Curriculum Vitae

of

Peter Thomas

Consultant Orthopaedic & Trauma Surgeon The Royal Stoke University Hospital

&

Visiting Professor of Orthopaedic Engineering Staffordshire University

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Personal Details

Name Peter Brian MacFarlane Thomas

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Church Lane Betley Cheshire CW3 9AX

pbm.thomas@zen.co.uk

Telephone No 01270 820448 (home)

07747 806 603 (mobile)

Age 65 years (Date of Birth 09/05/1952)

Qualifications MB, BS (London) May 1975

FRCS (Ed) March 1981 FRCS (Eng) May 1981

Prizes

Lord Stafford Award 2005

MacRobert Award, Royal Academy of Engineering, finalist (of four) 2007

Leuvense Traumadag Gold Medal Lecturer, Belgium March 2007

Naughton-Dunn Gold Medal Lecturer, May 2007

Old Oswestrians Society Gold Medal Lecturer, June 2009

Appointments

July 1975 - January 1976:

House Physician (Pre-registration) at the Kent and Canterbury Hospital. (Dr M Rake)

January 1976 - July 1976:

House Surgeon (Pre-registration) in General Surgery in the County Hospital, Hereford. (Mr D Oakland)

July 1976 - January 1977:

Senior House Officer in Casualty at the General Hospital, Hereford.

January 1977 - July 1977:

Demonstrator in Anatomy at the University of Wales.

(Professor J D Lever)

July 1977 - March 1978:

Senior House Officer in General Surgery at the University Hospital of Wales. (Mr G Heard; Mr H Jones)

March 1978 - May 1978:

Senior House Officer in Cardiothoracic Surgery at the University Hospital of Wales. (Mr I Brechenridge; Mr T Rosser)

May 1978 - July 1978:

Senior House Officer in Emergency General Surgery at the Cardiff Royal Infirmary. (Mr G Heard; Mr H Jones; Mr D Crosby; Mr D Foster)

Surgical Registrar at the University Hospital of Wales.

Three year vocational training scheme (six posts of six months duration)

1. July 1978 - January 1979:

Registrar in Trauma and Orthopaedics at the Cardiff Royal Infirmary. (Professor B McKibbin; Mr M H Young; Mr H Weisl; Mr H Richards)

2. January 1979 - July 1979:

Registrar in Neurosurgery at the University Hospital of Wales. (Mr R Weeks; Mr K Frazer)

3. July 1979 - January 1980:

Registrar in Orthopaedics at the Prince of Wales Hospital, Rhydlafar and the University Hospital of Wales.

(Professor B McKibbin; Mr M H Young; Mr H Weisl; Mr D Jenkins)

4. January 1980 - January 1981:

Registrar in General Surgery at East Glamorgan Hospital, Church Village. (Mr R Williams; Mr G Davies)

5. January 1981 - July 1981:

Registrar in General and Paediatric Surgery at the University Hospital of Wales. (Mr B Rees)

(appointments)

Career Grade Registrar in Orthopaedic Surgery

Rotation based at the Robert Jones and Agnes Hunt Orthopaedic Hospital.

1. July 1981 - July 1982:

Registrar in Orthopaedic Surgery at Hereford General Hospital.

(Mr G C Slee; Mr P V Seal)

2. July 1982 - June 1983:

Registrar in Orthopaedic Surgery at the Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry.

- (a) July 1982 November 1982 : Professorial Unit (Professor Brian T O'Connor)
- (b) November 1982 March 1983 : Shrewsbury Firm (Mr R S Cowie; Mr D Harris; Mr R G Pringle; Mr J Patrick)
- (c) March 1983 July 1983 : Welsh Firm (Mr T E Jeffreys; Mr T A Evans; Mr D H A Jones: Mr A M Jamieson; Mr G A Evans; Mr J M Barnes)
- 3. July 1983 July 1984

Registrar in Orthopaedic Surgery at the War Memorial Hospital, Wrexham.

(Mr T E Jeffreys; Mr A M Jamieson; Mr G A Evans)

4. July 1984 - July 1985:

Registrar in Orthopaedic Surgery at the Royal Shrewsbury Hospital.

(Mr R S Cowie; Mr D Harris; Mr R C Pringle; Mr J Richards)

5. July 1985 - July 1986:

Research Fellow in Orthopaedics (Exchange Fellowship) at St Luke's Episcopal Hospital and the Baylor College of Medicine, Texas Medical Centre, Houston, Texas. (Dr Joseph Barnhart; Dr Hugh Tullos)

6. July 1986 - January 1987:

Registrar in Hand Surgery at the Derby Royal Infirmary, Derby.

(Mr F S Burke; Mr P Lunn)

7. January 1987 - July 1987:

Registrar in Orthopaedic Surgery at the North Staffordshire Royal Infirmary, Stoke-on-Trent. (Mr J Dove; Mr P Hill)

8. July 1987 - December 1987:

Registrar in Joint Replacement Surgery at the Wrightington Hospital, Wigan.

(Mr M Wroblewski; Mr K Hardinge, Mr J Murphy)

(appointments)

9. January 1988 - January 1989:

Senior Registrar in Traumatic Orthopaedic Surgery at the North Staffordshire Royal Infirmary, Stoke-on-Trent.

(Professor J Templeton; Mr T R Fisher; Mr D H Edwards; Mr C H Wynn Jones; Mr J Dove)

10. October 1988:

Appointed Lecturer in Orthopaedic Surgery in the Department of Postgraduate Medicine, University of Keele.

11. January 1989 - July 1989:

Senior Registrar in Elective Orthopaedic Surgery at the Hartshill Orthopaedic Hospital, Stoke-on-Trent.

(Mr P Hill; Mr D H Edwards; Mr T R Fisher; Mr J Dove; Mr C H Wynn Jones; Mr W M Steel)

Consultant Appointments

July 1989 – June 2007
 Senior Lecturer in Orthopaedic Surgery at Keele University and
 Honorary Consultant Orthopaedic Surgeon, University Hospital of North
 Staffordshire.

2. July 1989 – present

Consultant Orthopaedic Surgeon University Hospital of North Staffordshire, now the University Hospital of North Midlands.

3. June 2007 - present

Visiting Professor of Orthopaedic Engineering at Staffordshire University

Contributions

- 1. Major Disaster Symposium, Stoke-on-Trent July 1990 (Chief Organiser).
- 2. Secretary of the Accident, Emergency and Orthopaedic Sub-committee, Stoke-on-Trent, 1990-1993.
- 3. Director of Hand Surgery at Stoke-on-Trent from November 1990.
- 4. Surgical Tutor to the Royal College of Surgeons of England from 1991.
- 5. Member of the North Staffordshire Medical Education Committee from 1992.
- 6. Member of the Regional Orthopaedic Training Sub-committee (Birmingham) from 1992.
- 7. Founder member of the "Stoke Group" on Major Disasters 1990.
- 8. Member of the North Staffordshire Medical Ethics Committee, 1990-1993.
- 9. Member of the Committee for the European Workshop on Open Systems, British Standards Institute, 1992-1993.
- 10. Member of the British Medical Relief Team to Bosnia, July 1992.
- 11. Official European Inventor. Designated 1996.
- 12. Assessor on advisory appointment committees for the Royal College of Surgeons of England from 1997.
- 13. Advisor on Trauma services New Delhi, India 1998.
- 14. Acting Head of Academic Department of Orthopaedic Surgery, Stoke-on-Trent July 1999 to March 2000.
- 15. Member of the Postgraduate Committee from 2002.
- 16. External Examiner for fourth year medical students, Belfast 2003-2006
- 17. Organiser of the Stoke-on-Trent Annual Trauma Course 2004-2007.
- 18. Orthopaedic Surgery relief work in Nepal and Bhutan 2005.
- 19. Orthopaedic Surgery relief work in Nepal and Tibet 2009.
- 20. UK OA Faculty Member from 2011
- 21. Orthopaedic Surgery relief work in Nepal 2012 and 2016
- 22. ARCP training committee from 2012

Grants and Funding

€2.059 million from July 2017 European Space Agency funding for **€4.2 million** project to develop communication system for the Intelligent Fixator Project, of which **€240,000** to Keele University.

€600,000 from April 2014 with Slovenian electronics company matched by Slovenian government grants to Metaphysis for the Intelligent Fixator Project.

£1.66 million total investment in Intelligent Orthopaedics from May 2005 to August 2015, used for research and development of surgical devices.

£125,000 investment in Intelligent Orthopaedics by Mercia, October 2003

£15,000 second Accelerator grant for Intelligent Orthopaedics 2003

£5,000 from Mustard for starting up a company under the Universities of Keele and Staffordshire, acquired September 2002.

£21,000 Accelerator grant for Intelligent Orthopaedics 2002

£12,000 pathfinder grant from Spinner for start-up a company "Intelligent Orthopaedics" with The University Hospital of North Staffordshire and the Universities of Keele and Staffordshire, acquired September 2002.

£72,188 from Locally Organised Research Scheme, West Midlands NHS Executive. (LORS 2011), acquired November 1998 for 1999-2002. P.B.M.Thomas, C.I.Moorcroft. Salary of Bioengineering Research Fellow to study ways to improve the assessment of healing endpoints in tibial fractures.

£29,000 from the Wishbone Trust to fund a research fellow in cellular biology to study the effects of smoking on human osteocytes. 1998-2000., E.El-Haj, P.B.M.Thomas. Salary for Cellular Engineering Research Fellow studying the effect of smoking on the response of human tibial bone cells to mechanical stimuli.

£83,000 from DePuy Ace, California, to continue to fund the engineering research fellow in orthopaedics, acquired March 1997 for 1997-1999. P.B.M.Thomas, P.J.Ogrodnik, C.I.Moorcroft. Salary for Bioengineering Research Fellow studying tibial fracture fixator design and monitoring systems.

£350,000 from the EPSRC through a link grant to fund an engineering research fellow in orthopaedics. 1993-1997. (EPSRC J55984, LINK MIP/15) P.B.M.Thomas, P.J.Ogrodnik. Salary for Bioengineering Research Fellow studying tibial fracture fixator design and monitoring systems.

£132,000 from Biomet UK to fund the salary of a clinical orthopaedic research fellow for 4 years. 1992-1996. P.B.M.Thomas, P.J.Ogrodnik. Salaries for 3 consecutive Clinical Research Fellows studying external fixation of tibial fractures.

Grants in Process

£270,363.36 Technology Strategy Board (Health and Life Sciences round 2) applied for April 2017.

£275,000 Technology Strategy Board (KTP Associates) applied for May 2017.

£510,963.68 Technology Strategy Board (Emerging and Enabling Technology) applied for May 2017.

£360,000 Biomedical Catalyst (Innovate UK) applied for May 2017

Research Fellows Supervised

The following Research Fellows occupied full time posts that I created and for which I obtained full funding.

Patrick Gregson

Research Fellow in Orthopaedic Surgery for 1 year At the Bionic Laboratory, Keele University, and the North Staffordshire Royal Infirmary. Funded through Keele University with £44,000 from Biomet UK, July 1992-1993 He is now a consultant orthopaedic surgeon at Oswestry and Shrewsbury.

Subash Tandon

Research Fellow in Orthopaedic Surgery for 1 year At the Bionic Laboratory, Keele University, and the North Staffordshire Royal Infirmary. Funded through Keele University with £44,000 from Biomet UK, July 1993-1994 He has just achieved accreditation in orthopaedic surgery.

Stefan Verborg

Research Fellow in Orthopaedic Surgery for 2 years At the Bionic Laboratory, Keele University, and the North Staffordshire Royal Infirmary. Funded through Keele University with £88,000 from Biomet UK, July 1994-1996

He was preparing a PhD thesis on the Influence of Reduction and the Fracture Gap on Fracture Healing, but has now become a Benedictine Monk.

Ian Moorcroft

Research Assistant in Engineering for 4 years

At Staffordshire University under the supervision of myself and Dr. Peter Ogrodnik, Senior Lecturer in Engineering at Stafford University.

Funded through Staffordshire University with £250,000 from the EPSRC through a LINK grant July 1993-1997.

Research Fellow in Engineering for 2 years at The Bionic Laboratory, Keele University Funded through Keele University with £83,000 from DePuy Ace, California, July 1997-1999

Granted a PhD on his thesis on the Development of the Angular Motion Tibial Fracture Fixator in May 1999.

Patents

Title Fracture reduction device

Patent No. GB 2 324 038 A Filed 11/4/1997

Applicants Keele University & Staffordshire University.

Inventors P.B.M.Thomas, C.I.Moorcroft, P.J.Ogrodnik.

Title Fracture reduction device

Patent No. WO 98/46156 Filed 11/4/1997

Applicants Keele University & Staffordshire University.

Inventors P.B.M.Thomas, C.I.Moorcroft, P.J.Ogrodnik.

Title External bone fixator

Patent No. US 5,738,684 Filed 30/4/1996

Applicants Keele University & Staffordshire University.

Inventors P.B.M.Thomas, C.I.Moorcroft, P.J.Ogrodnik.

Title External bone fixator

Patent No WO Filed 26/4/1996

Applicants Keele University & Staffordshire University.

Inventors P.B.M.Thomas, C.I.Moorcroft, P.J.Ogrodnik.

Title **Bone fixator**

Patent No European Patent 96302957.4-2310 0740927 24/10/01

Applicants Keele University & Staffordshire University.

Inventors P.B.M.Thomas, C.I.Moorcroft, P.J.Ogrodnik.

Title Fixator

Date 18.1.08

Patent No European Patent 06744154.3 – 1526 PCT/GB2006002103

Applicants Intelligent Orthopaedics

Designated States AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI

LT LU LV MC NL PL PT RO SE SI SK TR

Inventors P.B.M.Thomas, C.I.Moorcroft, P.J.Ogrodnik.

Title Wire Retainer for Surgical Device

Date 3.3.08

Patent No European Patent 0674889.9 – 2318 PCT/GB2006002464

Applicants Intelligent Orthopaedics

Designated States AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI

LT LU LV MC NL PL PT RO SE SI SK TR

Inventors P.B.M.Thomas, C.I.Moorcroft, P.J.Ogrodnik.

Research

Most of my research efforts have been concentrated on studying the effects of movement on the growth of callus. My interest was kindled by Charnley and McKibbin but it was the work of Kenwright and Goodship that made me realise the research potential of external fixation. A fixator provides mechanical access to the healing fracture allowing control and measurement of its physical properties even in human subjects.

While exploring the effects of movement on callus growth I began to notice that the shape of the callus mass on x-rays might be explained by considering the modes of movement inducing it. In one particular case, in which maturing callotasis regenerate broke and healed, I noticed that two distinct configurations of callus were visible, superimposed on one another. It was apparent that these two distinct callus configurations had been induced by two different types of movement. The callotasis regenerate created by longitudinal movement was cylindrical with a longitudinal grain to it, while the callus that grew around the fracture was spherical with a concentric grain. Various methods used to fix unstable fractures in humans allow different types of fracture movement. Although studies have been reported in animal fracture models, there have been no studies in humans comparing the effects of different modes of movement. I decided to try to design an external fixator for the human tibia with which to control and study the effects of different modes of movement.

I teamed up with an engineer, Prof Peter Ogrodnik, at Staffordshire University, and we began to seek funding. We employed an engineering research fellow and a clinical research fellow. I persuaded my colleagues to refer all their tibial fractures to me and I set up a research clinic. Whilst developing the new fixator system we studied 75 patients whose unstable tibial fractures we treated with a conventional external fixator. This allowed us to develop measuring systems to monitor fracture movement and provide a measurable endpoint for healing. We developed a clinic monitoring system to measure fracture movement via the fixator pins in the clinic. We developed a continuous data-logging system to record movement of the fixator with a battery powered on-board computer, and a system for downloading this data in the clinic.

We designed two fixators, identical except for a mechanism at the centre of the fixator bar. In the Controlled Angular Motion Fracture Fixator (CAMFF) this was a remote centre hinge and pivot to produce pure angulatory movement in the coronal and sagittal planes, centred in the fracture. In the Controlled Linear Motion Fracture Fixator (CLMFF) the mechanism allowed only linear movement in the long axis of the tibia. A prospective randomised single blind study was designed. Patients with unstable closed tibial shaft fractures were randomised to CAMFF or CLMFF. To minimise all variables except the type of movement, the fixators all had to be applied in an identical manner. This meant that the fracture had to be perfectly reduced before the bone-screws for the definitive fixator were inserted. To achieve this reduction we developed the Staffordshire Orthopaedic Reduction Machine (STORM), which went through several prototype stages and trials before the final version which we now use. This device allows us to gain and hold a perfect reduction so that the experimental fixator can be positioned accurately in relation to the fracture.

Forty patients were entered into the study. The CAMFF fixed patients healed 2 weeks faster than the CLMFF fixed patients. This trend is not statistically significant, but the difference in the mechanical properties of the callus between the two groups is. By measuring the fracture stiffness in 2 orthogonal axes we have shown that the CAMFF patients have a significantly more uniform callus than the CLMFF.

(research)

While continuing to collect data for this study, the instrumented fixators allowed us to look at other aspects of fracture healing. Three-dimensional stiffness measurements helping us to understand how the strength of the callus mass changes through healing.

Funded by the LORS grant we developed a device to study the time-dependant properties of healing callus. Callus has visco-elastic properties which we studied by applying loads to the tibia at various controlled rates when performing stiffness measurements in several different planes. We are hoping to find how the characteristics of callus change from visco-plastic to visco-elastic and to define healing in relation to this. We have designed a fail-safe fixator to replace the treatment fixator at an end point selected to allow 50% of the fractures to subsequently deform. This deformation will be limited to 1deg and will be recorded by the data-logger in the fail-safe fixator. In those that do deform, the treatment fixator will be reapplied to correct the small deformity and hold it until the fracture is deemed healed by our previous definition of 15Nm/deg of stiffness in two orthogonal planes. By this means we will be able to validate the new healing endpoint based on visco-elastic measurements.

We now have funding to continue with the data-logger research and develop the "Intelligent Fixator". By using information already gained from the data loggers, stiffness measurements and clinic monitoring system, we will design improved switching and software. We will then have a fixator that can extrapolate data to predict when the fracture will heal and alert the surgeon to the possibility of a delayed union. For instance, when it detects that movement has remained below a defined amount for a specified number of days (for example: less than 0.5deg in either plane for 3 successive days) the fixator will alert the surgeon and the patient to return to the clinic for fixator removal. This will be a healing endpoint fine-tuned to the activity level, gait pattern and weight of the individual patient.

We already have a fixator system that is applied to a perfectly reduced fracture and therefore has no adjustment mechanism to slip later. This perfect reduction can only be lost as a result of bone-screw loosening, so x-rays are no longer required to see that alignment is maintained. Once the fixator can detect when the fracture is healed, x-rays will only be required if the fixator detects that a delayed union may be developing. In a straightforward case no x-ray would be needed in follow-up.

We are investigating ways to reduce pin-site problems. We have a trial of various skin incision methods underway, and are looking into stress reduction at the screw-bone interface by alterations in the screw configuration. We are also investigating new types of dressing for bone screws and the use of screws coated with slow release antibimicrobial agents.

We have developed and tested a new type of external fixator for tibial fractures, the IOS fixator. This consists of a titanium bar fixed to the tibia with six bone screws, three in each fragment. The IOS fixator allows the correct amount of passive movement to promote optimum callus growth, and incorporates a novel method to assess healing by fracture stiffness assessment. Over 400 patients (80 at Stoke) have been successfully treated with the IOS fixator.

We are now working on the Intelligent Fixator Project for which we have just received major funding (see below).

Intelligent Orthopaedics Ltd

Professor Peter Ogrodnik, Dr. Ian Moorcroft (of Stafford University) and I created the first University spin-out company at Keele University to market the devices that we developed through research into tibial fractures. After prolonged negotiations with the Universities and Hospital Trust in relation to intellectual property, we established the company, "Intelligent Orthopaedics" and acquired a global distributor. We have CE marking in Europe and FDA approval in the USA for the sale of the STORM reduction device and the IOS external fixator. The University of Staffordshire, Keele University and The University Hospital of North Staffordshire NHS trust had equal shares in the company.

We are continuing to perform clinical trials on the devices that we are developing for improving the treatment of tibial fractures.

We are developing new external fixation devices which we will bring to market in due course. These include modifications to the STORM to widen its application to intramedullary nailing. We are developing hybrid fixators for fractures of the proximal and distal tibial metaphyses and are working on the "intelligent fixator" which will predict healing time, inform the surgeon of any abnormal delay in healing, and signal when the fracture has healed and when it is safe to remove the fixator.

Metaphysis LLP

I am a director of this company that was formed in 2013 to develop the Intelligent Fixator System with a company in Slovenia that develops sensors for the car engine market. They have put €600,000 towards the project, which is advancing well.

Metaphysis LLP bought Intelligent Orthopaedics Ltd in August 2015.

We continue to improve and market the STORM and IOS devices and continue to develop other related surgical and measurement devices. We are already doing measurements of tibial fracture healing with the new device in clinic, and will soon be starting full clinical trials.

Our STORM device is already in use in hospitals in the UK, the USA, Germany, France, Italy, Belgium, Greece, Australia and Nepal.

This month (June 2017) we have had confirmation of a €2.059 million grant from the European Space Agency as part of the funding for €4.2 million project to develop communication systems for our Intelligent Fixator Project.

€240,000 of that grant will come to Keele University.

Invited Speaker at Learned Societies

Frame Mechanics and Principles of External Fixation

P.B.M.Thomas

Lecture and demonstration on fresh specimens in cadaveric lab.

Keele University 22nd May 2017

Fracture Healing and External Fixation of the Tibia

P.B.M.Thomas

Lecture and practical classes: course for trainees.

Manchester Spire Hospital 6th May 2017

Fracture Healing and the Intelligent Fixator Project

P.B.M.Thomas

Lecture and demonstration 27th April 2017

video link: https://www.dropbox.com/s/3fzqkkjy96igqod/AT_Kearney_The_Future_of_Digital_Health_v1.mp4?dl=0

Symposium at ATKearney, Berkley Square, London

Osteomyelitis

P.B.M.Thomas

Lecture 29th Sept. 2016

The Bir Hospital, Kathmandu

The Garches External Fixator

P.B.M.Thomas

Seminar on High Tibial Osteotomy, 22nd March 2016

Verona, Italy

Fracture Healing in the Human Tibia

P.B.M.Thomas

Annual Cadaveric Surgery Course for Trauma Orthopaedic Surgeons

18th to 20th November 2015

Arhus, Denmark

Surgical Treatment of Bone Infection

P.B.M.Thomas

6th National Orthopaedic Infection Forum, 24th June 2015

School of Oriental and African Studies, London.

External Fixation with STORM and IOS

P.B.M.Thomas

Annual Training Meeting for Trauma Orthopaedics 25th Sept. 2014

Odense University, Denmark.

External Fixation and Bone Healing

P.B.M.Thomas

Manchester Trauma and Reconstructive Association Meeting 13th Sept 2014 Salford Hospital, Manchester.

Bone Properties and Modes of Healing

P.B.M.Thomas

AO Trauma Course. Basic Principles of Fracture Management Basingstoke November 18-21 2013

Relative Stability External Fixators

P.B.M.Thomas

AO Trauma Course. Basic Principles of Fracture Management Basingstoke November 18-21 2013

Damage Control Orthopaedics

P.B.M.Thomas

AO Trauma Course. Basic Principles of Fracture Management Basingstoke November 18-21 2013

Reducing Tibial Shaft, Plateau and Pilon Fractures

P.B.M.Thomas

Orthopaedic Trauma Association 27th Annual Meeting, Workshop and lecture San Antonio, Texas, 13th October 2011

Fracture Healing and Monolateral External Fixation

P.B.M.Thomas

Fundamentals of External Fixation Course, Southern Region Reading, 29th September 2011

Pelvic Fractures: The Role of External Fixation

P.B.M.Thomas

Fundamentals of External Fixation Course, Southern Region Reading, 29^{th} September 2011

Fracture Healing and Monolateral External Fixation

P.B.M.Thomas

Fundamentals of External Fixation Course, Northern Region Hilton Deansgate Manchester 8th September 2011

Pelvic Fractures: The Role of External Fixation

P.B.M.Thomas

Fundamentals of External Fixation Course, Northern Region Hilton Deansgate
Manchester 8th September 2011

Treatment of Osteomyelitis

P.B.M.Thomas

2nd National Orthopaedic Infection Forum

1 Birdcage Walk (Royal Institution of Mechanical Engineering)

London 6th July 2011

The Importance of Reduction in Tibial Fractures

P.B.M.Thomas

Keynote lecture AO Annual UK Faculty Meeting Chepstow 13th November 2010

Priciples of Tibial Fracture Fixation

P.B.M.Thomas Trauma course Orthofix Marlow 7-8th October 2010

External Fixation of Tibial Shaft Fractures

P.B.M.Thomas Trauma Course Orthofix Sheffield 9-10th September 2010

The Evolution and Development of Orthopaedic Technology

P.B.M.Thomas Welsh Orthopaedic Training Programme Instructional Course Cardiff 9th July 2010

How Do Fractures Heal?

P.B.M.Thomas

Keynote Speaker, British Orthopaedic Trainees Association Annual Meeting Carden Park, Cheshire 11-12th June 2010

How to Get Bones to Heal

P.B.M.Thomas Grand Round Lecture Isle of Man 22nd January 2010

The Staffordshire Orthopaedic Reduction Machine and IOS Fixator

P.B.M.Thomas Seminar Lecture Osnabruck, Germany 5th November 2009

Priciples of External Fixation

P.B.M.Thomas Trauma Course Orthofix South Wales 8-9th September 2009

Tibial External Fixation

P.B.M.Thomas North Staffordshire International Fracture Fixation Course, Stoke-on-Trent, 17th June 2009

Understanding the Mechanics of Fracture Healing

P.B.M.Thomas Gold Medal Lecture, Old Oswestrians Society Oswestry 12th June 2009

Reduction of Fractures of the Tibial Plateau, Plafond and Shaft

P.B.M.Thomas Kathmandu Orthopaedic Meeting Nepal, 8th May 2009

Minimally Invasive Technique for the reduction of Tibial Fractures using STORM

P.B.M.Thomas

Lecture and Workshop, Annual Trauma Congress Germany Berlin 23rd October 2008

Fracture Healing and the IOS Fixator

P.B.M.Thomas

Invited lecture Orthopaedic Teaching Seminar Bridgend, Wales 20th June 2008

External Fixation (three lectures)

P.B.M.Thomas

North Staffordshire International Fracture Fixation Course, Stoke-on-Trent, 18th June 2008

Non-Union and Deformity Correction

P.B.M.Thomas

South Wales External Fixation Course Cardiff, 26th February 2008

STORM and Tibial Fractures

P.B.M.Thomas

Trauma Teaching Meeting Exeter 20th September 2007

Principles of Tibial External Fixation

P.B.M.Thomas

North Staffordshire International Fracture Fixation Course, Stoke-on-Trent, 27th June 2007

Treatment of Tibial Fractures

P.B.M.Thomas

Trauma Training Symposium

Liverpool, 15th June 2007

Fracture Healing: Concepts and Innovations

P.B.M.Thomas

The Naughton-Dunn Keynote Lecture (Gold Medal)

Annual Meeting of the Naughton-Dunn Club, Stoke-on-Trent, 12th May 2007

External Fixation of the Tibia: Reduction and Mechanics

P.B.M.Thomas

Leuvense Traumadag, La Journée de Traumatologie de Louvain Leuven, Belgium, 24th March 2007

Pilon Fractures

P.B.M. Thomas

Annual Scientific Meeting of the British Orthopaedic Foot and Ankle Society Crewe Hall, Cheshire, 15th-17th November 2006

Principles, Philosophy and Biomechanics of External Fixation

P.B.M.Thomas

North Staffordshire International Fracture Fixation Course, Stoke-on-Trent, 1st-3rd November 2006

Wrist and Hand Fracture Management

P.B.M.Thomas

North Staffordshire International Fracture Fixation Course, Stoke-on-Trent, 1st-3rd November 2006

Tibial Fractures: The Stoke-on-Trent Approach

P.B.M.Thomas

North Staffordshire International Fracture Fixation Course,

Stoke-on-Trent, 1st-3rd November 2006

Basic Principles of External Fixation

P.B.M.Thomas

The Verona Trauma and Reconstruction Course, Verona, Italy, 15th-17th May 2006

Paediatric Fractures and Foot Fractures

P.B.M.Thomas, Chairman

8th International Trauma Symposium, Prague, 30th January-1st February 2006

External Fixation of the Tibia

P.B.M.Thomas

Trauma Symposium, Bia Hospital Medical School,

Kathmandu, Nepal, 24th Nov 2005

The Importance of Proper Reduction in External Fixation

P.B.M.Thomas

International Trauma Symposium, Cancun, Mexico, 23nd September 2005

Tibial Plateau Fractures: External Fixation as the Definitive Treatment

P.B.M.Thomas

International Trauma Symposium, Cancun, Mexico, 22nd September 2005

The Basic Principles of External Fixation

P.B.M.Thomas

The Verona External Fixation Course, Verona, Italy, 16th-17th May 2005

Basic Philosophy of External Fixation

P.B.M.Thomas

Second International External Fixation Course, Stoke-on-Trent, 4th-5th May 2005

Wrist and Small Bone Fracture Management

P.B.M.Thomas

Second International External Fixation Course, Stoke-on-Trent, 4th-5th May 2005

Sheffield Ring Frame for Tibial Trauma

P.B.M.Thomas

Second International External Fixation Course, Stoke-on-Trent, 4th-5th May 2005

The Limb Reconstruction System

P B M Thomas

South West & Wessex External Fixation Course, 27th-28th April 2005

External Fixation and Fracture Healing

P.B.M.Thomas

South Wales External Fixation Course, Covchurch, South Wales, 24th November 2004

Complex Fractures, Non-unions and Malunions

P.B.M.Thomas

South Wales External Fixation Course, Coychurch, South Wales, 24th November 2004

Tibial Fractures: Distal Third, the Role of External Fixation

P B M Thomas

The Verona External Fixation Course, Verona, Italy, 14th-15th June 2004

Planning and Deformity Correction

P.B.M.Thomas

The Verona External Fixation Course, Verona, Italy, 14th-15th June 2004

Basic Philosophy of External Fixation

P B M Thomas

North Staffordshire International External Fixation Course, Stoke-on-Trent, 9th-10th June 2004

Fracture Healing

P.B.M.Thomas

North Staffordshire International External Fixation Course, Stoke-on-Trent, 9th-10th June 2004

External Fixation of Tibial Fractures

P.B.M.Thomas

Pan-Helenic Orthopaedic Society 9th Annual Congress, Delphi, Greece, 7th-9th May 2004

Surgery in the Rheumatoid Hand

P.B.M.Thomas

Annual European Congress of Rheumatology, Lisbon, Portugal, 18th June 2003.

Tibial Fracture Management: External Fixation using STORM

P.B.M.Thomas,

Orthofix International External Fixation Course, Stoke-on-Trent, 11th June 2003.

External Fixation of Wrist Fractures

P.B.M.Thomas.

External fixation in Trauma, Abu-Dhabi, Arab Emirates, 12th May 2003.

The Staffordshire Orthopaedic Reduction Device in External Fixation of Tibial Fractures

P.B.M.Thomas.

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The Use of Hybrid Frames in Lower Limb Injuries

P.B.M.Thomas,

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Treatment of Tibial Fractures with Unilateral External Fixation

P B M Thomas

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P.B.M.Thomas.

External fixation in Trauma, Dubai, Arab Emirates, 10th May 2003.

Getting Research into Practice

P.B.M.Thomas

Annual European Congress of Rheumatology, Stockholm, 12th June 2002.

Planning Surgery for Patients with Rheumatic Diseases

P.B.M.Thomas

Annual European Congress of Rheumatology, Prague, 14th June 2001.

Why did we Evolve with Bones that Break?

P.B.M.Thomas

British Trauma Society, Crewe Hall, Crewe, 8th October 1999.

Advances in Fracture Healing

P.B.M.Thomas

2nd Trauma Care Conference: Improving Trauma Care, Bournemouth, 9th June 1999.

Principles of Osseodistraction and its Application in Longbones

P.B.M.Thomas

Faciomaxillary Surgeons Midland Clinical Club, Stoke-on-Trent, 16th November 1998.

A Biological Approach to the Treatment of Tibial Fractures

P.B.M.Thomas

International Conference on Emergency Medical Systems, All India Institute of Medical Sciences, New Delhi, India, 14th October 1998.

Controlled Angular Motion Fixation of Tibial Fractures

P.B.M.Thomas

American Orthopaedic Trauma Society, Louisville, Kentucky, USA. 17th October 1997.

Monolateral Fixation Systems: A Critical Appraisal

P.B.M.Thomas

Monolateral and Hybrid External Fixation Systems in Trauma and Orthopaedics, Royal College of Surgeons of England, 3rd June 1997.

Upper Tibial Osteotomy for Unicompartmental Osteoarthritis of the Knee

P.B.M.Thomas

Monolateral and Hybrid External Fixation Systems in Trauma and Orthopaedics, Royal College of Surgeons of England, 5 June 1997.

A Clinician's View of NHS Purchasing

P.B.M.Thomas

NHS Purchasing Decision Making, Medilink Forum of Medical Technology Seminar, The Worldgate Centre, Staffordshire, 9th April 1997

The Effects of Movement on Diaphysial Fracture Healing

P.B.M.Thomas

XXXII Argentine Orthopaedic Congress and the First Argentine-Brazilian Orthopaedic Congress, Buenos Aires, Argentina, December 4-8th 1995.

High Tibial Hemicallotasis for Medial Compartment Osteoarthritis of the Knee P.B.M.Thomas

XXXII Argentine Orthopaedic Congress and the First Argentine-Brazilian Orthopaedic Congress, Buenos Aires, Argentina, December 4-8th 1995.

Callotasis Correction of Angular and Tortional Limb Deformities

P.B.M.Thomas

XXXII Argentine Orthopaedic Congress and the First Argentine-Brazilian Orthopaedic Congress, Buenos Aires, Argentina, December 4-8th 1995.

External Fixation in the Treatment of Tibial Fractures

P.B.M.Thomas

Orthofix Instructional Course, Verona, Italy, December 11-12th 1995.

Correction of Post-Traumatic Longbone Deformities

P.B.M.Thomas

Orthofix Instructional Course, Verona, Italy, December 11-12th 1995.

The Effect of Movement on Fracture Healing

P.B.M.Thomas

Surgical Travelling Fellows Scientific Meeting, Stoke-on Trent, November 10th 1995.

Correction of the Varus Proximal Tibia Using the Garches Device and Gait Analysis P.B.M.Thomas

British Orthopaedic Trainees Association Meeting, Verona, Italy, June 28th 1994.

How Fixation Affects Fracture Healing

P.B.M.Thomas

Orthopaedic Dilemmas and Answers, Marbella, Spain October 1994.

External Fixation for Closed Fractures of the Tibia

P.B.M.Thomas

Orthopaedic Dilemmas and Answers, Marbella, Spain October 1994.

The Development of Femoral Nailing

P.B.M.Thomas

Orthopaedic Dilemmas and Answers, Marbella, Spain October 1994.

Distal Targeting in Femoral Nailing

P.B.M.Thomas

Orthopaedic Dilemmas and Answers, Marbella, Spain October 1994

The Technique of Interlocking Femoral Nailing

P.B.M.Thomas

Orthopaedic Trauma Meeting, Rotterdam, Holland, March 22nd 1991.

Interlocking Femoral Nailing: A Review of 96 Consecutive Cases

P.B.M.Thomas

Meeting of the ABC Travelling Fellows, Sheffield, April 10th 1991.

Presentations to Learned Societies

Frame Stability and the Mechanical Assessment of Healing

P.B.M.Thomas

British Limb Reconstruction Society annual conference, 16^{th} March 2016 Liverpool, UK

The Intelligent Fixator

P.B.M.Thomas

Orthopaedic and Trauma Alliance Annual Conference, 26th Sept 2015. Blackpool, UK.

Dynamics of Fracture Healing

P.B.M.Thomas

Northwest Orthopaedic Association Spring Meeting Manchester Royal Infirmary 23rd May 2014

A New External Fixation System for Tibial Shaft Fractures (poster)

P.B.M.Thomas, P.J.Ogrodnik, C.I.Moorcroft and M. Ockendon Orthopaedic Trauma Association 27th Annual Meeting San Antonio, Texas, 13th October 2011

A New External Fixator System for Tibial Fractures

P.B.M.Thomas, P.J.Ogrodnik, C.I.Moorcroft, Ennis O and Clewer G EFORT, Vienna, 4th June 2009

Factors Affecting Healing Time in Fractures of the Tibial Diaphysis Treated by External Fixation

Ennis O, Balain B, Clewer G, Moorcroft CI, Ogrodnik PJ, Thomas PBM EFORT, Vienna, 4th June 2009

Prospective Study of Closed Tibial Shaft Fractures Treated by Monolateral External Fixation

A.Mahmood, O.Ennis, C.I.Moorcroft, R.Maheshwari, P.B.M.Thomas Naughton-Dunn Club, Birmingham, 11th November 2006

The Mechanical Properties of Callus in Human Tibial Fractures

P.J.Ogrodnik, C.I.Moorcroft, R.H.Wade and P.B.M.Thomas International Society for Fracture Repair, 8th Meeting 9-11th October 2002, Toronto, Canada.

Correlation of Radiographic Assessment of Fracture Healing with Fracture Stiffness Measurements

D.McClelland, C.I.Moorcroft, G.A.Bancroft and P.B.M.Thomas International Society for Fracture Repair, 8th Meeting 9-11th October 2002, Toronto, Canada.

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Improving Reduction of Tibial Fractures Treated by External Fixation

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Measurement of Omnidirectional Fracture Stiffness in Tibial Fractures

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A Prospective Study of External Fixator Pin Site Infection and Maximum Extraction Torque

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British Orthopaedic Research Society, Southampton University 24-25th September 2001.

The Measurement of Polar Stiffness

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Angular Dynamisation Induces More Uniform Callus Stiffness Than Axial Dynamisation in Tibial Shaft Fractures Treated by External Fixation

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Reduction of Tibial Fractures Prior to External Fixation

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Vertical Transtalar Steinmann Pin Fixation in Severe Ankle Fractures

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Welsh Orthopaedic Society, Abergavenny: 17 April 1998.

The Staffordshire Orthopaedic Reduction Machine: Concept and Design

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American Fracture Association 59th Meeting, San Diego, USA, April 1997.

The Staffordshire Orthopaedic Reduction Machine: First Clinical Experience

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American Fracture Association 59th Meeting, San Diego, USA, April 1997.

An Autonomous Monitoring System for Externally Fixed Fractures

C.I.Moorcroft, S.A.Verborg, P.J.Ogrodnik and P.B.M.Thomas

British Orthopaedic Research Society, Sheffield: 3-4 March 1997.

Dynamisation and Healing in Externally Fixed Tibial Shaft Fractures

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British Orthopaedic Research Society, Sheffield: 3-4 March 1997.

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Dynamisation and Healing Times in Externally Fixated Tibial Shaft Fractures

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A Regime to Reduce Pin Tract Problems in External Fixation of the Tibia

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Societe International de Recherche Orthopaedique de la Traumatologie, 7th World Congress, Amsterdam, August 18th 1996.

Prolongation of Fracture Healing Times in Smokers

S.A. Verborg, P.W. Jones, P.A. Gregson, S.C. Tandon and P.B.M. Thomas

The American Fracture Association 58th Annual Meeting, Philadelphia, Pennsylvania May 2-5th 1996.

Mechanical Failure of Unreamed Tibial Nails

S.N.J.Roberts and P.B.M.Thomas

British Orthopaedic Society Annual Meeting, Llandudno April 16-18th 1996.

The Management of Persistent Osteomyelitis of the Femur with Exchange Intramedullary Nailing and Gentamycin Beads

S.C.Tandon and P.B.M.Thomas

British Trauma Society Annual Clinical Meeting, St. James University Hospital, Leeds, October 6-7th 1995.

Smoking and the Healing of Tibial Fractures

S.A. Verborg and P.B.M. Thomas

British Orthopaedic Society Annual Meeting, Aberdeen, September 10th 1995.

External Fixation of Tibial Fractures and Post-Traumatic Ostoeporosis

S.C.Tandon, P.B.M.Thomas and P.A.Gregson

Second Congress of the European Federation of National Associations of Orthopaedics and Traumatology, Munich, July 4-7th 1995.

External Fixation of the Tibia. A Two Fixator Reduction Technique

S.C.Tandon, P.B.M.Thomas and P.A.Gregson

Naughton Dunn Club, New Cross Hospital, Wolverhampton, April 29th 1995.

Sound and Orthopaedics

S.A. Verborg, P.B.M. Thomas and P.J. Ogrodnik

International Conference on Vibration and Noise. Venice, Italy, April 25-27th 1995.

External Fixation of Tibial Fractures and Post-Traumatic Osteoporosis

S.C.Tandon, P.B.M.Thomas and P.A.Gregson

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Callus Growth: The Effect of Antiprostoglandins on the Rate of Healing and Production of Callus in the Undisplaced Tibial Fracture

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A Preliminary Report of a Novel Use of Gait Analysis in Proximal Tibial Callotasis for Medial Compartment Osteoarthritis of the Knee

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D.D.Robinson and P.B.M.Thomas

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P.B.M.Thomas

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P.B.M.Thomas, J.Porter and E.Tayler

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British Orthopaedic Association

British Society for Surgery of the Hand

British Trauma Society

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