Department of Biomedical Engineering
The Chinese University of Hong Kong

The AO Fracture Monitor: Continuous Digital Sensor Measurements of Fracture Healing



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Abstract

The assessment of fracture healing is still subjective, due to the lack of clinically available quantitative measures. Without reliable information on the progression of healing and uniform criteria for union and non-union, therapeutic decision making, e.g. regarding the allowed weight bearing, hinges on the experience and the subjective evaluation of physicians.

Fracture stiffness is known as a valid outcome measure for the maturity of the repair tissue. With current technological advancements and a general trend towards digital health care, new generations of instrumented implants with sensoring capabilities, often termed as "smart implants", are under development. They target X-ray free and timely provision of reliable feedback upon the mechanical competence of the repair tissue and the healing environment to support therapeutic decision making and individualized after-care.

The AO Fracture Monitor is a novel biofeedback sensor system developed to deliver data for evidence based and patient specific therapeutic decision making. The system provides continuous assessment of the fracture healing progression with implementation of smart implants for monitoring of interfragmentary movements, data processing and wireless transfer to the orthopedic trauma surgeon by means of a web server for centralized data collection. Currently, the system is on its pathway to clinics.

The AO Fracture Monitor renders the progression of bone fracture healing assessable and carries potential to contribute in enhancing today's postoperative care and rehabilitation of fracture patients.

Biography

Prof. Geoff Richards has been Director of the AO Research Institute Davos, Switzerland, since 2009, leading multidisciplinary translational research in orthopaedics. His research on implant surfaces has contributed to global improvements in fracture fixation devices. He co-founded eCM journal and is a past president of TERMIS Global. He holds a full professorship in Leuven and honorary professorships, including at The Chinese University of Hong Kong. He has fostered strong collaborations with China, hosting over 50 Chinese fellows and students and supporting major international orthopaedic and regenerative medicine meetings in China.

***** ALL ARE WELCOME *****

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