Mark Stuart Thompson, MEng, PhD, CEng, MIMechE

Degrees and professional qualifications

MEng (Engineering and Materials Science, University of Oxford, 1997)

PhD (Biomechanics, IRC in Biomedical Materials, University of London, 2001)

CEng, MIMechE (Chartered Engineer, Member of the Institution of Mechanical Engineers, 2003)

Present position

2006-date Principal Investigator, Oxford Mechanobiology Group

2006-date Associate Professor in Orthopaedic Biomechanics, Institute of Biomedical Engineering Department of Engineering Science, University of Oxford

2006-date Tutorial Fellow in Engineering Science, Wadham College, University of Oxford

2014-date Tutor for Graduates, Wadham College, University of Oxford

Current Funding

2013-14 EPSRC Impact Acceleration Award. Dr Mark Thomson, Prof Alison Noble, Mr Phill Brown, £140K

2012-13 Rosetrees Medical Fund, Dr Mark Thompson, Mr Tyler Grant, 18 months, £4.5K

2010 EPSRC PhD Plus, Dr Mark Thompson, Dr Ann Harvey. 9 months, £36K

2008-2012 Oxford Partnership Biomedical Research Centre (NIHR). Prof. Keith Willett (NHS), Dr. Philippa Hulley, **Dr. Mark Thompson**, Prof. Alison Noble (IBME) “Regenerative Tendon Repair” £89K p.a. up to 3 years

2010-2011 NIHR Feasibility and Sustainability Funding, Mr Joseph Alsousou, **Dr Mark Thompson**, Professor Keith Willett. “Platelet Rich Plasma in Accelerated Tendo-Achilles Healing”, 1 Clinical Fellow, 1 year.

2009-2011 Joint Action (BOA). Prof. K. Willet (NHS), **Dr M Thompson**, Dr PA Hulley, Dr Simon Ostelere (NHS), Dr David Wilson (NHS), Mr Robert Handley (NHS) “Regenerative tendon repair”, £97K over 2 years

Research Training

2003-2006 Hansjörg Wyss AO Medical Foundation Post-doctoral Fellowship, Center for Musculoskeletal Surgery, Charité Hospital, Berlin, Germany

2001-2003 European Commission Marie Curie Fellowship, Department of Orthopaedics, University of Lund, Sweden

Awards

2004 Novel Award – best paper: Seebeck, Thompson et al. “Gait evaluation: A tool to monitor bone healing?” €5,000

Recent publications

1. **Thompson, MS** Tendon Mechanobiology: Experimental Models Require Mathematical Underpinning. Bulletin of Mathematical Biology, 75(8), 1238-1254 (2013).
2. P Brown, J Alsousou, A Cooper, **MS Thompson**, JA Noble. “The AutoQual ultrasound elastography method for quantitative assessment of post rupture Achilles tendons” J Biomech 46, 2695-2700 (2013).
3. T Grant, **MS Thompson**, J Urban, J Yu. “Elastic fibres are broadly distributed in tendon and highly localized around tenocytes" J Anatomy 222, 573-579 (2013)
4. Lee J-H, Lee S-S, **Thompson MS,** Kang D-J, Park S, Park S, "A Novel Method for the Accurate Evaluation of Poisson’s Ratio of Soft Polymer Materials" The Scientific World Journal 2013 930798 (2013)
5. I Adekanmbi, N Zargar Baboldashti, C Yapp, S Franklin, **M S Thompson**. “A novel in-vitro loading system for high frequency loading of cultured tendon fascicles” Med Eng Phys 25 205-120 (2013)
6. Knowles, H, **Thompson, MS**, Grunhagen, J , Kashima, TG, Cheng, XG, Athanasou, NA "Chondroclasts Are Mature Osteoclasts Which Are Capable Of Cartilage Matrix Resorption" Virchows Arch 461, 205-210 (2012)

7. Liang M, Cornell HR, Zargar Baboldasthi N, **Thompson MS**, Carr AJ, Hulley PA. "Regulation of hypoxia induced cell death in human tenocytes" Advances in Orthopedics 2012 984950 (2012)
8. S Chaudhury, C Holland, **M S Thompson**, F Vollrath, A J Carr. "Tensile and Shear Mechanical Properties of Rotator Cuff Repair Patches" Journal of Shoulder and Elbow Surgery 21(9):1168-1176 (2011)
9. NZ Baboldashti, RC Poulsen, SL Franklin, **MS Thompson,** PA Hulley. "Platelet Rich Plasma Protects Tenocytes from Adverse Side Effects of Dexamethasone and Ciprofloxacin" Am J Sports Med 39 1929-1935 (2011)
10. **Thompson, M.S.** Abercrombie, S.R., Bieler, F.H., Ott, C.-E., Duda, G.N., Ventikos, Y., "Quantification and significance of fluid shear stress field in biaxial cell stretching device" Biomech Model Mechanobiol 10 559-564 (2011)
11. Aline Groothuis, Georg N. Duda, Cameron J. Wilson, **Mark S. Thompson**, Morgan R. Hunter, Hermann J. Bail, Karine M. van Scherpenzeel, Grit Kasper "Mechanical stimulation of the pro-angiogenic capacity of human fracture haematoma: involvement of VEGF mechano-regulation" Bone 47 438-444 (2010)
12. **Thompson MS**, Epari D, Bieler FH, Duda GN. "In vitro models for bone mechanobiology: application in bone regeneration and tissue engineering". J Eng Med 224 1533-1541 (2010)
13. Epari DR, Duda GN, **Thompson MS**. "Mechanobiology of bone healing and regeneration: in vivo models" J Eng Med 224 1543 – 1553 (2010)
14. Alsousou J., **Thompson M.S.**, Hulley P.A., Noble, A., Willett K. The biology of platelet-rich plasma and its application in trauma and orthopaedic surgery. J Bone Joint Surg 91-B 987-996 (2009)
15. Harvey AK, **Thompson MS**, Cochlin L, Raju PA, Cui Z, Cornell H, Hulley PA, Brady JM. Functional imaging of tendon. Annals of the British Machine Vision Association 2009: 1-11 (2009).
16. Bieler FH, Ott CE, **Thompson MS**, Seidel R, Ahrens S, Epari DR, Wilkening U, Schaser KD, Mundlos S, Duda GN. Biaxial cell stimulation: a mechanical validation. J Biomech 42 1692-1696 (2009).
17. Schell, H., **Thompson, M. S.,** Bail, H. J., Hoffman, J. E., Schill, A., Duda, G. N., and Lienau, J. Mechanical induction of critically delayed bone healing in sheep: radiological and biomechanical results. *J. Biomech*. 41 3066-3072 (2008)
18. Kasper, G., Dankert, N., Tuischer, J., Hoeft, M., Gaber, T., Glaeser, J.D., Zander, D., Tschirschmann, M., **Thompson, M.**, Matziolis, G., Duda, G.N. "Mesenchymal stem cells regulate angiogenesis according to their mechanical environment". Stem Cells 25 903-910 (2007).
19. Trepczik, B., Lienau, J., Schell, H., Epari, D.R., **Thompson, M.S.**, Hoffmann, J.E., Kadow-Romacker, A., Mundlos, S., Duda, G.N. "Endochondral ossification in vitro is influenced by mechanical bending". Bone 40 597-603 (2007).
20. **Thompson, M.S.**, Schell, H., Lienau, J., Duda, G.N. "Digital image correlation: a technique for determining local mechanical conditions within early bone callus". Med Eng Phys 29 820-823 (2007).
21. Kleemann, R.U., Schell, H., **Thompson, M.S.,** Epari, D.R., Duda, G.N., Weiler, A. "Mechanical behavior of articular cartilage after osteochondral autograft transfer in an ovine model". Am J Sports Med 35 555-563 (2007).
22. **Thompson M.S.**, Bleckwehl F.H., Ott C.E., Epari D.R., Duda G.N. "Mechanical characterisation of the BioFlex system". Tissue Engineering 13:1378 (2007).
23. Matziolis, G., Tuischer, J., Kasper, G., **Thompson, M.**, Bartmeyer, B., Krocker, D., Perka, C., Duda, G. "Idea and innovation: simulation of cell differentiation in fracture healing - mechanically loaded composite scaffolds in a novel bioreactor system". Tissue Engineering 12 201-208 (2006).
24. Seebeck, P., **Thompson, M.S.**, Parwani, A., Taylor, W.R., Schell, H., Duda, G.N. "Gait evaluation: A tool to monitor bone healing?" Clinical Biomechanics 20 883-891 (2005).
25. Kaspar, K., Schell, H., Seebeck, P., **Thompson, M.**, Schütz, M., Haas, N.P., Duda, G.N. "Angle stable locking of unreamed nailing reduces interfragmentary movements in a displaced osteotomy of the sheep tibia and promotes healing". JBJS Am 87 2028-2037 (2005).

26. **Thompson, M.S.**, Flivik, G., Juliusson, R., Odgaard, A., Ryd, L. “A comparison of structural and mechanical properties in cancellous bone from the femoral head and acetabulum” Proc IMechE Part H: Journal of Engineering in Medicine 218: 425-429 (2004).
27. **Thompson, M.S.**, McCarthy, I.D., Ryd, L., Lidgren, L. “Compressive and shear properties of commercially available polyurethane foams” Journal of Biomechanical Engineering 125: 732-734 (2003).
28. **Thompson, M.S.**, Northmore-Ball, M.D., Tanner, K.E. “Effects of acetabular resurfacing component materials on the strain distribution in the pelvis” Proc IMechE Part H: Journal of Engineering in Medicine 216: 237-245 (2002).
29. **Thompson, M.S.**, Northmore-Ball, M.D., Tanner, K.E. “Tensile mechanical properties of polyacetal after one and six months’ immersion in Ringer’s solution” Journal of Materials Science: Materials in Medicine 12: 883-887 (2001).
30. **Thompson, M.S.**, Dawson, T., Kuiper, J.H., Northmore-Ball, M.D., Tanner, K.E. “Acetabular morphology and resurfacing design” Journal of Biomechanics 33 (12) 1645-1653 (2000).
31. Haddow, D., **Thompson, M.S.**, Berry, S.R., Czernuszka, J.T. “Compositional and structural control in bone regenerative coatings” Journal of Materials Science: Materials in Medicine 10(4): 219-222 (1999).