

3D PRINTING

in Healthcare Conference

20th & 21st October 2016, Netherlands



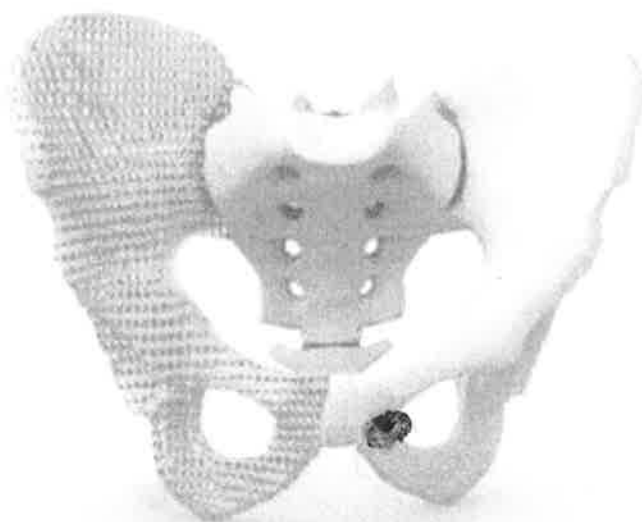
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Congress Schedule Day 2

08:55	Opening remarks from the Chair Prof. Dr. Jules Poukens, Cranio-maxillofacial Surgeon, Zuyderland Medical Center, Netherlands
09:10	3D printing in maxillofacial surgery: from experimental validations to clinical applications Prof. Dr. Raphael Olszewski, Head of Oral and Maxillofacial surgery research Lab, Université catholique de Louvain, Belgium
	3D Imaging and modelling
09:45	Learning curve in printing 3D models for medical purpose with a PLA printer Dr. Lars Brouwers, PhD-student, St Elisabeth hospital, Netherlands Dr. Mike Bemelman, Orthopedic Surgeon, St Elisabeth hospital, Tilburg, Netherlands
10:20	The added value 3D imaging and 3D printing in head and neck surgery: Patient Specific Solutions Dr. Thomas Maal, Coordinator 3D Lab, Academic Medical Centre (AMC), Netherlands
10:55	Morning Refreshments Poster Presentation One-to-One Networking Meetings
11:35	Dental stem cells 3D constructs. Potential for angiogenesis, nerve repair and hard tissue formation Prof. Dr. Ivo Lambrichts, Vice Dean, Faculty of Medicine, University Hasselt, Belgium
12:10	The future is now – physics-based simulation opens new gates in the medical world Dr. Matthieu De Beule, Professor of Biomechanics, Ghent University, Belgium
	Case studies of successful adoption of 3D printing technology
12:45	3D printed cranio-maxillofacial implants and prosthesis: A new era! Prof. Dr. Jules Poukens, Cranio-maxillofacial Surgeon, Zuyderland Medical Center, Netherlands
13:20	Lunch
14:20	From CT scan to 3D print of fractured bones using open source software and a desktop printer Dr. Boyd Goldie, Consultant Orthopaedic Surgeon, UK
14:55	3-D printing in orthopedic surgery: opportunities and challenges. Dr. Chris Arts, Surgeon, Department of Orthopaedic Surgery, Maastricht University Medical Centre, Netherlands
15:30	Assessment of various 3D printing materials in surgical implants and prosthetics Dr. Joerd van der Meer, Endodontist, University Medical Center Groningen, Netherlands
16:05	Closing Remarks from the Chair
16:10	Conference Close



Full Agenda - Friday

8:55 – 10.20

Opening Remarks from the Chair

Prof. Dr. Jules Poukens, Cranio-maxillofacial Surgeon, **Zuyderland Medical Center, Netherlands**

Keynote Presentation: 3D printing in maxillofacial surgery: from experimental validations to clinical applications

- Clinical applications of 3D printing (Z corp 3D printer) in orthognathic surgery
- Experimental validation and clinical applications of paper-based 3D printing (matrix 300, Mcor technologies 3D printer)
- Experimental validation and clinical applications of low cost 3D printer using fused deposition modelling (Up 2 plus 3D printer)

Prof. Dr. Raphael Olszewski, Head of Oral and Maxillofacial surgery research Lab, **Université catholique de Louvain, Belgium**



Professor Raphael Olszewski DDS, MD, PhD is maxillofacial surgeon, and associate professor at Université catholique de Louvain (UCL), Cliniques Universitaires saint Luc, Brussels, Belgium. Professor Olszewski is Head of Oral and maxillofacial surgery research Lab at Institut de Recherche Expérimentale et Clinique, UCL, Brussels. His main topics of research are 3D printing in craniomaxillofacial surgery, virtual planning in maxillofacial surgery, and 3D cone beam CT dentomaxillofacial imaging.

3D Imaging and modelling

Learning curve in printing 3D models for medical purpose with a PLA printer

- Why is 3D printing important?
- What about the software?
- Printing and finetuning
- Examples. Added value?

Dr. Lars Brouwers, PhD-student, **St Elisabeth hospital, Netherlands**



Lars Brouwers, MD, PhD-student Network Emergency Care Brabant. St Elisabeth hospital, level 1 trauma center. Member of the Dutch trauma association.

As one of PhD topics, he is investigating the value of 3D printed models in understanding acetabular fractures, for which they have received the European AOTrauma grant. Normally, acetabular fractures are classified by using X-rays, 2D and 3D CT imaging. However, his hypothesis is that 3D printing of acetabular fractures will lead to a better understanding of acetabular fractures. They aim to improve inter- and intra-observer variability when using the Judet-Letournel classification for acetabular fractures. Furthermore, they think 3D printing will help in decision-making of the type of surgical approach and reduction of the fracture. Lars has just started converting CT-slices into printable models and printing 3D models of the pelvis and acetabular fractures. They have chosen not to outsource this process because the need of models in their level 1 center will exist 24/7.

Dr. Mike Bemelman, Orthopedic Surgeon, **St Elisabeth hospital, Tilburg, Netherlands**



Dr. Mike Bemelman is also Chair of the Disaster and Military Surgery ESTES, AO Faculty/ Instructor, MRMI exec board member. He has been using 3d printing in medical practise since 2010. In the beginning they outsourced the printing by professional companies. The models were used to plan multiplane osteotomies with complex foot injuries after IED injuries. They actually performed test operations on all models before performing the real operation. This is well documented in an extensive presentation.

Currently they have printed a considerable amount of 3D models in order to prepare for complex operations. e.g. 26th of august we will perform a reconstruction of a chestwall of a young patient who was referred to our clinic as a third opinion from Belgium. They have documented the details of printing anatomic models from PLA, Time, waste, costs, minimal CT requirements etc.