

New evidence confirming the concept of floating skeleton

Laurent Frossard, PhD
Adjunct Professor of Biomechanics

Queensland University of Technology, Brisbane, Australia
University of the Sunshine Coast, Maroochydore, Australia.

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DISCLOSURE

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ARTICLE TO COMMENT

Pitkin, M., R. Muppavarapu, C. Cassidy, and E. Pitkin, Subperiosteal transmission of intra-articular pressure between articulated and stationary joints. *Sci Rep*, 2015. 5: p. 8103.

PERSPECTIVE

The team of authors and, particularly the senior authors, is known for their work focusing on osseointegration.^[1-15] Over the last 10 years, they have published some significant work that is highly regarded and cited by the community of researchers working on the development of osseointegrated fixations.^[2, 4, 6, 11-69] Furthermore, Professor Pitkin is also acknowledged internationally for his fine experimental skills and ability to design research that is typically outside the square.

The authors are taking on the difficult challenge of measuring subperiosteal transmission of intrasynovial pressure between articulated and stationary joints in the view of further validate the principle of floating Skeleton. This work is potentially ground breaking since the textbook knowledge states that the synovial fluid is solely enclosed within the capsule.

This work is a significant milestone into validation of floating skeleton concept in animals. These new evidences provide a better understanding of basic knowledge of anatomy and more particularly of hydraulic

connectivity between joints. Ultimately, this line of work could contribute to improve treatment of musculo-sequeletal disfunctions (e.g., arthritis, osteoporosis, osteopenia) and injuries (e.g., periostitis, sprains, fractures, endoskeletal fixations, amputations).^[26, 29, 30, 58-61, 63-65, 70-78]

Indeed, this work might force the rethinking of principles associated with bone remodeling and loading in the case of bone-anchored prosthesis.

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