Teaching Faculty

Dr David Chua
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Chairman

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MODULE 3
Course Outline (Modules & Tentative Schedule)

Module 1 (Completed)
Analysis of Muscle and Joint Loads
(17 & 18 September 1999)

Module 2 (Completed)
Musculoskeletal Dynamics, Locomotion and Clinical Applications
(25 & 26 February 2000)

Module 3
Bone Mechanics: Assessing Failure Risk and Understanding Fracture Fixation
(30 June-1 July 2000)

Module 4
Biomechanics of Musculoskeletal Soft Tissue: Cartilage, Meniscus, Tendon and Ligaments
(August /September 2000)

Module 5
Biomechanics of Diarthrodial Joints and Joint Replacements I: Upper Limb
(October /November 2000)

Module 6
Biomechanics of Diarthrodial Joints and Joint Replacements II: Lower Limb
(January 2001)

Module 7
Biomechanics of the Spine and Spinal Implants and Instrumentations
(April 2001)

Module 8
Prosthetics and Orthotics— Principles and Applications
(July 2001)

For enquiries please contact:

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Blk 6 Level 1, Outram Road
Singapore 169608

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Organised By

Departments of Orthopaedic Surgery of National University of Singapore & Singapore General Hospital
School of Mechanical & Production Engineering Nanyang Technological University

Organising Secretariat

SGH Postgraduate Medical Institute

Supported by

Specialist Training Committee (Orthopaedics)
Singapore Orthopaedic Association
Biomedical Engineering Society
Friday, 30 June 2000 (Day 1: 1300 – 1700 hours)

1300 REGISTRATION

1330 PRE-COURSE ASSESSMENT
J Goh/KS Khong

1400 MECHANICAL PROPERTIES OF BONE

- Material Properties of Cortical Bone
- Material Properties of Trabecular Bone
- Geometric Remodelling of the Cortical Diaphysis (Wolff’s Law)

CS Lim

1440 TEA BREAK

1500 BASIC BIOMECHANICAL CONCEPTS

- Structural Behaviour
- Material Behaviour: Axial Loading, Beam Bending, Torsion
- Fatigue

CS Lim

1530 BIOMECHANICAL EVALUATION OF FRACTURE/FRACTURE FIXATION

- Mechanical testing: 2-pt and 3-pt Bending, Torsion
- Ultimate Strength, Stiffness and Energy to failure
- Fatigue strength/failure: Tests and techniques

CS Lim

1600 STRESS RISERS AND STRESS FRACTURES

- Cortical and medullary defects
- Surgical techniques to prevent stress failure

D Chua

1700 END OF DAY 1

Venue: AO Centre

Saturday, 1 July 2000 (Day 2: 0900 – 1600 hours)

0900 BIOMECHANICS OF FRACTURE HEALING
J Goh

0920 DESIGN RATIONALE OF FRACTURE IMPLANTS
J Goh

0940 TEA BREAK

1000 BIOMECHANICAL CHECKLIST IN FRACTURE FIXATION PLANNING

- The Bone and Deforming Muscle Forces
- Fracture Types
- The Choice of Implant
- The Bone-implant Construct — Engineer’s Analysis
- The Bone-implant Construct — Surgeon’s Perspective

MK Wong

1130 LUNCH

1230 PRACTICAL EXERCISES (4 ROTATING GROUPS)

KS Khong, D Chua, M K Wong

- Plating of Diaphyseal Fracture
- Tension Wiring of Metaphyseal Fracture
- External Fixation of Diaphyseal Fracture
- Intramedullary Nailing (Demonstration)

Venue: SGH Experimental Surgery

1400 TEA BREAK

1430 TUTORIAL & ASSIGNMENT

BP Pereira, A Thamyah, KS Khong, J Goh, R Ng

- Preparation of Test Jigs
- Biomechanical Evaluation of Bone Implant Construct Models
- Assessment of Test Results

1600 END OF PROGRAMME

REGISTRATION

Orthopaedic Biomechanics Course

Module 3
Biomechanics of Bone & Fractures

Name:
Designation:
Dept / Organisation:
Address:
Tel no: Fax no:
Pager no:
E-mail:

Please indicate interest

☐ I would like to register for Module 3. The registration fee is $309/- (includes GST)

☐ I would like to purchase the reference text entitled: “Basic Orthopaedic Biomechanics” @ $210.00 per copy (not included in the registration fee). (The cost of the book includes courier delivery charges. Due to the specialised nature of the book, there may be a possible waiting period of up to 6 weeks to process the orders.) Please enclose cheque made payable to Nanyang Technological University and mail together with this registration form to:

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