

Bedside, Benchtop, and Bioengineering: Physicochemical Imaging Techniques in Biomineralization

Datenbank

TEMA, Copyright WTI-Frankfurt eG

Deskriptoren

Mineralisierung; Bildgebung; Biomaterial; Knochen; Bildgebungsverfahren; Biomineralisierung; Polymer; Bioingenieur; Knochengewebe; Bioingenieurwesen

Abstract

The need to quantify physicochemical properties of mineralization spans many fields. Clinicians, mineralization researchers, and bone tissue bioengineers need to be able to measure the distribution, quantity, and the mechanical and chemical properties of mineralization within a wide variety of substrates from injured muscle to electrospun polymer scaffolds and everything in between. The techniques available to measure these properties are highly diverse in terms of their complexity and utility. Therefore it is of the utmost importance that those who intend to use them have a clear understanding of the advantages and disadvantages of each technique and its appropriateness to their specific application. This review provides all of this information for each technique and uses heterotopic ossification and engineered bone substitutes as examples to illustrate how these techniques have been applied. In addition, we provide novel data using advanced techniques to analyze human samples of combat related heterotopic ossification.

Copyright Wiley-VCH Verlag GmbH & Co. KGaA. Reproduced with permission.

Autor

Eisenstein, Neil M.; Cox, Sophie C.; Williams, Richard L.; Stapley, Sarah A.; Grover, Liam M.

Institution

Department of Chemical Engineering, University of Birmingham, GB; The Speech Ark, Birmingham, GB

Quelle

Advanced Healthcare Materials * Band 5 (2016) Heft 5, Seite 507-528 (22 Seiten)

Sprache

EN Englisch

Dokumentart

J Zeitschrift

Erscheinungsjahr

2016