

### 3D printing: A new way for building body spare parts and implants?

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Patients in the cranio-maxillofacial clinic often present with serious, complex, and potentially life-threatening or life-limiting medical conditions (e. g. tumor, trauma, aggressive osteomyelitis). Available treatments may not always give satisfactory results for patients and doctors. Therefore, complex problems ask for new solutions. An emerging technique in the medical field is Computer Aided Design (CAD), Computer Aided Manufacturing (CAM) by 3D printing. For successful implementation of CAD-CAM technology in the clinical practice doctors, dentists and engineers need to work together and share their expertise. This intense cooperation leads to 3D printing of custom patient specific implants and prosthesis. 3D printed implants are used for the treatment of skull defects, dental superstructures and world's first 3D printed entire mandible replacement implant. Clinical cases will be highlighted.

#### Biography

Jules Poukens is currently lecturer and researcher at the Biomed Research Institute of the University Hasselt and the University of Leuven in Belgium. He is a Cranio-Maxillofacial Surgeon at the Medical Center Sittard /Heerlen in the Netherlands. He got his M. D. and D. M. D from the Catholic University Leuven in Belgium. He was trained as Cranio-Maxillofacial Surgeon in Belgium (Leuven) and Germany (Freiburg, Black Forrest). After his training, he first joined the staff at the University Hospital Maastricht and later on the staff of Medical Center Sittard /Heerlen in the Netherlands. He has participated in several European Community funded projects on medical rapid prototyping and manufacturing and was acting chairman of the Board of Directors of the EU funded project CUSTOM-IMD. He was the leading surgeon that designed and implanted the world's first 3D printed total mandibular implant and was one of the pioneers in using 3D printed skull implants. He has numerous publications and held numerous presentations in this field. Born and raised in Belgium, Jules searched for his roots and lives with his wife and two daughters in Dilsen, Belgium near the Dutch and German border.

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