Final Programme

International seminar 23-25 August 2012

Royal Academy of Sciences, Copenhagen, Denmark

MECHANICAL LOADING OF THE MUSCULO-TENDINOUS MATRIX TISSUE IN HEALTH AND DISEASE

Thursday 23rd August 2012

12.50 Welcome

Theme 1: Introduction lecture

13.00 The muscle-tendon unit in action: From contracting force to sensing of mechanical load in the matrix
Keith Baar, University of California, Davis, USA

Theme 2: How does matrix-rich tissue sense and transducer mechanical loading?

13.30 Mechano-sensing and signaling pathways in mechanical force transduction.
Matthias Chiquet, University of Bern, Schweiz
14.00 The importance of integrins in mechano-transduction in connective tissue
Donald Gullberg, University of Bergen, Norway
14.30 Signaling responses in tendon with mechanical loading
14.31 Christopher L. Mendias, University of Michigan, Ann Abor, USA
15.00 Break

Theme 3: Development of tendon and myotendinous junction structures: The basic importance of collagen

15.30 Fibril synthesis and assembly in tendon
Karl Kadler, Manchester University, UK
16.00 Regulation of tendon extracellular matrix assembly
David Birk, University of South Florida, Tampa, USA
16.30 Interplay between tendon, myotendinous junction and muscle development
Delphine Duprez, Universite Curie, Paris, France
17.00 End

Friday 24th August 2012

Theme 4: Load behavior in collagen tissue

9.00 Mechanical forces of different hierarchical levels in the human tendon
Peter Magnusson, University of Copenhagen, Denmark

9.30 Molecular structure, mechanical behavior, and failure mechanisms of tendon
Marcus Buehler, Massachusets Institute of Technology, Boston, USA

10.00 Can loading of collagen structures protects towards biochemical degradation
Jeffrey Ruberti, Northeastern University, Boston, USA

10.30 Break

Theme 5: Role of intramuscular connective tissue in muscle function

11.00 What role does intramuscular connective tissue play in force transmission in muscle
Richard Lieber, University of California San Diego, USA

11.30 Changes in intramuscular tissue with ageing in humans
Todd Trappe, Ball State University, Muncie, USA

12.00 Interplay between cells present in skeletal muscle
Benedicte Chazaud, INSERM, Univ Paris Rene Decartes, France

12.30 Lunch

Theme 6: Matrix dynamics with loading in skeletal muscle and tendon

13.30 Biochemical and morphological changes with repeated loading in horse tendon
Helen Birch, University College of London, UK

14.00 Regulation of collagen synthesis in the human musculo-tendinous unit
Michael Kjaer, University of Copenhagen, Denmark

14.30 Role of matrix turnover for recovery after overloading in human skeletal muscle
Abigail Mackey, University of Copenhagen, Denmark

15.00 Break

Theme 7: What is the most important factor for passive mechanical properties in the muscle-tendinous complex

15.30 The role of collagen in tendon resistance to loading
Hazel Screen, Queen Mary University of London, UK

16.00 Role of cross-links for connective tissue resistance to loading
David Eyre, University of Washington, Seattle, USA

16.30 Importance of titin for stretch resistance in skeletal muscle
Henk Grazier, University of Arizona, Tucson, Az, USA

Saturday 25th August 2012

Theme 8: Adaptation or maladaptation to loading in tendon

9.00	Is it overuse or underuse that is bad for tendon? Steven Arnoczky, Michigan State University, East Lansing, USA
9.30	What can we learn about tendon overuse injury from race horses? Janet Patterson-Kane, University of Glasgow, Scotland, UK
10.00	Tendinopathy: Tissue damage, pain or inflammation? Patrick Danielson, University of Umeå, Sweden
10.30	Break

Theme 9: Treatment of tendon and musculo-tendinous injury

11.00	Tendon repair: What takes place and what to do? Per Aspenberg, University of Linköping, Sweden
11.30	Treatment of tendon overuse injury Hans Tol, Aspetar Orthopaedic and Sports Medicine Hospital, The Netherlands
12.00	Importance of extracellular matrix for muscle regeneration after injury Stephen Badylak, University of Pittsburg, USA
12.30	End.