



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

European Society of Tissue Regeneration in Orthopaedics and Traumatology

26-27-28 September 2022

MECC Maastricht



6th E.S.T.R.O.T. CONGRESS

Chairman: *Taco Blokhuis*

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

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- 10.00 PARTICIPANTS REGISTRATION
- 10:30 **OPENING AND WELCOME:**
Taco Blokhuis, Chairman ESTROT 2022 Congress
Peter Giannoudis, President of ESTROT
- SESSION I: THE DIAMOND CONCEPT: CELLS**
Chairs: Peter Giannoudis (UK) & Gerald Zimmermann (DE)
- 10:40 Keynote: Bone Marrow Mesenchymal Stromal Cells (BM-MSK) for bone regeneration
Martijn van Griensven (NL)
- 11:00 BMAC: Added value?
Gerald Zimmermann (DE)
- 11:15 Mesenchymal stem cells of adipose tissue in regenerative/reconstructive problems in orthopaedics
Riccardo Ferracini (IT)
- 11:30 Discussion
- 12:00 **BONALIVE LUNCH SYMPOSIUM - (PLENARY ROOM)**
S53P4 BIOACTIVE GLASS FOR LONG BONE SEGMENTAL DEFECT REPAIR - EXPERIENCES FROM TWO MEDICAL CENTERS
Chair: Dr. Fredrik Ollila: Introduction to the symposium
Relevance of the future of segmental defect reconstruction
- The use of S53P4 bioactive glass in segmental defect reconstruction
Prof. Gerhard Schmidmaier (DE)
- Reconstruction of segmental bone defects of septic origin -
Prof. Thierry Bégue (FR)
- Discussion

SESSION II: FREE PAPERS

Chairs: Dzihan Abazovic (MO) & Gerhard Schmidmaier (DE)

- 13:00 In vitro Evaluation of a 20% Bioglass-Containing 3D printable PLA Composite for Bone Tissue Engineering
N. Söhling*, S. Al Zoghool, E. Schätzlein, J. Neijhoft, K. M.C. Oliveira, L. Leppik, U. Ritz, E. Dörsam, J. Frank, I. Marzi, A. Blaeser, D. Henrich (DE)
- 13:06 Discord in non-union surgery - Surveys of current practice
A. Grimm*, M. Miska*, S. Findeisen, P. Haubruck, G. Schmidmaier, M. Tanner (DE)
- 13:12 The treatment of very large traumatic bone defects with a polycaprolactone - Tricalcium phosphate 3d-printed cage in combination with bone marrow aspirate concentrate. a review of three cases
A.J.L. Lodewijks, T.J. Blokhuis, M. van Griensven, M. Poeze (NL)
- 13:18 Physiologically Engineered Bone: Quantifying the Mechanical Properties and Investigating Cellular Response of Novel Porous Composite Scaffolds
Dina Abdulaziz, Jehan J El-Jawhari, Antonios Anastasiou, Vasiliki Panagiotopoulou, Elena Jones, Peter Giannoudis, Animes Jha(UK)
- 13:24 Articular environment modification after joint injury - Can regenerative medicine restore articular homeostasis?
Alessandro Are (IT)
- 13:30 Characterization and optimization of SmartBone® (SBN) matrix for hMSCs engraftment and differentiation
Laura Di Sarno (IT)
- 13:36 Alternative treatment in discogenic low back pain through intradiscal platelet rich plasma injections
Santiago Eguiran (ES)
- 13:43 Discussion

SESSION III: THE DIAMOND CONCEPT: GROWTH FACTORS AND BIOACTIVE PEPTIDES

Chairs: Jan Verbruggen (NL) & Thierry Begue (FR)

- 13:00 Keynote: Bioactive peptides; formulations and indications
Rick Visser (NL)
- 14:20 Bioactive peptides mode of action - a systematic review analysis
Chris Arts (NL)
- 14:28 Second generation bioactive peptides
Scott Johnson (UK)
- 14:36 BMP-2 coated nails
Gerhard Schmidmaier (DL)
- 14:44 Clinical application of BMPs
Peter Giannoudis (UK)
- 14:52 The biological chamber and importance of BMP's
Giorgio Calori (IT)

15:00 Discussion

15:20 **COFFEE BREAK**

SESSION IV: THE DIAMOND CONCEPT: BIOMECHANICS

Chairs: Martijn van Griensven (NL) & Nick Kanakaris (UK)

- 15:55 Keynote: Mechanotransduction: does it help?
Jenneke Klein-Nulend (NL)
- 16:15 Permissive weight-bearing in trauma patients with tibial plateau fractures in safe and effective: a prospective multicenter comparative cohort study
Pishtiwan Kalmet (NL)
- 16:25 Biomaterials revisited: new insights
Chris Arts (NL)
- 16:47 Discussion
- 18:00 *Welcome reception city hall, Maastricht and free night*
- 19:00

08:00 PARTICIPANTS REGISTRATION AND COFFEE

SESSION V: SCAFFOLDS

Chairs: Chris Arts (NL) & Peter Giannoudis (UK)

08:30 **Keynote:** Bioglass based devices for bone regeneration
Julian Jones (UK)

08:45 Bioactive glass scaffolds for treating critical-sized bone defects with a single-staged induced membrane technique
Robert Björkenheim (FI)

08:55 Management of bone defects using a Collagen-B-TCP bone scaffold carrier for different antibiotics application
Damiano Papadia (IT)

09:10 Translational analysis of the immune response to submicron topography of calcium phosphates and its relevance to bone healing
Charlie Campion (NL)

09:30 Topical discussion with all presenters - All authors and chairs

SESSION VI: SOFT TISSUES

Chairs: Giorgio Calori (IT) & Martijn Poeze (NL)

09:45 **Keynote:** The role of the plastic surgeon in the extremity reconstruction Free flaps in limb reconstruction
Shanshan QiuShao (NL)

10:05 Understanding the basic science of injury to better tissue engineer for trauma
Jason K. Wong (UK)

10:17 Soft tissue management in fracture related infections
Tim De Jong (NL)

10:29 New horizons in the soft tissue reconstruction -
Mario Scaglioni (CH)

10:41 Ultrasound for mechanical stimulation of bone remodeling -
Helen Smith (UK)

10:49 10.49 Discussion

11:00 | COFFEE BREAK

SESSION VII: FREE PAPERS

Chairs: Nick Kanakaris (UK) & Gerhard Schmidmaier (DE)

11:30 | Accelerated induced membrane (Masquelet) technique -
Reduction to a one stage procedure in a critical size bone defect
in rats

RD. Verboket, M. Leiblein, M. Janko, J.C. Brune, K. Schroeder,
I. Marzi, C. Nau, D. Henrich (DE)

11:36 | Short exposure of bone marrow to platelet rich plasma induces a
priming effect on the physiological potency mesenchymal stem
cells for bone repair: a donor matched in vitro study in humans
J.S.H. Vun, J. El-Jawhari, E. Jones, P.J. Harwood, P.V. Giannoudis
(UK)

11:42 | Infection of the intramedullary nail: a retrospective cohort
A.M. Schiefer, N. Renz, S. Meller, A. Trampuz (DE)

11:48 | MicroRNA expression in polytrauma treatment: profiling local and
systemic expression levels

Rald VM Groven, Ümit Mert, Johannes Greven, Martijn Poeze,
Taco Blokhuis, Markus Huber-Lang, Frank Hildebrand, Martijn
van Griensven (NL)

11:54 | Postponing knee prosthesis in relatively young patients with
knee joint distraction

J. Vandenrijt, J. Michielsen, F. Van Glabbeek, C. Heusdens (BE)

12:00 | Evaluation of bilayered osteochondral scaffold in treatment of
osteochondral defects - experimental study in rabbits

E. Er, A. Vahabi, EK. Biçer, Ö. Yilmaz, S. Aydoğdu (TR)

12:06 | Comparative analysis of the antibiofilm effect of different BAG-
S53P4 formulations alone and in combination with vancomycin
Nele Müller (DE)

12:12 | Fabrication and Characterisation of Synthetic Double Layered
Bone Scaffold

L. Yildizbakan, D. Abdulaziz, N. Iqbal, E. Jones, N. T. Do,
P. V. Giannoudis, A. Jha (UK)

12:18 | Discussion

12:45 **LUNCH**

SESSION VIII: CLINICAL STUDIES: AN UPDATE

Chairs: Thierry Begue (FR) & D. Abazovic (MO)

13:40 **Keynote:** Clinical studies to assess enhancement in fracture healing

Gerhard Schmidmaier (DE)

14:00 Treatment Of Delayed Union Fractures With Minimally Invasive Administration of Allogenic Bone Forming Cells: A Pilot Clinical Trial

Olivier Godeaux (BE)

14:10 **Keynote:** BMPs and other GFs in the treatment of NU: the lesson we have learned

G.M. Calori, G. Basile, F. Biggi (IT)

14:30 Concomittant injuries and timing of fixation of major fractures: is there an impact on fracture healing

Frank Hildebrand (DE)

14:38 3D printed cages in large bone defects; preliminary results and study design

Martijn Poeze (NL)

14:46 Results of the clinical phase IIa trial BMC2012: Transplanted autologous bone marrow mononuclear cells lead to normal bone healing of subcapital humerus fractures after a 12 week observation period

Ingo Marzi (DE)

14:54 Discussion

COFFEE BREAK

BONALIVE WORKSHOP (Singapore Room)

TRY OUT BONALIVE® BIOACTIVE GLASS APPLICATORS WITH SAWBONES MODELS!

15:00 Introduction - Dr. Fredrik Ollila

15:15 Try out Bonalive® bioactive glass applicators with Sawbones models!

Hands-on workshop - Dr. Fredrik Ollila

Coffee and tea available at the room

SESSION IX: INFECTION

Chairs: Jan Geurts(NL) & Michael Edwards (NL)

- 16:00 MINI BATTLE - ANTIBIOTICS AFTER SURGERY: YES OR NO?
Jan Geurts (NL) & Gerhard Schmidmaier (DE)
- 16:50 Keynote: Management of fracture-associated infections: modern concepts and algorithmic approach
Andrej Trampuz (DE)
- 16:58 Local application of antibiotics in allograft
Guy Putzeys (BE)
- 17:06 Masquelet and S53P4 bioactive glass; first clinical results
Thierry Bégué (FR)
- 17:15 **ROUNDTABLE DISCUSSION - ALL**
- 19:30 **SOCIAL DINNER - MUSEUM AAN HET VRIJTHOF**

08.00 PARTICIPANTS REGISTRATION AND COFFEE

08.30-0900 SESSION X: POSTER PRESENTATION

1- Compliance of weight bearing recommendations in surgically treated trauma patients with peri- and intra-articular fractures of the lower extremities: prospective multicenter comparative longitudinal cohort study

P.H.S. Kalmet, C.V. Maduro, G. Meys, H.A.M. Seelen, Y.Y. V. Horn, P. Ustinx, R. v. Vught, H. Janzing, A. vd. Veen, C. Jaspars, J.B. Sintenien, T.J. Blokhuis, M. Poeze (NL)

2- Surgical outcomes of bone grafts and bone substitutes for the treatment of severe acetabular defects during hip revision surgeries

M. Romagnoli, M. Casali, D. Reale, I. Cucurnia, V. Coco, N. Rani, M. Filanti, C. Musiani, P. Zarantonello (IT)

3- The three years follow-up of cell-based PRP interventions for children with Legg-Calvé-Perthes disease

I. Azikhanova (KA)

4- Application of stromal vascular fraction for treatment of knee osteoarthritis (OA)

G. Zimmermann, K.W. Labarre (DE)

5- Biologization of bone substitute materials in orthopedics surgery: the BoneFlo+ concept

E. Papaeleftheriou, A. Busch, A. Sowislok, M. Haversath, M. Jaeger (DE)

6- Incidence of postoperative hematoma following revision arthroplasty for infection using absorbable surgical hemostatic powder

G. Giebel, A. Trampuz, C. Perka, U. Stoeckel, S. Meller (DE)

7- From two stages to one: accelerated induced membrane (Masquelet) technique using human acellular dermis

R. Verboket, J.C. Brune, I. Marzi, C. Nau, D. Henrich (DE)

8- Multiple trauma treatment influences extracellular vesicles' microRNA cargo: a multiple trauma animal model

Rald VM Groven, Johannes Groven, Ümit Mert, Sam Majoor, Martijn Poeze, Taco Blokhuis, Markus Huber-Lang, Frank Hildebrand, Martijn van Griensven(NL)

9- Citrulline supplementation enhances osteogenic capacities of hBMSCs from non-union patients

Rald VM Groven, Madina AJ Sangen, Taco J Blokhuis, Martijn van Griensven, Martijn Poeze (NL)

10- Autologous minced cartilage repair technique for single -step treatment procedure of chondral lesions of the knee joint

S. Osenegg*, A. Chakraborty, Y. Wiart, G. Zimmermann(DE)

11- Prevalence of "Surprise" Positive Intraoperative Cultures in the Treatment of Long-Bone Nonunion: A Systematic Review with Meta-analysis

Robert K. Wagner, Clinton van Trikt, Stein J. Janssen, Peter Kloen (NL)

12- Rapid Evaporative Ionization Mass Spectrometry (REIMS) with diathermic knife as a potential diagnostic tool in cartilage defect and osteoarthritis patients

M.J.J. Haartmans, K.S. Emanuel, S. Nauta, G.J.M. Tuijthof, R.M.A. Heeren, P.J. Emans, B. Cillero-Pastor (NL)

13- Clinical evaluation of automated segmentation for body composition analysis on abdominal L3 CT slices in polytrauma patients

Leanne L.G.C. Ackermans, Leroy Volmer, Quince M.M.A. Timmermans, Ralph Brecheisen, Steven M. W. Olde Damink, Andre Dekker, Daan Loeffen, Martijn Poeze, Taco J. Blokhuis, Leonard Wee and Jan A. Ten Bosch (NL)

14- Microfragmented autologous adipose tissue injection: new perspectives for the treatment of early knee osteoarthritis at medium - term follow-up

F. Onorato, S. Furlan, T. Fabbri, R. Ferracini (IT)

SESSION XI: CARTILAGE REGENERATION

Chairs: Pieter Emans(NL) & Marinus de Kleuver (NL)

- 09:00 **Keynote:** Boosting natural mechanisms for cartilage regeneration, clinical expertise
Dzihan Abazovic (MO)
- 09:20 Cartilage repair: new insights and clinical relevance
Pieter Emans (NL)
- 09:28 Knee-distraction
Roel Custers (NL)
- 09:36 Advanced MR Imaging for noninvasive monitoring of cartilage repair techniques
Siegfried Trattnig (AT)
- 09:44 Cartilage repair at different stages of our life; autologous tissue as the ideal graft versus tissue engineering and biomaterials
Ralph Jeuken (NL)
- 09:52 Effect of plant polyphenols on chondrocyte differentiation: lowering IL-6
M. Sirse, S., K. Fokter, B. Strukelj, J. Zupan (SO)
- 10:00 Discussion

10:15 **10.15 COFFEE BREAK**

SESSION XII: FREE PAPERS

Chairs: Martijn Poeze(NL) & Tobias Grossner (DE)

- 10:45 **Keynote:** Regenerative stem cell therapy in orthopedics: exosomes, last frontiers of research and practical and experimental clinical applications
F. Colao (IT)
- 10:55 Augmentation of plate-stabilized proximal humeral fractures with autologous bone marrow mononuclear Cells (BMC) - a randomized, open, multicentric study - Phase IIa
D.Henrich, C.Seebach, C. Nau, H. Bönig, I. Marzi (DE)

- 11:01 SURGICAL VACUUM FILTER DERIVED BONE GRAFTING MATERIAL DISPLAYS AN OSTEOGENIC MICRORNA PROFILE
J.T. Blokhuis, R.V.M. Groven, M. Poeze, M. van Griensven, T.J. Blokhuis (NL)
- 11:07 Trabecular, but not cortical, bone tissue protein synthesis rates in the femoral head are reduced following an intracapsular hip fracture
F K. Hendriks*, M.E.G. Weijzen*, J.P.B. Goessens, A.H.G. Zorenc, A.P. Gijzen, I.F.Kramer, M. Poeze, T.J. Blokhuis, L.J.C. van Loon (NL)
- 11:13 MR measured muscle volume and fat fraction adaptation in patients with transfemoral bone-anchored prosthesis - Preliminary baseline analysis and results
E.P. Rutjes, D. Reetz, M. Bakker, N. Verdonshot, M. Ploegmakers, J.P.M. Frölke, R.A. Leijendekkers (NL)
- 11:20 11.20 Discussion
- Session XIII: peri-operative optimisation**
Chairs: Jan Ten Bosch (NL) & Thierry Bégué (FR)
- 11:45 Keynote lecture: Muscle metabolism and regeneration
Luc van Loon (NL)
- 12:05 Physical therapy to improve muscle mass
Kenneth Meijer (NL)
- 12:13 Screening Diagnosis and Monitoring of Muscle Mass when to use which tool?
Leanne Ackermans (NL)
- 12:21 Nutrition in peri-operative care - Sjors Verlaan (NL)
- 12:30 Discussion
- 12:45 **Award best poster and best abstract**
- 13:00 **End of the Congress**

REGISTRATION FEES

REGISTRATION FEES (VAT included)	UNTIL 31/07/2022	FROM 01/08/2022
Medical Doctors Member	€ 300,00	€ 400,00
Medical Doctors - Non Member	€ 350,00	€ 450,00
Scientist and Researchers - Member	free	free
Students, Residents and Nurses* - Non Member	free	free
Young Investigators*	free	free
Exhibitors	€150,00	€ 200,00
One day registration Member	€ 100,00	€ 150,00
One day registration Non Member	€ 150,00	€ 200,00
Accompanying /family /per day	€ 50,00	€ 50,00
SOCIAL DINNER	€ 75,00	€ 75,00

* WRITTEN AND SIGNED PROOF OF STATUS BY EMPLOYER.

THE REGISTRATIONS WILL BE ACCEPTED IN A CHRONOLOGICAL ORDER AND MUST HAVE THE COPY OF PAYMENT ATTACHED.

CANCELLATION POLICY: REGISTRATION FEES ARE NON REFUNDABLE

AWARDS

FREE PAPERS: GOLD € 1.000,00 - SILVER € 500,00 - BRONZE € 250,00 - POSTER € 250,00

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