine, Seoul, South Korea; [3]Department of Orthopaedic Surgery, Seoul National University Bundang Hospital, Seongnam, South Korea

10:47 OP10.2 **Minimally invasive percutaneous screw fixation in painful? pelvic lesion caused by metastatic cancer?**
Rui Yang, Sara Orr, Jichuan Wang, Waleed Hardan, Jana Fox, Bang Hoang, David Geller
Montefiore Medical Center, Bronx, United States

10:52 OP10.3 **Giant cell tumor of bone and pregnancy: preliminary report by the Eastern Asian Musculoskeletal Oncology Group**
Min Wook Joo[1], Edward Wang[2], Yong-Suk Lee[1], Chindanai Hongsaprabhas[3], Akihiko Takeuchi[4], Hairong Xu[5], Hiroyuki Tsuchiya[4], Xiaohui Niu[5], Yang-Guk Chung[1]
[1]Department of Orthopaedic Surgery, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea; [2]Department of Orthopaedics, Philippine General Hospital, University of the Philippines, Manila, Philippines; [3]Department of Orthopaedics, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Bangkok, Thailand; [4]Department of Orthopedic Surgery, Graduate School of Medical Science, Kanazawa University, Kanazawa, Japan; [5]Department of Orthopaedic Oncology Surgery, Beijing Jishuitan Hospital, Peking University, Beijing, China

10:57 OP10.4 **Secondary malignancy in giant cell tumor in the extremity: a single-center experience**
Min Wook Joo, Yong-Suk Lee, Chiyoung Yoon, Yang-Guk Chung
Department of Orthopaedic Surgery, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea

11:02 OP10.5 **ECRT as osteoarticular reconstruction of the hip for acetabulum involving tumors: How durable are the results?**
Manish Agarwal[1], Ashik Bary, Amit Gupta
Nanavati Max Superspeciality Hospital, Mumbai, India

11:07 OP10.6 **Clinical characteristics and prognostic factors of myxofibrosarcoma in the extremity and trunk: preliminary report by the Eastern Asian Musculoskeletal Oncology Group**
Yang-Guk Chung[1], Wan-Hyung Cho[2], Min Wook Joo[3], Jung-il Kim[4], So-Hak Chung[5], Xiaohui Niu[6], Hiroyuki Tsuchiya[7], Apichart Asavamongkolkul[8], Chindanai Hongsaprabhas[9], Masood Umer[10], Edward Wang[11]
[1]Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, South Korea; [2]Korean Cancer Center Hospital, Seoul, South Korea; [3]St. Vincent Hospital, Suwon, South Korea; [4]Pusan National University, Pusan, South Korea, [5]Kosin University Gospel Hospital, South Korea; [6]Jishuitan Hospital, Beijing, China; [7]Kanazawa University Hospital, Kanazawa, Japan; [8]Siriraj Hospital, Mahidol University, Bankok, Thailand; [9]King Chulalongkorn Memorial Hospital, Bankok, Thailand; [10]Aga Khan University Hospital, Karachi, Pakistan; [11]Philippine General Hospital, Philippine

11:12 OP10.7 **Bioactive ceramics based on bone cement "CalCemex" in the treatment of benign bone tumours**
Oleg Vyrva
Sytenko Institute of Spine and Joint Pathology, Kharkiv, Ukraine

11:17 OP10.8 **Surgical management of chondrosarcoma of long bones utilizing a pre-operative radiologic aggressiveness score?**
Manit Gundavda, Alexander Lazarides, Zachary Burke, Marco Focaccia, Anthony Griffin, Kim Tsoi, Peter Ferguson, Jay Wunder
University of Toronto, Toronto, Canada

11:22 OP10.9 **The importance of awaiting biopsy results in solitary pathological proximal femoral fractures**
Floortje Verspoor[1,2], Gerjon Hannink[3], Michael Parry[1,4], Lee Jeys[1,4], Jonathan Stevenson[1,4]
[1]Royal Orthopaedic Hospital, Birmingham, United Kingdom; [2]Amsterdam University Medical Center, Amsterdam, The Netherlands; [3]Radboud University Medical Center, Nijmegen, The Netherlands; [4]Aston University, Birmingham, United Kingdom

DAY 4 | Friday, 9 September 2022

11:27	OP10.10	**Outcomes of tenosynovial giant cell tumour of the foot and ankle** James Barnett, Branavan Rudran, Amir Khan, Sarah O'Reilly-Harbidge, Shelain Patel, Nick Cullen, Matt Welck, **Will Aston** *Royal National Orthopaedic Hospital NHS Trust, Stanmore, London, United Kingdom*
11:32	OP10.11	**Physical function following limb-sparing surgical resection and reconstruction for pelvic primary bone sarcoma - A systematic review** Helen Seaman[1], **Will Aston[2]**, Craig Gerrand[2], Abby McCarthy[2], Sherron Furtado[2] *[1]Institute of Musculoskeletal Sciences, University College London, Stanmore, United Kingdom; [2]Royal National Orthopaedic Hospital, Stanmore, United Kingdom*
11:37	OP10.12	**A minimally invasive AORIF procedure for periacetabular osteolytic metastases in a prospective cohort of 56 patients: Local Cancer Control + Bone Biology + Biomechanics + Time-Related Bone Changes** **Francis Lee**, Christopher Dussik, Dieter Lindskog, Gary Friedlaender *Yale University, United States*
11:42	OP10.13	**Accuracy of MRI Scans in predicting intraarticular joint involvement in high-grade sarcomas around the knee** **Vineet Kurisunkal**, Guy Morris, Lee Jeys, Michael Parry *Royal Orthopaedic Hospital, Birmingham South, United Kingdom*

Laureate Room

10:30-12:00 Platform Session 11 | Basic science and research

Moderators: **John Healey** (United States) - **Giovanni Paraliticci** (United States)

10:30	IL11	**Introductory Lecture** **Non-invasive detection of soft tissue sarcoma using volatile organic compounds in exhaled breath: A pilot study** Ibtissam Acem[1,2], Veroniek Van Praag[1], Cassidy Mostert[1], Robert Van der Wal[1], Ralph Neijenhuis[1], Cornelis Verhoef[2], Dirk Grunhagen[2], **Michiel Van de Sande[1]** *[1]Leiden University Medical Center, Leiden, The Netherlands; [2]Erasmus MC Cancer Institute, Rotterdam, The Netherlands*
10:42	OP11.1	**Exosomal miR-3164 derived from tumor associated fibroblasts promotes progression of osteosarcoma** **Chuangzhong Deng,** Yanyang Xu, Hongmin Chen, Jing Wang *Musculoskeletal Oncology Dept. Sun Yat-sen University Cancer Center, Guangzhou, China*
10:47	OP11.2	**Impact of topography and added TiN-coating on adult human dermal fibroblast viability and proliferation after seeding on titanium surface in vitro** **Gregor Hauschild[1]**, Arne Streitbürger[2], Marcel Dudda[3], Jendrik Hardes[2], Marius Wahrenburg[1] *[1]Clinic for Tumororthopedics - Experimental Orthopedics - University Hospital Essen, Essen, Germany; [2]Clinic for Tumororthopedics - University Hospital Essen, Essen, Germany, [3]Clinic for Trauma, Hand, and Reconstructive Surgery - University Hospital Essen, Essen, Germany*
10:52	OP11.3	**Serum metal ion concentrations in the setting of an oncologic endoprosthesis: Is there cause for concern?** **Matthew Houdek**, Cody C. Wyles, Cory G. Couch, Peter S. Rose, Daniel J. Berry, Hilal Maradit Kremers, David G. Lewallen *Mayo Clinic, United States*
10:57	OP11.4	**Patient engagement in sarcoma research: benefits, challenges, importance, and implications** Caitlyn Ivany[1], Tess Hudson[1], Patricia Schneider[1], Michelle Ghert[1], **David Slawaska-Eng[2]** *[1]McMaster University, Hamilton, Canada; [2]MD, FRCSC*
11:02	OP11.5	**Tumor microenvironment induces alternative lengthening of telomere (ALT) activation via RAD52 during immortalization of MPNST** **Seung Hyun Kim[1]**, Jungwoo Lee[2], Eunji Choi[2], HyoJu Kim[2], Young-Joon Kim[2] *[1]Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea; [2]Interdisciplinary Program of Integrated OMICS for Biomedical Science, The Graduate School, Yonsei University, Seoul, South Korea*
11:07	OP11.6	**Comprehensive molecular characterization of osteosarcoma in Chinese patients** **Weifeng Liu**, Yaping Li, Zhen Huang, Yi Ding, Tao Jin, Yang Sun, Yanrui Zhang, Xiaohui Niu *Beijing Ji Shui Tan Hospital, Peking University, Beijing, China*
11:12	OP11.7	**Histologic mapping of bacterial infection in an established PJI cemented hemiarthroplasty hip rat model at acute and chronic stages** **Hesham Abdelbary**, Mariam Taha, Mazen Ibrahim, Joel Werier *The Ottawa Hospital, ottawa, Canada*
11:17	OP11.08	**Giant Cell Tumor of Bone: Multicenter epidemiological study in Brazil** **Ricardo Becker[1]**, Carlos Galia[1], Julie Santos[2], Bruno Antunes[1], Eduardo Toller[3], André Baptista[4], Edgard Engel[5], Glauco Mello[6], Marcelo Ribeiro[7], Osvaldo Serafini[8], Alexandre David[9], Adonai Barreto[10], Marcos Nunes[11], Suely Nakagawa[12], Fernando Brasil[13], Alex Guedes[14], Roberto Vasconcelos[15], Fabio Pinto[16], Gustavo Gil[17] *[1]Hospital De Clínicas De Porto Alegre, Porto Alegre, Brazil; [2]Instituto do Câncer Infantil - RS, Brazil, Porto Alegre, Brazil; [3]Hospital do Amor - Barretos, SP, Barretos, Brazil; [4]Hospital das Clínicas da FMUSP, Sao Paulo, Brazil; [5]Hospital das Clínicas da USP - Ribeirao Preto, Ribeirao Preto, Brazil; [6]Hospital Erasto Gaertner, Curitiba, Brazil; [7]Hospital São Marcos, Teresina., Teresina, Brazil; [8]Hospital Sao Lucas - PUC, Porto Alegre, Brazil; [9]Santa Casa de Misericordia de Porto Alegre, Porto Alegre, Brazil; [10]Universidade Federal do Sergipe, Aracaju, Brazil; [11]Hospital Sao Vicente de Paulo, Passo Fundo, Brazil; [12]AC Camargo Cancer Center, São Paulo, Sao Paulo, Brazil; [13]Hospital Ophir Loyola, Belém, Brazil* *[14]Hospital Santa Izabel, Salvador, Brazil; [15]Instituto Nacional do Câncer (INCA), Rio de Janeiro, Brazil; [16]Universidade do Estado de Sao Paulo - UNESP, Botucatu, Brazil; [17]Hospital Pompéia, Caxias do Sul, Caxias do Sul, Brazil*
11:22	OP11.09	**Musculoskeletal geriatric oncology: do we have to change our approach in elderly patients? Preliminary results of a retrospective study** **Michele Boffano[1]**, Pietro Pellegrino[1], Nicola Ratto[1], Elena Boux[1], Andrea Ferro[1], Stefano Marone[1], Ugo Albertini[1], Leoluca Castro[2], Anna Santoro[2], Valeria Airaudi[2], Raimondo Piana[1] *[1]Orthopedic Oncology AOU Città Della Salute E Della Scienza, Torino, Italy; [2]Anesthesiology Dept AOU Città Della Salute E Della Scienza, Torino, Italy*

11:27	OP11.10	**Analysis of negative reviews of orthopedic oncology Surgeons: A review of Healthgrades, vitals, and google** Leeann Qubain[1], Evan Richman[2], Vincent Eaton[2], Joseph Brinkman[3], **Krista Goulding[3]** *[1]University of Arizona College of Medicine – Phoenix, Phoenix, United States; [2]Creighton University School of Medicine – Phoenix Regional Campus, Phoenix, United States; [3]Department of Orthopedic Surgery - Mayo Clinic Arizona, Phoenix, United States*
11:32	OP11.11	**Photoacoustic microscopy of undecalcified bone** Rui Cao[3], **Brooke Crawford[1]**, Scott Nelson[2], Yu Liang[4], Yilin Luo[3], Lihong Wang[3] *[1]Orthopaedic Surgery, University of Miami, Miami, United States; [2]Orthopaedic Surgery and Pathology, UCLA, Los Angeles, United States; [3]School of Engineering, California Institute of Technology, Pasadena, United States; [4]Pathology, City of Hope Cancer Center, Duarte, United States*
11:37	OP11.12	**Intrawound Vancomycin Powder Does Not Alter in vivo Titanium Osseointegration in a Murine Model of Joint Arthroplasty** **Nicholas Peterson**, Christopher Hamad, Zeinab Mamouei, Joseph Kendal, Christopher Hart, Rahul Sobti, Jack Pearce, Parsa Asachi, Nicholas Bernthal *Department of Orthopaedic Surgery, University of California, Los Angeles, Santa Monica, United States*
11:42	OP11.13	**Low Dose Aspirin for VTE Prophylaxis Results in Lower Rates of Periprosthetic Joint Infection After Total Joint Arthroplasty** Farideh Najafi[2], Joseph Kendal[2], **Nicholas Peterson[2]**, Kerri-Anne Ciesielka[1], Camilo Restrepo[1], Javad Parvizi[1], Nicholas Bernthal[2] *[1]Department of Orthopedic Surgery, Rothman Institute, Thomas Jefferson University, Philadelphia, United States; [2]Department of Orthopaedic Surgery, University of California, Los Angeles, Santa Monica, United States*

Optimist A & B

10:30-12:00 Platform Session 12 | Limb salvage surgery

Moderators: **Lee Jeys** (United Kingdom) - **Toshifumi Ozaki** (Japan)

10:30	IL12	**Introductory Lecture** **Efficacy of electrochemotherapy for minimal-invasive treatment of bone metastases** **Davide Maria Donati**, Laura Campanacci, Giuseppe Bianchi, Luca Cevolani *IRCCS Rizzoli, Bologna, Italy*
10:42	OP12.1	**3D-printed custom-made prosthetic reconstructions: the experience of University of Padova in 33 patients** Andrea Angelini, Giulia Trovarelli, Antonio Berizzi, Elisa Pala, **Pietro Ruggieri** Department of Orthopedics and Orthopedic Oncology, University of Padova, Padova, Italy
10:47	OP12.2	**Modular tumor Mutars megaprostheses: a long-term experience in 187 cases** **Elisa Pala**, Giulia Trovarelli, Andrea Angelini, Antonio Berizzi, Pietro Ruggieri Department of Orthopedics and Orthopedic Oncology, University of Padova, Italy, Padova, Italy
10:52	OP12.3	**Proximal femur replacement with a modular prosthesis. Retrospective study of 96 patients** Ioannis Trikoupis, Anastasios Roustemis, **Dimitra Melissaridou**, Panagiotis Gavriil, Olga Savvidou, Vasileios Kontogeorgakos, Panayiotis Papagelopoulos *National And Kapodistrian University of Athens, Athens, Greece*
10:57	OP12.4	**Challenge of treating skeletal muscle metastasis during the COVID-19 pandemic in a low-resource setting** Maria Gloria Elisha Casas[1], Mamer Rosario[1,2], Geoffrey Battad[1,2], Adrienne Camille Mercado[1], **Trisha Ann Hermogenes[2]**, Alvin Hernandez[2], Janelyn Dy-Ledesma[3], Juancho Lorenzo Valera[3], Arnel Christian Dy[3], Avelino Alomesen[4] *[1]Department of Surgery, University of the East Ramon Magsaysay Memorial Medical Center, Doña Imelda, Quezon City, Philippines; [2]Department of Orthopaedics, East Avenue Medical Center, Quezon City, Philippines* [3]Department of Pathology, University of the East Ramon Magsaysay Memorial Medical Center, Doña Imelda, Quezon City, Philippines *[4]Department of Pathology, East Avenue Medical Center, Diliman, Quezon City, Philippines*
11:02	OP12.5	**Intramedullary distance between osteosarcoma and osteotomy site for the safe margin in the wide excision of limb salvage surgery** **Han-Soo Kim[1,2]**, Yongsung Kim[3], Jong Woong Park[4], Ilkyu Han[1,2] *[1]Seoul National University Hospital, Seoul, South Korea; [2]Seoul National University School of Medicine, Seoul, South Korea; [3]Department of Orthopaedic Surgery, Seoul National University Bundang Hospital, Seongnam, South Korea; [4]4Orthopaedic Oncology Clinic, National Cancer Center, Goyang-si, Gyeonggi-do, South Korea*
11:07	OP12.6	**Is it a solvable problem: unacceptable limb length discrepancy in pediatric osteosarcoma patients with long-term survival?** **Xiaohui Niu**, Hairong Xu, Yuan Li *Beijing Ji Shui Tan Hospital, Beijing, China*
11:12	OP12.7	**Mid- to long-term clinical outcome of tumor-devitalized autografts in limb-sparing surgery for bone and soft tissue tumors - A nationwide multicenter study –** **Akihiko Takeuchi[1]**, Hiroyuki Tsuchiya[1], Makoto Endo[2], Tabu Gokita[3], Yasunori Tome[4], Naofumi Asano[5], Yusuke Minami[6], Hiroyuki Kawashima[7], Japanese Musculoskeletal Oncology Group[8], Takafumi Ueda[9], Hirotaka Kawano[10] *[1]Department of Orthopaedic Surgery, Kanazawa University Graduate School of Medical Sciences, Kanazawa, Japan; [2]Department of Orthopaedic Surgery, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan; [3]Department of Orthopedic Surgery, Saitama Cancer Center, Saitama, Japan; [4]Department of Orthopedic Surgery, Graduate School of Medicine, University of the Ryukyus, Okinawa, Japan; [5]Department of Orthopaedic Surgery, School of Medicine, Keio University, Tokyo, Japan; [6]Department of Orthopedic Surgical Oncology, The Cancer Institute Hospital, Japanese Foundation for Cancer Research, Tokyo, Japan; [7]Division of Orthopedic Surgery, Niigata University Graduate School of Medical and Dental Sciences, Niigata, Japan; [8]Japanese Musculoskeletal Oncology Group, Tokyo, Japan, [9]Department of Orthopaedic Surgery, Kodama Hospital, Takarazuka, Japan; [10]Department of Orthopedic Surgery, Teikyo University School of Medicine, Tokyo, Japan*
11:17	OP12.8	**Does medial gastrocnemius flap in proximal tibial endoprosthetic reconstructions to assist in active knee extension during gait? - Extended results of a pilot study** **Shah Alam Khan**, Venkatesan Sampath Kumar, Love Kapoor, Dyuti Deepta Rano *All India Institute of Medical Sciences, New Delhi, Delhi, India*

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11:22	OP12.9	**Surgical staging of osteosarcoma: does a precise margin cutoff and incorporation of chemotherapy response improve prediction of local recurrence?** Zachary Burke, Alexander Lazerides, Manit Gundavda, Marco Focaccia, **Anthony Griffin**, Kim Tsoi, Peter Ferguson, Jay Wunder *Mount Sinai Hospital, University of Toronto, Toronto, Canada*
11:27	OP12.10	**Dissection of the tumour-vessels interface: A prognostic factor for local recurrence in distal femoral osteosarcoma** **Walid Ebeid**, Wesam Abousenna, Ahmed Ghoneimy *Orthopaedic Surgery Department, Cairo University, Cairo, Egypt*
11:32	OP12.11	**Prosthetic reconstruction of the shoulder after resection of proximal humerus bone tumors** **Ioannis Trikoupis**[1], Olga Savvidou[1], Andreas Tsantes[2], Dimitrios Papadopoulos[3], Stavros Goumenos[1], Christos Vottis[1], Angelos Kaspiris[1], Panagiotis Gavriil[1], Dimitra Melissaridou[1], Vasileios Kontogeorgakos[1], Panayiotis Papagelopoulos[1] *[1]First Department of Orthopedic Surgery, National and Kapodistrian University of Athens, 'Aattikon' University Hospital, Athens, Greece; [2]2 Microbiology Department, 'Saint Savvas' Oncology Hospital, Athens, Greece; [3]Orthopedic Department, Geisinger Medical Center, PA, United States*
11:37	OP12.12	**Bone transport reconstruction for limb salvage surgery: A prospective database analysis** **Anthony Bozzo**, Caleb Yeung, Daniel Prince *Memorial Sloan Kettering Cancer Center, New York City, United States*
11:42	OP12.13	**Long-term outcomes of reconstructions of structural allografts for massive bone defects** **Yong-Suk Lee**[1], Yang-Guk Chung[2], Min Wook Joo[3], Seung Han Shin[2] *[1]Department of Orthopedic Surgery, Incheon St. Mary's hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea; [2]Department of Orthopedic Surgery, Seoul St. Mary's hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea; [3]Department of Orthopedic Surgery, St. Vincent's hospital, College of Medicine, The Catholic University of Korea, Seoul, Republic of Korea*
11:47	OP12.14	**Complications of liquid nitrogen recycled bones: The dark side of the moon!** **Osman Emre Aycan**, Muhammet Coşkun Arslan, Muhammet Alptekin Kocaoglu, Berksu Polat *Baltalimani Bone Diseases Training and Research Hospital, İstanbul, Turkey*

Main Hall

12:00-13:00 **Leaders of Industry tell the Future**

Chairpersons: **Francis J. Hornicek** (United States) - **Philipp Theodor Funovics** (Austria) – **Panayiotis J. Papagelopoulos** (Greece)

Customized Implant Solutions
Mirko Büttner, Implantcast

Setting the Standard and Continuing Innovation
Christina D'Anjou, Stryker

Innovative Technology for Arthroplasty: Don't Get Caught Behind
Ivan Tornos, ZimmerBiomet

Bone Solutions and Magnesium
Drew Diaz, BonesSolutions

Start with why
Patrick Treacy, OnkosSurgical

Main Hall

13:00-14:00 **Closing Ceremony - Prizes – Announcements**

e-POSTER Catalogue

PP01 **Efficacy of multi-kinase inhibitors in osteosarcoma treatment**

Takashi Higuchi[1], Norio Yamamoto[2], Katsuhiro Hayashi[2], Akihiko Takeuchi[2], Shinji Miwa[2], Kentaro Igarashi[2], Yuta Taniguchi[2], Sei Morinaga[2], Yohei Asano[2], Hiroyuki Tsuchiya[2]

[1]Kanazawa Red Cross Hospital, Department of Orthopaedic Surgery, Graduate School of Medical Sciences, Kanazawa University, Japan, [2]Department of Orthopaedic Surgery, Graduate School of Medical Sciences, Kanazawa University, Japan

PP02 **In vitro and in vivo experiment of bone regeneration after tumor resection using autologous adipose-derived stem cell spheroid complex**

Katsuhiro Hayashi, Norio Yamamoto, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Yuta Taniguchi, Sei Morinaga, Yohei Asano, Hiroyuki Tsuchiya

Kanazawa University, Japan

PP03 **Tumor-targeting Salmonella typhimurium A1-R is an effective general therapeutic for undifferentiated/unclassified soft tissue sarcoma (USTS) patient-derived orthotopic xenograft(PDOX) nude-mouse model**

Kentaro Igarashi[1], Norio Yamamoto[1], Katsuhiro Hayashi[1], Akihiko Takeuchi[1], Shinji Miwa[1], Takashi Higuchi[1], Yuta Taniguchi[1], Sei Morinaga[1], Yohei Asano[1], Robert M. Hoffman[2], Hiroyuki Tsuchiya[1]

[1]Orthopaedic Surgery, Kanazawa University, Kanazawa, Japan, [2]Department of Surgery, University of California San Diego, San Diego, USA

PP04 **Patterns of sensitivity to a panel of drugs are highly individualized for undifferentiated/unclassified soft tissue sarcoma (USTS) in patient-derived orthotopic xenograft (PDOX) nude-mouse models**

Kentaro Igarashi[1], Norio Yamamoto[1], Katsuhiro Hayashi[1], Akihiko Takeuchi[1], Shinji Miwa[1], Takashi Higuchi[1], Yuta Taniguchi[1], Sei Morinaga[1], Yohei Asano[1], Robert M. Hoffman[2], Hiroyuki Tsuchiya[1]

[1]Department of Orthopaedic Surgery, Kanazawa University, Kanazawa, Japan, [2]Department of Surgery, University of California San Diego, San Diego, USA

PP05 **Retrospective analysis of 18F-fluorodeoxyglucose positron emission tomography/computed tomography for soft tissue tumors**

Hiromichi Oshiro, Yasunori Tome, Yuichi Tsuha, Yusuke Aoki, Kohei Mizuta, Yoshiro Yoshikawa, Kotaro Nishida

Graduate School of Medicine, University of the Ryukyus, Nishihara-cho, Nakagami-gun, Okinawa, Japan

PP06 **M6A demethylase FTO-mediated downregulation of DACT1 mRNA stability promotes Wnt signaling to facilitate osteosarcoma progression**

Dongming Lv, Xianbiao Xie

The First Affiliated Hospital of Sun-Yat Sen University,Guangzhou, China

PP07 **Sarcoma Biobank Innovation Consortium for Biomedical and Healthcare Research**

June Hyuk Kim[1], Hyun Guy Kang[1], Jong Woong Park[1], Su Ji Kim[1], Da Young Kim[1], Chong Woo You[2], Seog Yun Park[2], Kyeong Wook Kim[3], Hye Jin Yoo[4], Eun Young Lee[4], Yong Nyun Kim[5], Ji Yeong Sung[5], Kui Son Choi[6], Phillip Park[6], Yeon Hee Baek[6], Jung Ryul Kim[7], Young Jae Moon[7], Min Wook Joo[8], Sung Wook Seo[9], Jae Hwan Jung[10], Jinwoo Ahn[10], Seung Hwan Hong[11], Su Heon Kim[11], Hyeon Su Lee[11], Il Kyu Han[12], Kyoung Min Kim[13]

[1]Department of Orthopaedic Surgery, National Cancer Center, Goyang-si , South Korea, [2]Department of Pathology, National Cancer Center, Goyang-si , South Korea, [3]Biobank, Healthcare Platform Cneter, National Cancer Center, Goyang-si , South Korea, [4]Tumor microenvironment Branch, Division of Cancer Biology, Research Institute, National Cancer Center, Goyang-si , South Korea, [5]Cancer Metastasis Branch, Division of Cancer Biology, Research Institute, National Cancer Center, Goyang-si , South Korea, [6]Cancer Big Data Center, National Cancer Center , Goyang-si , South Korea, [7]Department of Orthopaedic Surgery, Jeonbuk National University Hospital, Jeonju-si, South Korea, [8]Department of Orthopaedic Surgery, St. Vincent's Hospital, The Catholic University Hospital, Suwon-si, South Korea, [9]Department of Orthopaedic Surgery, Samsung Medical Center, Sungkyunkwan University School of Medicine , Seoul, South Korea, [10]Celemics, Seoul, South Korea, [11]Korea Pharmaceutical and Bio-Pharma Manufacturers Association, Seoul, South Korea, [12]Department of Orthopedic Surgery, College of Medicine, Seoul National University, Seoul, South Korea, [13]Department of Pathology, Jeonbuk National University Hospital, Jeonju-si, South Korea

PP08 **Inhibition of SIRT6 potentiates the anti-tumor effect of doxorubicin through suppression of the DNA** damage repair **pathway in osteosarcoma**

Jung Ryul Kim, Kyu Yun Jang

Jeonbuk National University Hospital, Jeonju, South Korea

PP09 **Changes in the transcriptional regulatory network of telomere maintenance mechanisms for the immortalization of MPNST**

Seung Hyun Kim[1], Yong Jun Suk[1], Jungwoo Lee[2], Eunji Choi[2], HyoJu Kim[2], Young-Joon Kim[2]

[1]Severance Hospital, Yonsei University College of Medicine, Seoul, South Korea, [2]Interdisciplinary Program of Integrated OMICS for Biomedical Science, The Graduate School, Yonsei University, Seoul, South Korea

PP10 **Clinical outcome in MDM2-amplified soft tissue peripheral sarcomas**

Eisuke Kobayashi, Yu Toda, Tetsuya Sekita, Akira Kawai

National Cancer Center Hospital, Tokyo, Japan

PP11 **Impact of the pretreatment neutrophil/lymphocyte ratio as a prognostic factor in conventional chondrosarcoma**
Miguel Angel Clara-Altamirano[1], Dorian Y. Garcia-Ortega[1], Alethia Alvarez-Cano[1], Veronica Villavicencio-Valencia[1], Amelia Rebeca De Los Santos-Quintanilla[2], Stephanie Velazquez-Rodriguez[1], Anderson Ruben Lizcano-Suarez[1]
[1]National Cancer Institute, Mexico City, Mexico, [2]Anahuac University, Naucalpan de Juarez, Mexico

PP12 **Cytogenetic results of multiple myeloma patients as prognostic factor for pathologic fractures**
Seung-han Shin[1], Young-Seol Byun[1], Min-Wook Joo[2], Yang-Guk Chung[1]
[1]Department of Orthopedic Surgery, The Catholic University of Korea, Seoul St. Mary's Hospital, Seoul, South Korea, [2]Department of Orthopedic Surgery, The Catholic University of Korea, St. Vincent's Hospital, Suwon-si, Gyeonggi-do, South Korea

PP13 **Antibacterial effect and biological reaction of calcium phosphate cement impregnated with iodine**
Sei Morinaga, Norio Yamamoto, Katsuhiro Hayashi, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Yuta Taniguchi, Yohei Asano, Hiroyuki Tsuchiya
Kanazawa University, Ishikawa, Japan

PP14 **Novel Dormancy Mechanism of Castration Resistance in Bone Metastatic Prostate Cancer Organoids**
Anna Kulidjian, Sanghee Lee, Theresa R. Mendoza, Michelle T. Muldong, Danielle N. Burner, Christina C. N. Wu, Terry Gaasterland, Christina A. M. Jamieson
Orthopedic Tumor Surgery, Joint Reconstruction and Limb Preservation, Scripps MD Anderson Cancer Center, La Jolla, United States

PP15 **Analysis of the structure and bone formation promoting effect of membrane tissue formed around frozen bone: A study in a rat model**
Yohei Asano, Norio Yamamoto, Katsuhiro Hayashi, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Yuta Taniguchi, Sei Morinaga, Hiroyuki Tsuchiya
Kanazawa University Graduate School of Medical Sciences, Kanazawa, Japan

PP16 **Osteosarcoma-Derived Small Extracellular Vesicles Enhance Tumor Metastasis and Suppress Osteoclastogenesis by miR-146a-5p**
Yoshihiro Araki, Norio Yamamoto, Katsuhiro Hayashi, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Takashi Higuchi, Kesaku Abe, Yuta Taniguchi, Hirotaka Yonezawa, Sei Morinaga, Yohei Asano, Rikinari Hanayama, Hiroyuki Tsuchiya
Kanazawa University Hospital, Kanazawa City, Japan

PP17 **Pleomorphic Liposarcoma of Femur: A Rare Soft Tissue Sarcoma Metastasized to the Bone—Case Report and Review of Literature**
Thanate Poosiripinyo[1], Thanapon Chobpenthai[2], Taweechok Wisanuyotin[3], Winai Sirichativapee[3]
[1]Khon Kaen Hospital, Khon Kaen, Thailand, [2]Chulabhorn Royal Acedamy, Princess Srisavangavadhana College of Medicine, Bangkok, Thailand, [3]Department of Orthopaedics, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand

PP18 **Treatment of Giant Cell Tumors of the Distal Radius: A Long-Term Patient Reported Outcomes Study**
Doga Kuruoglu, Marco Rizzo, Steven Moran, Matthew Houdek
Mayo Clinic, Rochester, United States

PP19 **MRI assisted CT guided bone tumor biopsy for Osteofibrous Dysplasia (OFD) type lesions: A new perspective in sampling**
Divesh Jalan[1], Dharmendra Kumar Singh[2], Geetika Khanna[3], Nishith Kumar[2], Ashish Rustagi[1], Rajni Prasad[3]
[1]Central Institute of Orthopaedics, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India, [2]Department of Radiodiagnosis, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India, [3]Departement of Pathology, CIO, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India

PP20 **Reconstruction of bone defect after tumor resection by frozen tumor-bearing bone**
Toshiharu Shirai[1,2], Hiroyuki Tsuchiya[2], Ryu Terauchi[1], Seiji Shimomura[1], Kenji Takahashi[1]
[1]Kyoto Prefectural University of Medicine, Kyoto, Japan, [2]Kanazawa University, Kanazawa, Japan

PP21 **Surveillance strategies for bone tumors: Survey of the Italian Musculoskeletal Tumor Society**
Fabio Luca Giardina[1], Tommaso Frisoni[2], Barbara Rossi[3], Pietro Pellegrino[4], Lorenzo Andreani[5], Elisa Pala[6], Flavio Fazioli[7], Domenico Andrea Campanacci[8], Sabrina Vari[3], Raimondo Piana[4], Davide Maria Donati[2], Rodolfo Capanna[5], Pietro Ruggieri[6], Primo Andrea Daolio[1]
[1]ASST Gaetano Pini - Cto, Milano, Italy, [2]IRCCS Istituto Ortopedico Rizzoli, Bologna, Italy, [3]IRCCS Istituto Nazionale Tumori Regina Elena, Roma, Italy, [4]AOU Città della Salute e della Scienza di Torino, Torino, Italy, [5]Azienda Ospedaliera Università Pisana - Cisanello, Pisa, Italy, [6]Università di Padova, Clinica Ortopedica e Traumatologica ed Oncologia Ortopedica, Padova, Italy, [7]Istituto Nazionale Tumori IRCCS "Fondazione G. Pascale", Napoli, Italy, [8]AOU Careggi, Firenze, Italy

PP22 **Leg lengthening after biologic reconstruction with autoclaved recycled bone and/or vascularized fibula: A report of 3 cases**
Chung Ming Chan[1,2], Kumaran Rasappan[1], Robert Pho[1,2], Mark Puhaindran[1,2]
[1]Division of Musculoskeletal Oncology, Department of Orthopaedic Surgery, National University Hospital, Singapore, Singapore, [2]Department of Hand and Reconstructive Microsurgery, National University Hospital, Singapore

PP23 **Biological reconstruction for distal lower leg tumor**
Yuichi Ichikawa[1], Jun Nishida[1], Yoshikuni Mimata[2], Takanori Hatanaka[1], Hanako Tsuji[1], Kojiro Yoshikawa[1], Takashi Koyama[1], Kengo Yamamoto[1]
[1]Tokyo Medical Univ., Shinjuku, Japan, [2]Iwate Medical University, Morioka, Japan

PP24 **Long Term Outcomes of Ewing Sarcoma of the Foot and Ankle**
Alexandra Arguello, Mikaela Sullivan, Steven Robinson, Brittany Siontis, Peter Rose, Matthew Houdek
Mayo Clinic, Rochester, United States

PP25 **An unsual case of christmas disease masquerading as fungating ABC**
Sandeep, Shah Alam Khan, Venkatesan Sampath Kumar, Love Kapoor, Abhijit Behera
All India Institute of Medical Sciences, New Delhi, India

PP26 **A case report of 3D printed customized modular talus for post-traumatic total talus loss**
Bhim Shreemal
Christian Medical College, Vellore, Vellore, India

PP27 **Early results following joint sparing limb salvage surgery for proximal femur bone tumors through surgical dislocation of hip**
Bhim Shreemal
Christian Medical College, Vellore, India, Vellore, India

PP28 **Wound healing disorders and deep infections after soft tissue sarcoma resection of the lower extremity**
Kevin Döring, Paul Apelt, Philipp Funovics, Joannis Panotopoulos, Reinhard Windhager, Gerhard Hobusch
Department of Orthopedics and Trauma Surgery, Medical University of Vienna, Vienna, Austria

PP29 **Lateral peroneal perforating branch as perforator-to-perforator recipient within the zone of injury for foot and ankle reconstruction**
Harry Burton, Georgios Pafitanis
Guys And St Thomas NHS Trust, London, United Kingdom

PP30 **Practical and constructive interventions to combat common errors in microsurgery**
Harry Burton
Guys And St Thomas NHS Trust, London, United Kingdom

PP31 **Complications of megaprosthetic oncological and non-oncological reconstruction**
Panagiotis Gavriil, Ioannis Trikoupis, Stavros Goumenos, Dimitra Melissaridou, Olga Savvidou, Vasileios Kontogeorgakos, Panayiotis Papagelopoulos
National and Kapodistrian University of Athens, Athens, Greece

PP32 **Limb Salvage Surgery definition – a concept update**
João Paulo Freitas, José Casanova
Centro Hospitalar E Universitário De Coimbra, Coimbra, Portugal

PP33 **A radiological scoring system for differentiation between enchondroma and chondrosarcoma**
Shinji Miwa, Norio Yamamoto, Katsuhiro Hayashi, Akihiko Takeuchi, Kentaro Igarashi, Hirotaka Yonezawa, Sei Morinaga, Yohei Asano, Shiro Saito, Hiroyuki Tsuchiya
Department of Orthopedic Surgery, Graduate School of Medical Science, Kanazawa University, Japan

PP34 **Synchronous Multicentric Giant Cell Tumor of Bone with Multiple Lung Metastases: A Case Report**
Yasuo Yazawa[1], Jungo Imanishi[4], Tomoaki Torigoe[1], Atsuko Watanabe[2], Atsuhiko Ohta[2], Ryuhei Tanaka[2], Masanori Yasuoda[3]
[1]Department of Orthopaedic Oncology and Surgery, Saitama Medical University International Medical Center, Hidaka, Japan, [2]Department of Pediatric Hematology and Oncology, Saitama Medical University International Medical Center, Hidaka, Japan, [3]Department of Pathology, Saitama Medical University International Medical Center, Hidaka, Japan, [4]Department of Orthopaedic Surgery, Teikyo University School of Medicine, Itabashi, Japan

PP35 **The influence of muscle loss after chemotherapy for malignant bone and soft tissue tumors**
Ryuta Iwanaga[1], Atsushi Mihara[1], Takashi Sakai[1], Keiichi Muramatsu[2], Koichiro Ihara[3]
[1]Department of Orthopedic surgery, Yamaguchi University Graduate School of Medicine, Ube, Japan, [2]Department of Orthopedic surgery, Nagato General Hospital, Nagato, Japan, [3]Department of Orthopedic surgery, Kanmon Medical Center, Shimonoseki, Japan

PP36 **A traumatic intermuscular hematoma mimicking a soft tissue tumor**
Yoshihiro Araki, Takashi Higuchi, Norio Yamamoto, Hiroyuki Tsuchiya
Kanazawa University Hospital, Kanazawa City, Japan

PP37 **Soft tissue metastasis of carcinoma in 21 cases diagnosed at the department of orthopaedic surgery**
Sei Morinaga, Norio Yamamoto, Katsuhiro Hayashi, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Yuta Taniguchi, Yohei Asano, Hiroyuki Tsuchiya
Dept. of Orthopaedic Surgery, Kanazawa Univ., Kanazawa, Japan

PP38 **Pretreatment neutrophil-to-lymphocyte ratio with immune checkpoint inhibitors and the early dynamics may predict therapeutic effects on non-small cell lung cancer with bone metastases**
Yohei Asano, Norio Yamamoto, Katsuhiro Hayashi, Akihiko Takeuchi, Shinji Miwa, Kentaro Igarashi, Yuta Taniguchi, Sei Morinaga, Hiroyuki Tsuchiya
Kanazawa University Graduate School Of Medical Sciences, Kanazawa, Japan

PP39 **Whether "neoadjuvant" distraction can take the effect of drug intake introducer in osteosarcoma chemotherapy: Cases observation study**
Jun Wan, Hong-Bo He, Wei Luo, Can Zhang, Yu-peng Liu, Zhan Liao, Feng Long, Jian Tian, Qing Liu
Xiangya Hospital, Central South University, Changsha, China

PP40 **Evaluating a Nanocrystalline Hydroxyapatite Bone Graft Substitute for the Treatment of Benign Bone Tumors**
Howard Rosenthal
University of Kansas Health System, Overland park, United States

PP41 **Sensitization of human chondrosarcoma cells with the combined treatment of proton irradiation and DNA repair inhibitors**
Birgit Lohberger[1], Dietmar Glänzer[1], Sylvia Kerschbaum-Gruber[2,3], Andreas Leithner[1], Dietmar Georg[2,3]
[1]Department of Orthopedics and Trauma, Medical University Graz, Graz, Austria, [2]Department of Radiation Oncology, Medical University Vienna, Vienna, Austria, [3]MedAustron Ion Therapy Center, Austria

PP42 **Advanced abdominal wall desmoid tumor successfully treated with cryoablation**
Tsukasa Mizuno[1], Michiro Susa[1], Ryuji Nemoto[1], Keisuke Horiuchi[1], Yousuke Suyama[2], Hiroshi Shinmoto[2], Tomoaki Torigoe[3], Kazuhiro Chiba[1]
[1]Department of Orthopaedic Surgery. National Defense Medical College, Tokorozawa, Japan, [2]Department of Radiology. National Defense Medical College, Tokorozawa, Japan, [3]Department of Bone and Soft Tissue Oncology and Orthopedics, Saitama Medical University International Medical Center, Hidaka, Japan

PP43 **Tumor Necrosis Following Multi-Modality Neoadjuvant Therapy for Sarcoma: A Single Institution Series**
Crystal Seldon[1], Gautam Shrivastava[1], Shelia Conway[2], Juan Pretell[2], Laura Freedman[1], Aaron Wolfson[1], Wei Zhao[3], Andrew Rosenberg[4], Jonathan Trent[5], Raphael Yechieli[1], Amit Jethanandani[1]
[1]Department of Radiation Oncology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [2]Department of Orthopedic Surgery, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [3]Department of Statistics, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [4]Department of Pathology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [5]Department of Hematology Oncology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States

PP44 **CivaSheet® Use for Soft Tissue Sarcoma: A Single Institution Experience**
Amit Jethanandani[1], Crystal Seldon[1], Julie Grossman[2], Gautam Shrivastava[1], Melanie Fernandez[1], William Jin[1], Shelia Conway[3], Andrew Rosenberg[4], Alan Livingstone[2], Dido Franceschi[2], Emily Jonczak[5], Jonathan Trent[5], Ty Subhawong[6], Matthew Studenski[1], Raphael Yechieli[1]
[1]Department of Radiation Oncology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [2]Department of Surgical Oncology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [3]Department of Orthopedic Surgery, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [4]Department of Pathology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [5]Department of Hematology Oncology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States, [6]Department of Radiology, University of Miami Miller School of Medicine, Sylvester Comprehensive Cancer Center, Miami, United States

PP45 **Hemipelvectomy with personalized surgical guide without navigation**
Daniel Salgado Martínez
Casr/redsalud, Santiago, Chile

PP46 **Navigation and 3D Printing in Traumatology and Orthopedics: Comparative cadaveric study of the accuracy obtained by various registration methods**
Daniel Salgado Martínez
Casr/redsalud, La Florida, Chile

PP47 **Resection and reconstruction navigated with custom implant a chondrosarcoma of the pelvis. Report of a case.**
Daniel Salgado Martínez
Casr/redsalud, Santiago, Chile

PP48 **Tumor resection with cut guide to measure Recurrent distal femur chondrosarcoma.**
Daniel Salgado Martínez
Casr/redsalud, Santiago, Chile

PP49 **A preliminary Comparison of CT-guided Navigation-assisted Surgery versus conventional surgical Treatment of Osteoid Osteoma in the Spine**

Gerhard Hobusch, Jürgen Alphonsus, Philipp Theodor Funovics, Joannis Panotopoulos, Reinhard Windhager
Medical University of Vienna, Vienna, Austria

PP50 **Clinical outcomes of extended intralesional curettage with cementation without implant augmentation in non-fracture giant cell tumor of bone around the knee**

Sermsak Sukpanichyingyong, Krits Salang, Thanate Poosiripinyo, Thananit Sangkomkamhang
Department of orthopaedics, Khon Kaen Hospital, Khon Kaen, Thailand

PP51 **Leiomyosarcoma of the Popliteal Vein: A Case Report and Review of the Literatures**

Thanate Poosiripinyo, Sermsak Sukpanichyingyong, Krits Salang
Khon Kaen Hospital, Khon Kaen, Thailand

PP52 **Frozen Section Margin Assessment in Oncology Orthopedics**

Pablo Stoppiello[1], Leticia Gaiero[1], Gottardo Bianchi[1], Nicolas Casales[1], Claudio Silveri[1], Ana Cecilia Belzarena[2]
[1]Instituto Nacional de Ortopedia y Traumatología, Montevideo, Uruguay, [2]Miami Cancer Institute, United States

PP53 **Treatment of Juvenile Solitary Bone Cyst using Cannulated Cancellous Screw**

Michiro Susa[1], Akira Yoshiyama[2], Tsukasa Mizuno[1], Tomoki Kasahara[3], Naofumi Asano[3], Robert Nakayama[3], Keisuke Horiuchi[1], Hideo Morioka[2], Kazuhiro Chiba[1]
[1]National Defense Medical College, Tokorozawa, Japan, [2]National Hospital Organization Tokyo Medical Center, Meguro, Japan, [3]Keio University School of Medicine, Shinjuku, Japan

PP54 **Availability of PET-CT for the diagnosis of the soft tissue tumor through US-guided biopsy**

Jeung Il Kim[1], In Sook Lee[2], You Seon Song[2], Kyung Un Choi[3], So Hak Chung[4], Seok Jin Jung[1]
[1]Department of orthopedic surgery, Pusan National University School of medicine, Pusan, South Korea, [2]Department of Radiology, Pusan National University School of medicine, Pusan, South Korea, [3]Department of Pathology, Pusan National University School of medicine, Pusan, South Korea, [4]Department of Orthopaedic Surgery, Kosin University Gospel Hospital, South Korea

PP55 **Rapidly Acquired Valgus Deformity After Resection of Osteochondroma: A Report of Two Cases**

Ana Cecilia Belzarena[1], David Alcoloumbre[2], John S. Blanco[2]
[1]Miami Cancer Institute, United States, [2]Hospital for Special Surgery, United States

PP56 **Intraosseous tophaceous gout of patellar presenting with pathologic fracture; a case report and review of the literature**

Pichaya Thanindratarn[1,2], Jagkra Masvanich[2], Chullatham Prathumsuwan[2]
[1]Department of Orthopedic Surgery, Chulabhorn Hospital, Chulabhorn Royal Academy, Bangkok, Thailand, [2]Orthopedic Department, Bangkok Sanamchan Hospital, Nakorn Pathom, Thailand

PP57 **Combination of Pazopanib and Surgery for the Management of Desmoid-type Fibromatosis**

Chiao Yee Lim[1], Maizatul Jamny Mahmood[2], Muthukkumaran A/L Thiagarajan[3], Noraini Binti Mohd Dusa[4], Suryasmi Duski[1]
[1]Department of Orthopaedic and Traumatology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia, [2]Department of Radiology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia, [3]Department of Radiotherapy and Oncology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia, [4]Department of Pathology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

PP58 **Treatment Outcomes of Patients with Scapular Ewing Sarcoma**

John Blade Hargiss, Steven Robinson, Brittany Siontis, Peter Rose, Matthew Houdek
Mayo Clinic, Rochester, United States

PP59 **Computed tomography-guided percutaneous curettage using hybrid operating room for osteoid osteoma**

Yasunori Tome, Hiromichi Oshiro, Yuichi Tsuha, Yusuke Aoki, Kohei Mizuta, Kotaro Nishida
Department of Orthopedic Surgery, Graduate School of Medicine, University of the Ryukyus, Nishihara, Japan

PP60 **Work ability and physical activity after major bone sarcoma resection and reconstruction with tumour prosthesis of the lower extremities. A cross-sectional study**

Linda Fernandes[1], Allan Villadsen[2], Christina Holm[2], Michala Sørensen[2], Mette K Zebis[1], Lars L Andersen[3], Micheal Mørk Petersen[2,4]
[1]Department of Physiotherapy, University College Copenhagen, Copenhagen, Denmark, [2]Musculoskeletal Tumour Section, Department of Orthopaedic Surgery, University Hospital Rigshospitalet, Copenhagen, Denmark, [3]National Research Centre for the Working Environment, Copenhagen, Denmark, [4]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

PP61 **Useful reconstruction of the extensor mechanism supplemental with an iliotibial tendon after mega-prosthetic replacement of the proximal tibia**

Kunihiro Ikuta[1], Yoshihiro Nishida[2], Satoshi Tsukushi[3], Tomohisa Sakai[1], Hiroshi Koike[1], Kan Ito[1], Shiro Imagama[1]
[1]Orthopedic Surgery, Nagoya University Hospital, Nagoya, Japan, [2]Rehabilitation, Nagoya University Hospital, Nagoya, Japan, [3]Orthopedic Surgery, Aichi Cancer Center Hospital, Nagoya, Japan

PP62 **Surgical management of pelvic chondrosarcoma: a case report**
Juste Ramonaite[2], Vetra Markeviciute[1,2], Mindaugas Stravinskas[1]
[1]Hospital of Lithuanian University of Health Sciences, Kaunas Clinic, Department of Orthopaedics and Traumatology, Kaunas, Lithuania, [2]Lithuanian University of Health Sciences, Kaunas, Lithuania

PP63 **Spectrum of primary bone tumors of the talus – A single Institutional experience in last 4 years**
Divesh Jalan[1], Dharmendra Kumar Singh[2], Geetika Khanna[3], Ashish Rustagi[1], Nishith Kumar[2], Rajni Prasad[3], Loveneesh G Krishna[1]
[1]Central Institute of Orthopaedics, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India, New Delhi, India, [2]Department of Radiodiagnosis, Vardhman Mahavir Medical College & Safdarjang Hospital, New Delhi, India, [3]Department of Pathology, CIO, Vardhman Mahavir Medical College, New Delhi, India

PP64 **Clinical appearance of giant cell tumor of bone with denosumab treatment**
Takanori Hatanaka[1], Jun Nishida[1], Yoshikuni Mimata[2], Yuichi Ichikawa[1], Hanako Tsuji[1], Taro Nagai[1], Kengo Yamamoto[1]
[1]Tokyo Medical University, Shinjuku, Japan, [2]Iwate Medical University, Yahaba, Japan

PP65 **Extremity soft tissue sarcomas in a series of 18 patients treated at a single institution: Short-term follow-up**
Chiao Yee Lim[1], Vwrene Chia[1], Duski Suryasmi[1], Maizatul Jamny Mahmood[2], Noraini Mohd Dusa[3], Ping Ching Chye[1]
[1]Department of Orthopaedic and Traumatology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia, [2]Department of Radiology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia, [3]Department of Pathology, Hospital Kuala Lumpur, Kuala Lumpur, Malaysia

PP66 **Duchanne muscular dystrophy and rhabdomyosarcoma; association or coincidence?**
Prashant Narhari
Ministry Of Health Malaysia, Georgetown, Malaysia

PP67 **Subtrochanteric metastasis with pathological fracture: the comparative study of the surgical outcome between the long Dynamic hip screw and long Gamma-3 nail**
Yu-kuan Lin[1,2], Chao-Ming Chen[1], Po-Kuei Wu[1], Ying-Chen Chi[3], Wei-Ming Chen[1]
[1]Taipei Veterans General Hospital, Taipei, Taiwan, [2]Taipei Veterans General Hospital, Taoyuan Branch, Taoyuan, Taiwan, [3]Ming Chun University, Taoyuan, Taiwan

PP68 **Dual Plating in Metastatic Distal Humerus Benefits May Outweigh the Risks**
David Joyce, Will West, Caroline Gerhardt, Michael Collier, Nora Watson
Moffitt Cancer Center, Tampa, United States

PP69 **Pathologic humerus fracture healing in metastatic disease**
Paul Gagnet, Rachel Bergman, Sybil Biermann, Geoffrey Siegel
University of Michigan, Ann Arbor, United States

PP70 **Cemented Dual-Mobility Cup into a Well-Fixed Cementless Metal Shell: A Reliable Option in Musculoskeletal Oncology Patients Requiring Reconstruction**
Gregory Lachaud, Danielle Chun, Charles Gibbs, Mark Scarborough, Andre Spiguel
University of Florida, Gainesville, United States

PP71 **Prognostic factors in spine metastatic bone disease on a Chilean population**
Patricio Alfaro[1], Francisco Muñoz[1], Marion Hohf[2], Lucas Silva[2], Miguel Acuña[1], Ivan Mora[1], Roberto Leal[1]
[1]Hospital Traumatologico, Universidad de Concepcion (Chile), Concepcion, Chile, [2]Faculty of Medicine, Universidad de Concepcion, Concepcion, Chile

PP72 **Popliteal extraskeletal chondrosarcoma as a second primary tumor.**
Patricio Alfaro[1], Manuel Cid[2], Vania Molina[2], Thomas Hermann[1], Carlos Herrera[1]
[1]Hospital Traumatologico, Universidad de Concepcion (Chile), Concepcion, Chile, [2]Faculty of Medicine, Universidad de Concepcion, Concepcion, Chile

PP73 **Surgical Treatment of Pathologic Fractures in Patients with Multiple Myeloma**
Seung-han Shin[1], Young-Seol Byun[1], Min-Wook Joo[2], Yang-Guk Chung[1]
[1]Department of Orthopedic Surgery, The Catholic University of Korea, Seoul St. Mary's Hospital, Seoul, South Korea, [2]Department of Orthopedic Surgery, The Catholic University of Korea, St. Vincent's Hospital, Suwon-si, Gyeonggi-do, South Korea

PP74 **Metastasis of an adenocarcinoma of the prostate in the index finger**
Kojiro Yoshikawa, Jun Nishida, Yuichi Ichikawa, Hanako Tsuji, Kengo Yamamoto
Tokyo Medical University Hospital, Shinjuku-ku, Japan

PP75 **Pathological and clinical evaluation of radiofrequency ablation in the treatment of spinal metastasis**
Xinxin Zhang, Songfeng Xu, Libin Xu, Zhenguo Zhao, Ting Liu, Shengji Yu
National Cancer Center/National Clinical Research Center for Cancer, Cancer Hospital, Chinese Academy of Medical Sciences, Beijing, China

PP76 **Prognostic factors in soft tissue sarcoma on a Chilean population**

Patricio Alfaro[1,2], Javier Delgado[3,4], Evelyn Gavilan[2], Felipe Aguilar[3], Diego Castillo[2], Tomas Hermann[2], Pedro Valdivia[3], Carlos Herrera[1]

[1]Hospital Traumatologico Concepcion, Concepcion, Chile, [2]Faculty of Medicine, Universidad de Concepcion, Concepcion, Chile, [3]Faculty of Medicine, Universidad Austral de Chile, Valdivia, Chile, [4]Hospital Base de Valdivia, Valdivia, Chile

PP77 **Minimally Invasive Separation Surgery for the Treatment of Spinal Metastases with Small Incision and Freehand Pedicle Screw Fixation**

Jiaming Lin, Xiaojun Zhu, Qinglian Tang, Jin Wang

Department of Musculoskeletal Oncology, Sun Yat-sen University Cancer Center, Guangzhou, China

PP78 **Treatment Trends of Benign Bone Lesions in Suburban New York**

Andrew Muran[2], John Fallon[2], Byeingho Jung[2], Peter Dzaugis[2], Aaron Zhang[2], Michael Fitzgerald[1], Howard Goodman[1], Samuel Kenan[1], Shachar Kenan[1]

[1]North shore, LIJ Northwell Health, New Hyde Park, United States, [2]Zucker School of Medicine at Hofstra, Northwell, Hempstead, United States

PP79 **Limb salvage surgery using 3D-printed custom made implants after partial scapulectomy**

Dimitra Melissaridou, Panayiotis Gavriil, Ioannis Trikoupis, Vasileios Apostolopoulos, Vasileios Kontogeorgakos, Olga Savvidou, Panayiotis Papagelopoulos

National and Kapodistrian University of Athens , Greece

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