
BIOGRAPHICAL SKETCH

Timothy M.McGloughlin, PhD	Professor of Biomedical Engineering and Head of Department of Biomedical Engineering, Khalifa University, Abu Dhabi
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EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
University College, Dublin, Ireland	B.E.	06/73	Mechanical Engineering
University College, Dublin, Ireland.	M.Eng Sc.	09/80	Mechanical Engineering
Trinity College, Dublin, Ireland	Ph.D.	12/95	Biomedical Engineering

A. Positions and Honors

Positions and Employment

1991-2002 Lecturer, Mechanical and Biomedical Engineering, University of Limerick, Ireland
2002-2007 Senior Lecturer, Mechanical and Biomedical Engineering, University of Limerick, Ireland
2007-2012 Associate Professor, Mechanical and Biomedical Engineering, University of Limerick, Ireland
2012-2013 Professor (Personal) Biomedical Engineering, University of Limerick, Ireland
2012 –2013 Head, Department of Mechanical, Aeronautical and Biomedical Engineering, University of Limerick, Ireland
2004 – 2013 Centre for Applied Biomedical Engineering Research (CABER), University of Limerick, Ireland
Jan 2014 – Date Chair, and Professor , Biomedical Engineering, Khalifa University, Abu Dhabi, UAE

Other Experience and Professional Memberships

FIEI Fellow, Engineers Ireland
Member, ASME Bioengineering Division
International Member at Large, Executive Committee, Bioengineering Division, ASME, 2011 to 2015
Elected Member, World Council of Biomechanics, 2010-2022
Fellow, Royal Academy of Medicine of Ireland, Bioengineering Division and Secretary of Division

Honors

2015 Awarded the Silver Medal Bioengineering Section Royal Academy of Medicine in Ireland
2010 Research Excellence Award, Faculty of Science and Engineering, University
2011 MSSI Award for most ISI journal publications in 2010
2008 Sir Thomas Myles Lecture, Sylvester O'Halloran Surgical Meeting, Limerick
2005 Special Achievement in Research Award, University of Limerick

Professor McGloughlin has supervised 23 PhDs to completion and mentored 10 Post Doctoral researchers over the last 8 years. Professor McGloughlin who was the Founding Director of the Centre for Applied Biomedical Engineering Research, a University Research Centre has published more than 140 refereed journal and conference papers in biomedical engineering as well as 2 books and 7 book chapters and is a regular presenter and invited contributor at all the major annual biomedical engineering meetings including the ASME Summer Bioengineering Conference, BMES, the World Congress on Biomechanics and a variety of clinical meetings including the European Society for Vascular Surgery. Professor McGloughlin has attracted in excess of €7m Euro in research funds. His international collaborators include the University of Pittsburgh, Georgia Institute of Technology, Duke University, Columbia University, Imperial College, London, the University of Edinburgh, the University of Western Australia.

He is a Fellow of the Royal Academy of Medicine in Ireland (Bioengineering Section), a Fellow of Engineers Ireland and a member of the Irish Medical Devices Association (IMDA). He is also a member of the Executive Committee of the ASME Bioengineering Division, a member of the World Council for Biomechanics (elected), BMES and ESB. He was the Founder Director Frontline Medical Ltd, a start-up medical device company based in Limerick, Ireland from 1998 to 2007. His research interests include: Cardiovascular Solid and Fluid Mechanics; Aneurysm Biomechanics; Tissue Engineering; Medical Devices; Orthopedic biomechanics

C. Most relevant peer-reviewed publications (in chronological order).

(Total Peer-Reviewed-147; Orig. Articles-77;; Abstracts-220; Book Chap.-8; Invited Articles-6)

Books

1. **McGloughlin, T.M.*** (Ed) *Biomechanics and Mechanobiology of Aneurysms* Springer ISBN: 978-3-642-18094-1 (2011) <http://www.springer.com/us/book/9783642180941>
2. Doyle, B.J., D.S. Molony, M.T. Walsh and **McGloughlin, T. M.*** *Imaging Of Abdominal Aortic Aneurysms: New Approaches To Management And Treatment*, Nova Science Publishers, NY, USA, Published May 2010 ISBN: 978-1-61668-312-2 https://www.novapublishers.com/catalog/product_info.php?products_id=12901

Book Chapters

1. Barry J. Doyle, **Timothy M. McGloughlin**, Eamon G. Kavanagh, and Peter R. Hoskins From Detection to Rupture: A Serial Computational Fluid Dynamics Case Study of a Rapidly Expanding, Patient-Specific, Ruptured Abdominal Aortic Aneurysm In B. Doyle et al. (eds.), *Computational Biomechanics for Medicine: Fundamental Science and Patient-specific Applications*, (2014) DOI 10.1007/978-1-4939-0745-8_5, pp53-68
2. Callanan A., N. F. Davis, M.T. Walsh and **T.M. McGloughlin*** Tissue-engineered Extracellular Matrices (ECMs) as adjuvant scaffolds for Endovascular Aneurysmal Repair (EVAR) in Regenerative Medicine and Tissue Engineering; From Cells to Organs / Book 1", ISBN 978-953-307-337-8. (2011)
3. Molony, David S., Stephen Broderick, Anthony Callanan, **Timothy M. McGloughlin**, Michael T. Walsh Fluid-structure interaction in healthy, diseased and endovascularly treated abdominal aortic aneurysms in *Biomechanics and Mechanobiology of Aneurysms* Tim McGloughlin (Ed) Springer ISBN: 978-3-642-18094-1 (2011)
4. Corbett, Timothy J., David S. Molony, Eamon G. Kavanagh, Pierce A. Grace, Michael T. Walsh and **Timothy M. McGloughlin*** Experimental Analysis of Endovascular treatment of AAA and Predictors of Long Term Outcomes in *Biomechanics and Mechanobiology of Aneurysms* Tim McGloughlin (Ed) Springer ISBN: 978-3-642-18094-1 (2011)
5. Barry J. Doyle and **Timothy M. McGloughlin*** Computer-Aided Diagnosis of Abdominal Aortic Aneurysms in *Biomechanics and Mechanobiology of Aneurysms* Tim McGloughlin (Ed) Springer ISBN: 978-3-642-18094-1 (2011)
6. **McGloughlin, T. M.*** and M. T. Walsh. November 2010. Arterial Circulation and Disease Processes. In *Image-based Computational Modeling in the Human Circulatory and Pulmonary Systems*, K. B. Chandran, H. S. Udaykumar and J. M. Reinhardt (Eds.), Springer Verlag. ISBN: 978-1-4419-7349-8.
7. Doyle BJ, Molony, D.S., Walsh M.T., **McGloughlin, T. M.***, 3D Imaging of Abdominal Aortic Aneurysms: Techniques and Applications in *3D Imaging: Theory, Technology and Applications* Emerson H. Duke and Stephen R. Aguirre (eds) Nova Science Publishers, pp. 1-50 Nov 2010 978-1-60876-885-1
8. T.O'Brien, M. Walsh L. Morris, P. Grace, E. Kavanagh, **McGloughlin, T. M.***. Numerical and Experimental Techniques for the Study of Biomechanics in the Arterial System in *BIOMECHANICAL SYSTEMS TECHNOLOGY*, Scientific Publishing Co. Ed. Cornelius Leondes 2007 ISBN 978-981-270-798-7

Refereed Journal papers (selected)

1. O'Connor Mooney R, Davis NF, Hoey D, Hogan L, **McGloughlin TM**, Walsh MT. On the Automatic Decellularisation of Porcine Aortae: A Repeatability Study Using a Non-Enzymatic Approach. *Cells Tissues Organs*. 2016;201(4):299-318. doi: 10.1159/000445107. Epub 2016 Apr 30.
2. Coakley DN, Shaikh FM, O'Sullivan K, Kavanagh EG, Grace PA, **McGloughlin TM**. Design and evaluation of a novel subatmospheric pressure bioreactor for the preconditioning of tissue-engineered vascular constructs. *Int J Artif Organs*. 2016 Mar 21;39(2):77-83. doi: 10.5301/ijao.5000475. Epub 2016 Mar 7.
3. Coakley DN, Shaikh FM, O'Sullivan K, Kavanagh EG, Grace PA, Walsh SR, **McGloughlin TM**. Comparing the endothelialisation of extracellular matrix bioscaffolds with coated synthetic vascular graft materials. *Int J Surg*. 2016 Jan;25:31-7. doi: 10.1016/j.ijso.2015.11.008. Epub 2015 Nov 12.
4. Coakley, D.N.Shaikh, F.M.O'Sullivan, K.,Kavanagh, E.G., Grace, P.A. **McGloughlin, T.M.** In vitro evaluation of acellular porcine urinary bladder extracellular matrix - A potential scaffold in tissue engineered skin, *Wound Medicine* Volume 10-11, December 01, 2015, Pages 9-16
5. Mooney Rory O'Connor, Piterina Anna V., Davis Niall Francis, **McGloughlin Timothy M.**, and Walsh Michael T Automatic Decellularization of Ovine Aorta-Derived Extracellular Matrix Offers Reduced Processing and Attendee Times While Being as Effective as Manual Techniques *Tissue Engineering Part C: Methods*. *Tissue Engineering Part C-Methods* Volume: 21 Issue: 5 Pages: 480-488 Published: 2015
6. Siobhan A.O'Leary, JohnJ.Mulvihill, HilaryE.Barrett, Eamon G. Kavanagh, MichaelT.Walsh, **TimM.McGloughlin**, BarryJ.Doyle Determining the influence of calcification on the failure properties of abdominal aortic aneurysm(AAA) tissue *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS* Vol 42 Jan 2015 pp 154-167
7. Siobhan A.O'Leary, Eamon G. Kavanagh, Donagh A.Healy, MichaelT.Walsh, **TimM.McGloughlin**, BarryJ.Doyle The Biaxial Biomechanical Behavior of Abdominal Aortic Aneurysm Tissue *Annals of Biomedical Engineering* Vol. 42, No. 12, December 2014 pp 2240-2250.
8. Callanan, A.; Davis, N. F.; **McGloughlin, T. M.**; Walsh, M. T. The effects of stent interaction on porcine urinary bladder matrix employed as stent-graft materials *JOURNAL OF BIOMECHANICS* Vol 47 June 11 2014 pp 1885 - 1893
9. A.Callanan,N.F. Davis, **T. M. McGloughlin** and M. T. Walsh Development of a rotational cell-seeding system for tubularized extracellular matrix (ECM) scaffolds in vascular surgery *Journal of Biomedical Materials Research Part B: Applied Biomaterials* Volume 102, Issue 4, pages 781–788, May 2014
10. O'Leary, Siobhan A.; Doyle, Barry J.; **McGloughlin, Tim M.** The impact of long term freezing on the mechanical properties of porcine aortic tissue *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS* Vol 37 Sept 2014 pp 165-173
11. O'Leary, Siobhan A.; Kavanagh, Eamon G.; Grace, Pierce A.; **McGloughlin, Tim M.**; Doyle, Barry J. The biaxial mechanical behaviour of abdominal aortic aneurysm intraluminal thrombus: Classification of morphology and the determination of layer and region specific properties *JOURNAL OF BIOMECHANICS* Vol 47 APR 11 2014 pp 1430 -1437
12. LG Morris, F. Stefanov, **Tim McGloughlin** Stent graft performance in the treatment of abdominal aortic aneurysms:The influence of compliance and geometry *J of Biomechanics* 46 (2013) 383–395
13. F Stefanov **T McGloughlin** P Delassus and L Morris Hemodynamic variations due to spiral blood flow through four patient-specific bifurcated stent graft configurations for the treatment of abdominal aortic aneurysms *Int. J. Numer. Meth. Biomed. Engng.* Volume 29, Issue 2, February 2013, Pages 179-196
14. Callanan A., David NF, Walsh MT and **McGloughlin TM**, Mechanical characterization of unidirectional and cross-directional urinary bladder matrix (UBM) scaffolds, *Medical Engineering and Physics*, 34, 1368 (2012)
15. Tierney A., A Callanan **TM McGloughlin*** Use of Regional Mechanical Properties of Abdominal Aortic Aneurysm to Advance Finite Element Modeling of Rupture Risk, *Journal of Endovascular Therapy* Feb 2012 Vol 19: pp100–114
16. Cloonan AJ M R O'Donnell, W.T Lee,; M. T Walsh, ; E. De Barra, **T. M McGloughlin***, Spherical Indentation of free-standing acellular Extracellular Matrix membranes *Acta Biomaterialia* Vol 8 Issue 1 Jan 2012 pp 262-273
17. Callanan A., Liam Morris and **Tim McGloughlin*** Finite element and photoelastic modelling of an abdominal aortic aneurysm: a comparative study *Computer Methods in Biomechanics and Biomedical Engineering* 15, 1111 (2012)
DOI:10.1080/10255842.2011.574618

18. Doyle, B.J., P.R. Hoskins and **T.M. McGloughlin**, Computational Rupture Prediction of AAAs: What Needs To Be Done Next? *Journal of Endovascular Therapy*, 2011;18(2). *Invited commentary*.
19. Tierney A., A Callanan **TM McGloughlin*** In Vivo Feasibility Case Study for evaluating Abdominal Aortic Aneurysms tissue properties and Rupture Potential using Acoustic Radiation Force Impulse Imaging *Journal of the Mechanical Behavior of Biomedical Materials* Volume 4, Issue 3, April 2011, Pages 507-513
20. Corbett TJ, D S Molony, A Callanan, **TMMcGloughlin*** The effect of vessel material properties and pulsatile wall motion on the fixation of a proximal stent of an endovascular graft. *Medical Engineering Physics* Vol 33 pp1106-111
21. Corbett TJ, A Callanan; **TMMcGloughlin*** In Vitro Measurement of the Axial Migration Force on the Proximal end of a Bifurcated Abdominal Aortic Aneurysm Stent-Graft Model *Proceedings of the Institution of Mechanical Engineers Part H-Journal of Engineering in Medicine* Volume 225 Issue 4, April 2011 pp 401-409
22. **McGloughlin TM*** and Barry J. Doyle New approaches to abdominal aortic aneurysm assessment - engineering insights with clinical gain *ARTERIOSCLEROSIS THROMBOSIS AND VASCULAR BIOLOGY* 2010;30:1687-1694 (COVER) Published online May 27th 2010 DOI:10.1161/ATVBAHA.110.204529
23. Doyle BJ, Aidan J. Cloonan, Michael T. Walsh, David A. Vorp and **Timothy M. McGloughlin*** Identification of Rupture Locations in Patient-Specific Abdominal Aortic Aneurysms Using Experimental and Computational Techniques *Journal of Biomechanics* Vol 43 no.7 pp 1408-1416
24. Corbett TJ, B.J. Doyle, A. Callanan, M.T. Walsh and **T. M.McGloughlin*** Engineering Silicone Rubbers for *In vitro* Studies: Creating AAA Models and ILT Analogues with Physiological Properties *Trans ASME J. Biomech. Eng.* -- January 2010 -- Volume 132, Issue 1, 011008 (9 pages) doi:10.1115/1.4000156
25. Tierney AP, Douglas M. Dumont, Anthony Callanan, Gregg E. Trahey, **Timothy M. McGloughlin*** Acoustic Radiation Force Impulse Imaging on ex vivo Abdominal Aortic Aneurysm Model, *Ultrasound in Medicine and Biology* Vol. 36, No. 5, pp. 821–832, 2010
26. Molony D, Walsh MT, Kavanagh, EG and **TM McGloughlin*** , A numerical study of the magnitude and direction of migration forces in patient specific abdominal aortic aneurysm stent-grafts, *European Journal of Vascular and Endovascular Surgery*, Vol 40, pp 332-339
27. Corbett TJ, A Callanan MR O'Donnell **TM McGloughlin*** An *In Vitro* Study of the Influencing Parameters on Migration Resistance of Endovascular Abdominal Aortic Aneurysm Stent Grafts. *Journal of Endovascular Therapy* Vol 17, No. 1 / February 2010 2010;17:95–107
28. Molony David S, Anthony Callanan, Michael T Walsh, Eamon G Kavanagh, **Tim M McGloughlin*** Biomechanics of a pre- and post-operative patient-specific abdominal aortic aneurysm treated with an endovascular stent-graft: A case study *BioMedical Engineering OnLine* 2009, **8**:24doi:10.1186/1475-925X-8-24
29. Doyle, B.J., T.J.Corbett, A. Callanan, M.Walsh, D.A. Vorp and **T.M. McGloughlin*** *In Vitro* modelling of an abdominal aortic aneurysm to determine rupture location *J ENDOVASC THER* 2009;16:322–335
30. Doyle, B.J., T.J. Corbett, A.J. Cloonan, M.R O'Donnell, M.T. Walsh, D.A. Vorp and **T.M. McGloughlin***, Experimental modelling of abdominal aortic aneurysms: Novel applications of silicone rubbers, *Medical Engineering & Physics*. Vol 31 pp1002-1012
31. Doyle, B.J., A. Callanan, E. Kavanagh, P.A. Grace, P.E. Burke, D.A. Vorp and **T.M. McGloughlin***, A Finite Element Analysis Rupture Index (FEARI) as an Additional Tool for Abdominal Aortic Aneurysm Burst Prediction, *Vascular Disease Prevention*, 2009;6:75-82
32. Doyle, B J., A. Callanan, P. E. Burke, P. A. Grace, M.T. Walsh, D.A. Vorp, **T.M. McGloughlin***, Vessel Asymmetry as an Additional Rupture Prediction Tool of Abdominal Aortic Aneurysms *Journal of Vascular Surgery* Feb 2009 No 43 pp 443-454.
33. Molony, D., A.Callanan, L.Morris, M.Walsh, **T. McGloughlin*** (2008) Geometrical Enhancements for Abdominal Aortic Aneurysm Grafts and Stent-Grafts *Journal of Endovascular Therapy* Vol 15;518-529 Oct 2008
34. Doyle, B.J., A. Callanan, **T.M.McGloughlin*** (2007) A comparison of modelling techniques for computing wall stress in abdominal aortic aneurysms *Biomedical Eng Online*
35. Morris L, P.Delassus, M.Walsh, **T.McGloughlin**, A mathematical model to predict the in vivo pulsatile drag forces acting on bifurcated stent grafts used in endovascular treatment of abdominal aortic aneurysms (AAA). *Journal of Biomechanics* 37 (7): 1087-1095