

E.S.T.R.O.T. 7 CONGRESS TH

FROM BENCH TO PATIENT BEDSIDE:
LATEST ADVANCES AND INNOVATIONS
IN TISSUE REGENERATION AND REPAIR



FINAL PROGRAM

CHAIRMAN: INGO MARZI



Bone regeneration
Cartilage regeneration
Nerve and muscle regeneration
Soft tissue reconstruction
Fracture related infection
Surgical techniques

3-5 JULY 2023 - FRANKFURT, GERMANY

TOPICS

— BONE REGENERATION

Non-union, bone defects, bone voids, avascular necrosis. The role of stem cells, Scaffolds, Growth factors, Composite grafts, Physical stimulation

— CARTILAGE REGENERATION

Matrices, scaffolds, chondrocyte re-implantation, biological response modifiers

— NERVE AND MUSCLE REGENERATION

Latest advances

— SOFT TISSUE RECONSTRUCTION

VAC devices, growth promoting factors
Artificial skin, composite flaps

— FRACTURE RELATED INFECTIONS

Preventative strategies for bone infection
Modern treatment of osteomyelitis

— SURGICAL TECHNIQUES TO IMPROVE OUTCOMES

Osteosynthesis, distraction, arthroplasty



E.S.T.R.O.T.

European Society of Tissue Regeneration in Orthopaedics and Traumatology

BOARD

PRESIDENT:

Prof. Peter V. Giannoudis
Leeds, United Kingdom

PAST PRESIDENT:

Prof. Gerhard Schmidmaier
Heidelberg, Germany

TREASURER:

Prof. Thierry Bégué
Paris, France

ESTROT AMBASSADOR:

Scientific Committee Chair
Prof. Giorgio M. Calori
Milan, Italy

OBJECTIVES

The objectives of the Society are:

To relieve sickness in particular by advancing and promoting education and research in the treatment of musculoskeletal disorders.

To cover all matters relating to the progress and development of the field of tissue regeneration including surgery of bone, cartilage, muscle, nerve, skin, imaging techniques, rehabilitation and other related medical specialities.

To disseminate the useful results of tissue regeneration research into the medical profession.

To promote audit of hard and soft tissue reconstruction in relation to patient outcomes.

To guide European Tissue Regeneration Policies and to guide alliances of similar organisations from other continents.

INVITED SPEAKERS

Amling Michael, Hamburg DE

Arts Chris, Maastricht NL

Basile Giuseppe, Milano IT

Bégué Thierry, Paris FR

Bläser Andreas, Darmstadt DE

Blokhuis Taco J., Maastricht NL

Böcker Wolfgang, Munich DE

Brune Jan, Berlin DE

Bühren Volker, Murnau DE

Calori Giorgio M., Milan IT

Docheva Denitsa, Wuerzburg DE

Duda Georg, Berlin DE

El Khassawna Thaqif, Giessen DE

Ferracini Riccardo, Turin IT

Frank Johannes, Frankfurt DE

Gebhard Florian, Ulm DE

Gelinsky Michael, Dresden DE

Ghanaati Shahram, Frankfurt DE

Giannoudis Peter, Leeds UK

Grässel Susanne, Regensburg DE

Grillari Johannes, Vienna AT

Guerado Enrique, Malaga ES

Hildebrand Frank, Aachen DE

Hirche Christoph, Frankfurt DE

Henrich Dirk, Frankfurt DE

Hückstädt Marc, Halle DE

Hofmann Gunther, Jena DE

Ignatius Anita, Ulm DE

Jenei-Lanzl Zsuzsa, Frankfurt DE

Kobbe Philipp, Aachen DE

Löhning Max, Berlin DE

Marzi Ingo, Frankfurt DE

Madry Henning, Homburg DE

Mittelmeier Wolfram, Rostock DE

Nau Christoph, Frankfurt DE

Neijhoft Jonas, Frankfurt DE

Niemeyer Philipp, Munich DE

Poeze Martijn, Maastricht NL

Putzeys Guy, Kortrijk BE

Redl Heinz, Vienna AT

Rosado Balmayor Elizabeth, Aachen DE

Schmidmaier Gerhard, Heidelberg DE

Shen Ping, Berlin DE

Söhling Nicholas, Frankfurt DE

Stief Felix, Frankfurt DE

Trampuz Andrej, Berlin DE

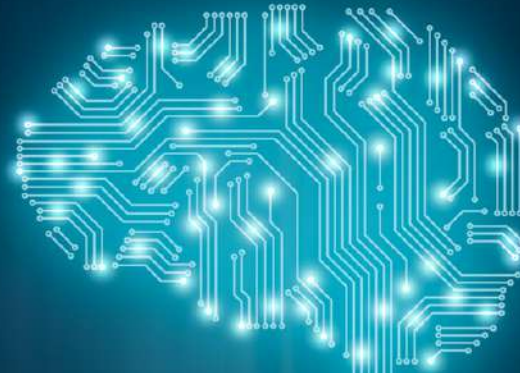
Van Griensven Martijn, Maastricht NL

Van Osch Gerjo, Rotterdam NL

Verboket René, Frankfurt DE

Wildemann Britt, Jena DE

Zaucke Frank, Frankfurt DE



Final Program

CONGRESS PRESIDENT:
Prof. Dr. Ingo Marzi

Department of Trauma, Hand, and Reconstructive Surgery
and Department of Orthopedics
University Hospital
Goethe-University Frankfurt
Theodor-Stern-Kai 7
D-60590 Frankfurt / Main
Tel. (+49) 69 6301 6123
Fax (+49) 69 6301 6439
marzi@trauma.uni-frankfurt.de



- 09:30 Registration
- 10:25 Welcome Opening – Peter Giannoudis, Ingo Marzi
- 10:30 **Session I: Bone Healing – New Insights**
Chairmen: Ingo Marzi, Johannes Grillari
- 10:30 New insights in the pathophysiology of bone healing - Georg Duda
- 10:45 Mast cells – Crucial modulators of fracture healing - Anita Ignatius
- 11:00 Role of microRNA in fracture healing environment: still important? - Martijn van Griensven
- 11:15 Circulating miRNAs in bone health and disease - Johannes Grillari
- 11:30 Situation after metal ion overload in metal/metal articulation: Is there a local bone regeneration? - Wolfram Mittelmeier
- 11:45 **Free Paper Session**
- 11:45 The potential of scaffolds loaded with mouse iPSC and iPSC-derived extracellular matrix in treating critical size bone defects
[F. Brück](#), K. Arnke, H.C. Pape, P. Cinelli, S. Tiziani
- 11:51 Can human MSC be frozen directly on the scaffold and used for bone defect grafting? - [L. Leppik](#), A. Schaible, R. Frank, J. Wolf, Z. Kuci, I. Schaible, H. Boenig, I. Marzi, D. Henrich
- 11:57 One stage Masquelets technique - Evaluation of different forms of membrane filling - [R. Verboket](#), N. Soehling, C. Nau, M. Janko, J.C. Brune, D. Henrich, I. Marzi
- 12:03 Surgical trauma treatment surgery influences systemic inflammation and local fracture healing mechanism - [R.M.V. Groven](#), C. Kuik, J. Greven, U. Mert, F.G. Bouwman, M. Huber-Lang, F. Hildebrand, T.J. Blokhuis, B. Cillero-Pastor, M. van Griensven
- 12:09 Impact of TSG-6 on the healing of critical-sized defects of MICE - [O. Kueppers](#), J. Buelow, M. Haffner-Luntzer, M. Ahmad, A. Ignatius, V. Fischer
- 12:15 Mechanically induced WNT1 promotes osteoblast differentiation through plat - [M. Ahmad](#), M. Haffner-Luntzer, A. Schoppa, T.A. Yorgan, M. Amling, T. Schinke, A. Ignatius
- 12:21 Summary
- 12:30 **Lunch Break in the Poster Area**

Poster Presentations - FOYER Building 22 Ground Floor

GROUP 1

Chairmen:
Christoph Nau
Nicholas Söhling

Clinical Aspects of Bone and Cartilage Repair

GROUP 2

Chairmen:
René Verboket
Dirk Henrich

Experimental Approaches for Bone Regeneration

GROUP 3

Chairmen:
Frank Zaucke
Elizabeth Rosado Balmayor

Clinical and Experimental Cartilage Research II

GROUP 4

Chairmen:
Zsuzsa Jenei-Lanzl
Felix Stief

Clinical and Experimental Cartilage Research I

GROUP 1 - Poster Presentations

Chairmen: Cristoph Nau, Nicholas Söhling

Ganglion Cyst of the Foot and Ankle - How common is recurrence following surgical excision?

R. Patel, D. Sunderamoorthy, P. Lokanathan, P. Patil, S. Ganapathy Pandiyarajan, A. Kanamukkalu Narayanamurthy
The Princess Royal Hospital - Apley Castle, United Kingdom

Increasing bioactivity and compatibility of PLA/BG composites for bone tissue engineering - high Bioglass content makes the difference

N. Söhling, J. Neijhoft
University Hospital Frankfurt - Frankfurt, Germany

Aims and challenges in the management of severe open fractures. How promising is an interdisciplinary approach in a German Trauma Level I Centre?

S. Kuepper, N. Spranger
Burn Centre and Plastic Surgery BG Klinikum Unfall - Berlin, Germany

The application of Negative pressure wound therapy as a multistaged protocol in septic distal tibia nonunion

N. Di Cristofaro, G. Conza, L. Schiavo, G. Iodice, G. Landi, G. Toro
University of Campania "Luigi Vanvitelli" - Naples, Italy

Effectiveness of the "Diamond Concept" in the treatment of multifocal non-union of the forearm. A small series and a review of the literature

G. Iodice, G. Conza, N. Di Cristofaro, L. Schiavo, A. De Cicco, G. Toro
University of Campania "Luigi Vanvitelli" - Naples, Italy

Superior capsular reconstruction for irreparable rotator cuff tears: a single surgeon experience

R. Patel, L.M. Ahmed, S.J. Rhee
The Princess Royal Hospital - Apley Castle, United Kingdom

GROUP 2 - Poster Presentations

Chairmen: René Verboket, Dirk Henrich

The use of antibiotic- impregnated cancellous bone grafts in one-stage surgery for long bone fracture related infections: a case series

G. Putzeys, K. Dendoncker

Az Groeninge - Kortrijk, Belgium

Ex vivo pretreatment of mesenchymal stem cells with electrical stimulation as strategy to improve bone tissue engineering outcomes

S. Bianconi, L. Leppik, K.L. Klein, J. Wolf, A. Schaible, K. Michelin Oliveira, J. Barker, I. Marzi, D. Henrich

University Hospital Frankfurt - Frankfurt, Germany

MSCs and Bioscaffolds in Complex Orthopedic Surgery: our research for the future

N. Crippa Orlandi, N. Mondanelli, S. Giannotti

University of Siena - Siena, Italy

Evaluation of the local effects of PMMA spacers loaded with antimicrobial drugs on the osteogenic of hMSCs

J. Hofmann, T. Bewersdorf, U. Sommer, C. Schamberger, T. Grossner

University Hospital Heidelberg - Heidelberg, Germany

3D-printed polycaprolactone/tricalcium phosphate cages for posttraumatic critical size bone defects, a research proposal for randomised controlled trial

A.J.L. Lodewijks, R.V.M. Groven, T.J. Blokhuis, L. van der Broeck, M. van Griensven, M. Poeze

Maastricht University - Maastricht, the Netherlands

GROUP 3 - Poster Presentations

Chairmen: Frank Zaucke, Elizabeth Rosado Balmayor

Cathepsin expression in human fracture hematoma is associated with fracture healing phases and patient age

R.V.M. Groven, D. Meesters, F. Lu, M. van Griensven, M. Poeze, R. Shiri-Sverdlov, T.J. Blokhuis

MERLN Institute for Technology-Inspired Regenerative Medicine - Maastricht, the Netherlands

Osteoarthritis patients exhibit a sympathovagal imbalance

R. Sohn, T. Assar, S. Braun, M. Brenneis, I. Kaufhold, F. Zaucke, Z. Jenei-Lanzl

University Hospital Frankfurt - Frankfurt, Germany

Adipose derived mesenchymal stem cells conditioned medium: applications in diabetic tendinopathy

M.C. Trotta, C.C. Lepre, M. Russo, M. Schiavone, T. Coppola, A. Iтро, A. Braile, G. Toro

University of Campania "Luigi Vanvitelli"- Naples, Italy

The composition of the extracellular and pericellular matrix of articular cartilage in relation to cartilage thickness

L. Weimer, A.E. Rapp, R.M. Phillips, A.M. Smith, F. Zaucke, I. Brandlin

Frankfurt University of Applied Sciences - Frankfurt, Germany

Anti-Osteoporotic Effects of Periosteal Stem Cell Derived Exosomes containing Biphosphonates

O. Eren, M. Yildirim, B. Kabatas, N. Unsal, F. Sahin

Fatih Sultan Mehmet Research and Training Hospital - Istanbul, Turkey

GROUP 4 - Poster Presentations

Chairmen: Zsuzsa Jenei-Lanzl, Felix Stief

The role N1-N2 Neutrophil Phenotypes in Bone Regeneration: a Systematic Review
F. Lu, S.M.N.E. Verleg, R.V.M. Groven, M. van Griensven, M. Poeze, T.J. Blokhuis
Maastricht University - Maastricht, the Netherlands

TLR1/2 stimulation in human primary chondrocytes had little impact on autophagy
Y. Dai, X. Liu, S. Serve, P. Wu, P. Shen, M. Löhning
Deutsches Rheuma-Forschungszentrum(DRFZ) - Berlin, Germany

Evaluation of efficacy of pooled human platelet lysate (pHPL) as a growth supplement for clinical grade chondrocytes culture
P.K. Javaregowda, M. Goni, S.S. Jeevannavar
SDM College of Medical Sciences & Hospital - Dharwad, India

The addiction of amino acids boosts the positive effects of hyaluronic acid injection in knee osteoarthritis. Early results from the Hyaloplus protocol
L. Schiavo, G. Iodice, G. Conza, L. Mottola, N. Di Cristofaro, A.B. Cecere, E. Iannelli, V. Desiderio, G. Toro
University of Campania "Luigi Vanvitelli" - Naples, Italy

In vitro culture mesenchymal stem cell-derived chondrocytes under cyclic motion
M.C. Solans Lopez, C. Sanchez Perez, F.J. Narbona Carceles, F. Chana Rodriguez, F.J. Vaquero Martin, M.E. Fernandez Santos, R. Couceiro Otero, D.M. Crego Vita
Hospital General Universitario Gregorio Marañón - Madrid, Spain

14:00 **Session II: Scaffolds - New Structures**

Chairmen: Heinz Redl, Florian Gebhard

14:00 3D printing and bioprinting of complex osteochondral constructs - Michael Gelinsky

14:15 Fiber-reinforced bioinks as multi-functional building blocks in hybrid 3D-bioprinting- Andreas Bläser

14:30 Bioprinting with new filaments - Jonas Neijhoft

14:45 Surgical treatment of traumatic bone defects using 3D printed scaffolds - Martijn Poeze

15:00 **Free Paper Session**

15:00 Porous tubelike structures made by 3D-printed polylactic acid improves large bone defect healing in a femur defect model of the rat - impact of lumen diameter - [N. Söhling](#), D. Henrich, J. Neijhoft, A. Kammerer, R. Feriduni, E. Schatzlein, U. Ritz, A. Blaser, J. Frank, I. Marzi

15.06 The osteoconductive and antibacterial responses of photothermally treated biphasic Al₂O₃-TiB₂ - TiO₂/CuO / CeO₂/ CaO Scaffolds - [E. Daskalakis](#), N. Iqbal, A. Jha, P. Giannoudis

15.12 Physicochemical and Biological Characterisation of Chitosan Scaffolds from Crustacean and Fungal Sources - [N. Iqbal](#), P. Ganguly, A. Jha, P. Giannoudis

15.18 Investigating the feasibility of utilizing a bioink consisting of self-expanding hydrogel and bone marrow aspirate for tissue regeneration - [R. Jamous](#), J. Zheng, T. Jung, S. Stötzel, C. Heiss, T. El Khassawna

15.24 Summary

bonalive

15:30 **Keynote Lecture - Preliminary RCT results: comparing the effect of bioactive glass (S53P4) with autologous bone and TCP for treating large bone defects - Gerhard Schmidmaier**

16:00 **Coffee Break**

16:30 **Session III: Cartilage Repair - Latest Advances**

Chairmen: Gerjo van Osch, Frank Zaucke

16:30 Translational Cartilage Regeneration: From matrices to biological response modifiers - Henning Madry

16:45 Autologous adipose tissue extract for the treatment of osteoarthritis: A 5 year follow up experience - Riccardo Ferracini

17:00 Articular Cartilage Repair via Extracellular Vesicles - Susanne Grassel

17:15 Hydrogels and how their properties influence cartilage repair - Gerjo van Osch

17:30 **Free Paper Session**

17:30 Guiding nasal chondrocytes through 3D bioprinted design to generate an osteochondral tissue - [E.B. Tankus](#), G. Miklosic, V. Basoli, A. Mainardi, N. Sharma, M. D'Este, A. Barbero, F.M. Thieringer

17:36 Respondins are prohypertrophic stimulators of chondrocyte mineralization - [S. Diederichs](#), C. Binder, S. Chasan, W. Richter

17:42 Aggrecan 32-Mer impairs mitochondrial respiration capacity of human chondrocytes via TLR2 - [X. Liu](#), Y. Dai, P. Wu, P. Shen, M. Loehning

17:48 Chronic stress accelerates osteoarthritis progression in vivo - [G. Rösch](#), A.E. Rapp, P. Tsai, H. Kohler, S. Taheri, A.F. Schilling, F. Zaucke, D. Slattery, Z. Jenei-Lanzl

17:54 Summary

19:30 **Welcome Reception - Senckenberg Museum, Frankfurt**

7:30 **ESTROT BOARD MEETING**

8:30 **Session IV: Infection Still an Unresolved Issue?**

Chairmen: Enrique Guerado, Gunther Hofmann

8:30 Diagnostic of fracture related infection update of current evidence - Andrej Trampuz

8:45 Old and new way to treat osteomyelitis: Antibiotics and beyond - various biomaterials for osteomyelitis treatment - Chris Arts

9:00 Implant modification to prevent infection - Britt Wildemann

9:15 Prophylaxis and treatment of FRI by local AB delivery with bone chips - Guy Putzeys

9:30 **Free Paper Session**

9:30 Fracture related infections and their risk factors for treatment failure - a major trauma centre perspective - [R. Patel](#)

9:36 Implant retention with serial debridement and use of antibiotic-loaded calcium sulfate beads in acute fracture-related infection (FRI) after pelvic ring or acetabular fractures: a retrospective case series of 7 series - A. Casiraghi, C. Galante, M. Rohayem, G. Vittone, [M.Domenicucci](#), S. Cattaneo, E. van Hauwermeiren, G. Milano

9:42 Can antibiotic-impregnated bone grafts in aseptic secondary bone surgery prevent infection? A clinical case series
[G. Putzeys](#), K. Dendoncker

9:48 Rifampicin-loaded polymethylmethacrylate: is it possible to preserve mechanical properties and setting time?
E. Carbò-Laso, P. Sanz-Ruiz, [M.C. Solans-Lopez](#), J.M. Hernandez Mateo, T. Fernandez-Fernandez, E. Garijo-Ruiz, J. Vaquero Martin

9:54 Struggling with a cefazolin impregnation protocol of bone chips. The effect of the timing of the impregnation and gamma-irradiation of the cefazolin release - [K. Dendoncker](#), G. Putzeys, T. Nieuwenhuizen, M. Bertrand, H. Valster, K. Croes

10:00 Clinical, histological and radiographic evidence of new bone formation at the periphery of bone defects using antibiotic-loaded calcium sulfate beads in bone transports - [M. Domenicucci](#), C. Galante, F. Cavina Pratesi, D.C. Aloj, G. Milano, A. Casiraghi

10:06 Summary

10:20 **Coffee Break**

10:45 **Session V: Fracture Non-union - Can we do better?**

Chairmen: Giorgio M. Calori, Volker Bühren

10:45 Treatment of bone defects and non unions; more than autografts - Taco J. Blokhuis

11:00 Non union: Molecular genetics and therapeutic osteology - Michael Amling

11:15 When and how I use the diamond concept? - Peter Giannoudis

11:30 The NUSS (non union scoring system) classification and the Algorithm of treatment - Giorgio M. Calori

12:00 **Session X: Free Paper Session**

12:00 Bone defects greater than 6 cm in the lower extremity: is the induced membrane technique associated with favorable outcomes? - V. Giannoudis, N. Kanakaris, P. Harwood, P. Foster, [P. Giannoudis](#)

12:06 The induced membrane technique improves the health-related quality of life in patients with a post-traumatic long bone non-union - [L. van der Broeck](#), J. Geurts, S. Qiu, M. Poeze, T.J. Blokhuis

12:12 Severe intraoperative vascular bleeding as main complication of acetabular fractures treated with plate osteosynthesis via the modified Stoppa approach - [J. Riemenschneider](#), I. Marzi

12:18 Tissue impregnated bone substitutes for the promotion of bone healing - [E. Papaeleftheriou](#), A. Busch, M. Haversath, E. Rehage, A. Sowislok, M. Jaeger

12:24 Summary

12:30 **Session VI: Video Session: Surgical Techniques**

Chairman: Peter Giannoudis

12:30 AVN - Giorgio M. Calori, Peter Giannoudis

12:40 Megaprosthesis - Giorgio M. Calori, Giuseppe Basile

12:50 Different variants of Masquelet-Techniques - Marc Hückstädt

13:00 Injection of stem cells and PRP - Peter Giannoudis

13:10 Discussion

13:15

GreenBone® Lunch Symposium
NATURAL BONE HEALING

b.Bone - the Biomimetic Bone Substitute Inspired by Nature - Hands-on Workshop

Chairmen: Prof. Peter Giannoudis, Prof. Thierry Bégué

Introductory Lecture - Peter Giannoudis

- The Science Behind b.Bone & the Clinical Experience
- Hands-On Workshop Instructions

Hands-On Workshop - Peter Giannoudis, Thierry Bégué

- Iliac Crest Reconstruction following Bone Harvesting
- Reconstruction of an Anterior Distal Femoral Defect

Discussion

14:00 **Session VII: Pathophysiology of musculo-skeletal healing**

Chairmen: Heinz Redl, Elizabeth Rosado Balmayor

14:00 Bone healing phases after transcript therapy – what do we know? - Elizabeth Rosado Balmayor

14:15 NOS inhibition reverses TLR2-induced chondrocyte dysfunction and attenuates age-related osteoarthritis - Ping Shen, Max Löhning

14:30 Tubular structures to improve experimental bone healing - Dirk Henrich

14:45 Tendon healing: can it be upgraded? - Denitsa Docheva

15:00 **Free Paper Session**

15:00 CD4/CD8 T-Cells as prognostic biomarker to early identify patients with risk for impaired Achilles tendon healing
F. Klatte-Schulz, T. Gehlen, N. Bormann, S. Tsitsilonis, S. Manegold, A. Schmock, J.A. Melzer, K. Schmidt-Bleek, S. Geisler, G.N. Duda, B. Sawitzki, B. Wildemann

15:06 Achilles tenocytes from diabetic and non diabetic donors exposed to high - or normoglycemic conditions respond differentially to inflammatory stimulus - E. Frank, C.L. Gogele, C. Werner, M. Kokozidou, G. Schulze-Tanzil

15:12 A novel marker of Wound Response: the Phosphorylated Ribosomal Protein S6 - N.A.R. Ring, H. Dworak, B. Bachmann, B. Schadl, K. Valdivieso, T. Rozmaric, J. Grillari, H. Redl, M. Ogrodnik

15:18 Vancomycin pharmacokinetics and activity in a novel in vivo model of orthopedic device-related infections: comparison with in vitro data - R. Buzisa Mbuku, H. Poilvache, F. van Bambeke, O. Cornu

15:24 Platelet Rich Plasma (PRP) injection therapy for Plantar Fasciitis - is it effective? - R. Patel, D. Sunderamoorthy, P. Lokanathan, P. Patil, S. Ganapathy Pandiyarajan, A. Kanamukkalu Narayanamurthy

15:30 Summary

15:45 **Coffee Break**

16:15 **Session VIII: Biological Approaches to Cartilage and bone preservation**

Chairmen: Henning Madry, Thierry Begué

16:15 The main problem of osteopenic bone in hip fracture is protein - Enrique Guerado

16:30 Cartilage cell transplantation - Philipp Niemeyer

16:45 Do stem cells work? - Ingo Marzi

17:00 Stem cell therapy in fracture healing - Wolfgang Böcker

17:15 Cartilage Repair - the Translational Perspective - Henning Madry

17:30 **Free Paper Session**

17:30 Matrix-Associated Autologous Chondrocyte Implantation (MACI) in the knee - [F. Maroski](#), A. Chakraborty, G. Zimmermann

17:36 Treatment of gonarthrosis with stromal-vascular fraction results after two years follow up - [K.W. Labarre](#), G. Zimmermann

17:42 Functional and arthroscopic outcomes in Indian patients with osteochondral lesions of the knee treated by standalone microfracture technique - [S.S. Jeevannavar](#), P.K. Javaregowda, M. Goni

17:48 Effects of cartilage extracellular matrix components on osteoarthritis-relevant cells - [A.E. Rapp](#), V. Roeb, F. Zaucke

17:54 Can adipose derived mesenchymal stem cells injection improve functional outcome and delay surgery in patients with hip osteoarthritis? A case control study with 36 months follow up - [G. Conza](#), G. Iodice, L. Schiavo, N. Di Cristofaro, A. Braile, G. Toro

18:00 Treatment protocol for hip osteoarthritis based on stem cells from adipose tissue: comparison with PRP-based analogue [M. Rucci](#), F. Onorato, M. Formica, R. Ferracini

18:06 Adipose stem cells harvesting and processing techniques. Correlation between treatment techniques and success rates of cells - [F. Colao](#)

18:12 Summary

8:30 **Session IX: Bone defect treatment: surgical and new translational approaches**

Chairmen: Frank Hildebrand, Gerhard Schmidmaier

8:30 The current way of 'Masquelet Technique' - Thierry Bégue

8:45 New Insights in Masquelets technique - insights from translational research - Christoph Nau

9:00 Convergence of scaffold guided bone regeneration and RIA bone grafting - Philipp Kobbe

9:15 Bone substitute materials in the context of digital medicine - Thaqif El Khassawna

9:30 Evidence for reconstruction of large bone defects - Gerhard Schmidmaier

9:45 Update Musculoskeletal Allografts - Jan Brune

10:00 Round Table Discussion

10:15 **Coffee break**

10:30 **Award Ceremony**

11:00 **Session X: The interaction of soft tissue and bone regeneration**

Chairmen: Johannes Frank, Peter Giannoudis, Thierry Bégue

11:00 Composite flaps in soft and bone tissue - Christoph Hirche

11:15 Perspective Lecture: Bone Reconstruction - Heinz Redl

11:30 PRF in soft tissue and bone repair - Sharham Ghanaati

11:45 Round Table Discussion

12:15 Closure

Lunch Packages

REGISTRATION

REGISTRATION FEES (VAT included)	UNTIL 31/05/2023	FROM 01/06/2023
Medical Doctors Member	200,00 €	250,00 €
Medical Doctors - Non Member	350,00 €	<ul style="list-style-type: none">• € 400,00• Joining ESTROT membership will imply members registration fee
Scientist, Residents and Researchers	75,00 €	100,00 €
Students, Physiotherapists and Nurses	50,00 €	75,00 €
Exhibitors	150,00 €	200,00 €
One day registration Member	100,00 €	150,00 €
One day registration Non Member	150,00 €	200,00 €
SOCIAL DINNER	100,00 €	100,00 €

*E.S.T.R.O.T. MEMBERSHIP FREE FOR 2023!

AWARDS

AWARDS FOR CLINICIANS		powered by Heraeus
Free papers		
Gold		€ 1.000,00
Silver		€ 500,00
Bronze		€ 250,00
Poster		€ 250,00
AWARDS FOR SCIENTISTS		
Free papers		
Gold		€ 1.000,00
Silver		€ 500,00
Bronze		€ 250,00
Poster		€ 250,00

SILVER SPONSOR

GreenBone[®]
NATURAL BONE HEALING

BRONZE SPONSOR

bonalive



CERAPEDICS
Enhancing the Science of Bone Repair

 **DePuy Synthes**
THE ORTHOPAEDICS COMPANY OF *Johnson & Johnson*

WITH THE SUPPORT OF



Heraeus



OSARTIS



stryker



 Dr. Rolf M. Schwiete Stiftung

b.Bone™

INSPIRED BY NATURE.
CREATED BY INNOVATION.

b.Bone is a radically new innovative 3D bone replacement
produced by the biomorphic transformation of the rattan wood.



GreenBone®
NATURAL BONE HEALING

ESTROT lunch symposium
Tue, 4th July 2023
Visit us at our Booth

GREENBONE ORTHO S.p.A.
www.greenbone.it





A PRECISE WAY TO BUILD BONE^{1,2,*}

- —  **Level 1 Data**^{3,4}
- —  **Safe & Predictable**^{1,3,4,**}

iFACTOR[®]

PEPTIDE ENHANCED BONE GRAFT POWERED BY

P15[™] osteogenic cell binding peptide

*The word "precise" refers to surface bound mechanism of action. **Demonstrated 97.3% fusion rate at 2 years in the single-level ACFD study.
1. Nguyen H, Qian JJ, Bhatnagar RS, Li S. Enhanced cell attachment and osteoblastic activity by P-15 peptide-coated matrix in hydrogels. *Biochem Biophys Res Commun*. 2003 Nov 7;311(1):179-86. 2. i-FACTOR Instructions for Use, Cerapedics 2022. 3. Arnold PM, Sasso RC, Janssen HG, Feilings MG, Smucker JD, Vaccaro AR, Heary RF, Patel AJ, Goulet S, Kallias JH, Koppa B. Efficacy of i-FACTOR™ Bone Graft versus Autograft in Anterior Cervical Discectomy and Fusion. Results of the Prospective Randomized Single-blinded Food and Drug Administration Investigational Device Exemption Study. *Spine*. 2016; 41(13): 1075-1083. 4. Arnold PM, Sasso RC, Janssen HG, Feilings MG, Heary RF, Vaccaro AR, Koppa B. i-FACTOR Bone Graft vs Autograft in Anterior Cervical Discectomy and Fusion: 2-Year Follow-up of the Randomized Single-Blinded Food and Drug Administration Investigational Device Exemption Study. (2018) *Neurosurgery*. Vol:83(3); pages 377-384.

TRUMATCH® GRAFT CAGE – LONG BONE

Reconstructing injured limbs with critical-sized segmental bone defects can be clinically challenging, because of significant bone loss and difficulty to reconstitute structural integrity.

Currently, there is no standard treatment protocol to treating segmental defect.

Treatment methods have traditionally included distraction osteogenesis, induced membrane (Masquelet) technique, bone-grafting, and amputation.¹

Segmental defect treatment has high risk of complications. A few of the clinical complications for segmental defects* include:²



51.9%
DEEP INFECTION²

6.6%



AMPUTATION²

66%
NONUNION²



12%
MALUNION²



Introducing TRUMATCH® Graft Cage – Long Bone

A DePuy Synthes® 3D printed, patient-specific implant for the treatment of critical-sized segmental defects.

The interstitial shelves are designed to prevent bone graft collapse³

Made of slow resorbing PCL, hence providing graft retention and structure for the healing period^{3,4}

Fixation tabs are positioned proximally and distally to fix the implant to healthy bone⁴

Inner mesh allows nutrient access and supports bone graft remodeling⁴

Coated with osteoconductive Calcium Phosphate to promote mineralization at the surface^{5,6}

Outer mesh provides an envelope to contain the graft within the defect⁴

Versatile design allows for use with IM nails, plates/screws, or external fixation devices⁴

Open outer mesh design allows angiogenesis⁴

 **DePuy Synthes**
THE ORTHOPAEDICS COMPANY OF 

*Comminuted Gustilo Anderson Type III open tibia fractures.



OPED

Keeps you going.

OPED stands for innovative medical products, comprehensive therapy concepts and fresh impulses in medical technology.

The personal care of our customers is as much a concern to us as the accompaniment of the patients until their complete recovery.

oped-international.com

LOCATION



Universitätsklinikum Frankfurt
Theodor-Stern-Kai 7
60596 Frankfurt am Main

Conference Room and
Exhibition Area
HAUS 23 - 2nd floor

Registration
HAUS 22 - 2nd Floor

LOCATION



University Hospital Frankfurt am Main
Theodor-Stern-Kai 7
Frankfurt 60590
Germany
HAUS 22-23

OFFICIAL ORGANIZATIONAL BUREAU



KEEP INTERNATIONAL SRL

HEADQUARTERS

Via Giuseppe Vigoni 11
20122 Milan
Italy

E-MAIL ADDRESS

estrot@keepinternational.net

TEL.

+39 02 54122513



For scientific questions, please contact
Prof. Dr. Ingo Marzi
marzi@trauma.uni-frankfurt.de



WWW.ESTROT.ORG
WWW.KEEPINTERNATIONAL.NET