

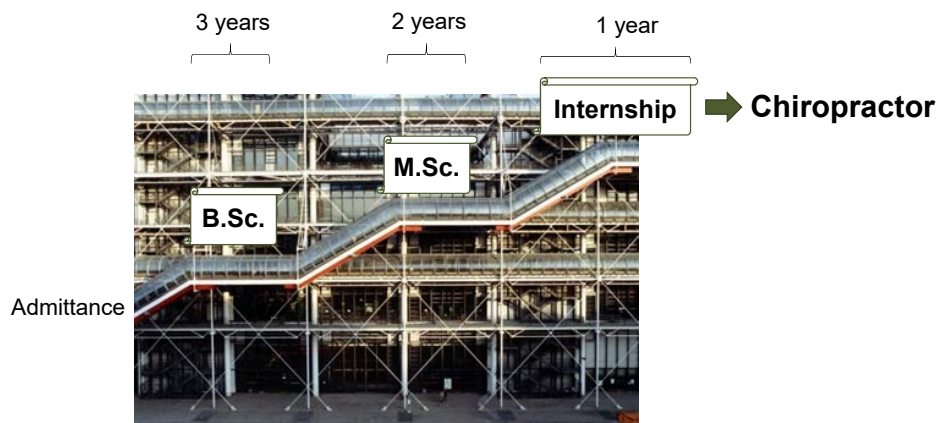
Clinical Biomechanics

The Chiropractic Education

Henrik Hein Lauridsen
Associate Professor, Head of Studies



Education in Clinical Biomechanics



Bachelor

Clinical Biomechanics

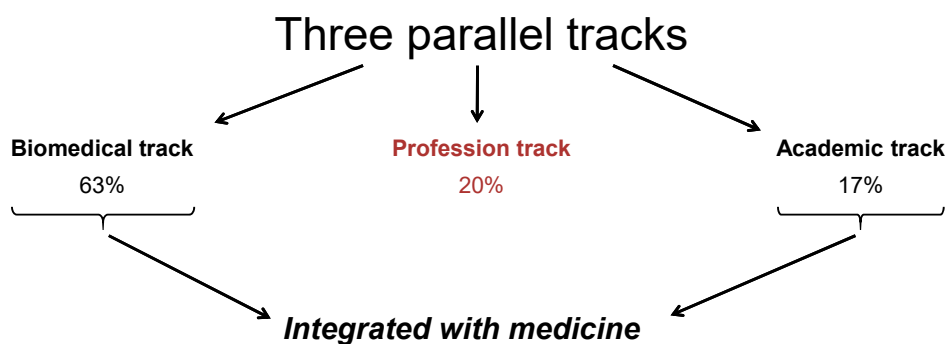
iLAB



DEPARTMENT OF SPORTS SCIENCE AND CLINICAL BIOMECHANICS **SDU**

Structure of the B.Sc.

12 modules of 8 weeks duration + 1 week for exams/module



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The Biomedical Track

Structure and function of the human body

Understanding of health and disease

- In a social, cultural, and ethnic context
- In an individual, national, and international health perspective

Integration of

- Molecular cell biology
- Genetics
- Embryology
- Histology
- Anatomy
- Physiology
- Biochemistry
- Immunology
- Behavioural and social sciences



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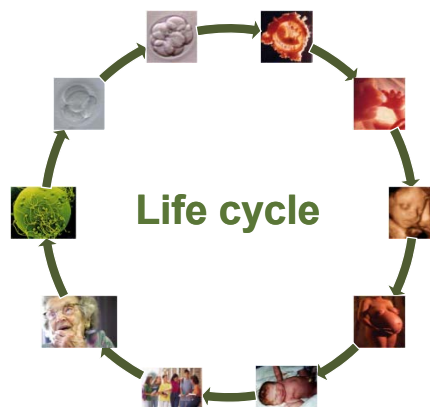


The Biomedical Track

Module

B1	Cells and tissue
B2	The MSK system
B3	Molecular medicine
B4	Genetics
B5	Circulation and respiration
B6	Nutrition and growth
B7	Reproduction and pharmacodynamics
B8	Homeostasis
B9	Brain and senses
B10	Attack and defence
B11	-
B12	From health to disease

Vertical integration



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The Profession Track

Aim

To achieve basic skills in:

- Understanding of tissue biomechanics
- Palpation and motion palpation
- Manual treatment techniques
- Objective examination
- Differential diagnosis
- Management
- Communication

} Focus on MSK conditions of the *spine*



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The Profession Track

First aid

- 'Real-life' stations
- Integrated with medicine



Clinic Internship A

- In a chiropractic clinic



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The Profession Track

Communication

- Ethics and Health Psychology

- Patients' perception of health and disease
- Patients' patterns of reaction to e.g. stress
- Discussions of ethical problems

- The Chiropractic Interview
 - Patient communication
 - Live actors



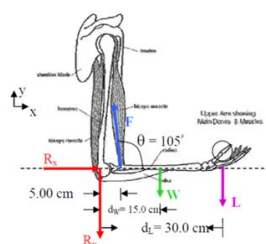
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The Profession Track

Skills Training

- Theoretical biomechanics
- Clinical biomechanics
 - Palpation
 - Chiropractic manipulative techniques
 - Spinal column
 - Thoracic techniques
 - Lumbar/pelvic techniques
 - Cervical techniques



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The Profession Track

Soft tissue technique

- Various soft tissue techniques, e.g. MET, TrP, dry needling



Orthopaedic and neurological examination

- Tests relevant to MSK differential diagnosis



MSK diagnosis and management

- 'Putting it all together'
- Case-based teaching



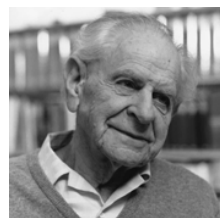
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The Academic Track

Research training in 7 key areas:

- **Information competences**
How to find information - the search strategy
- **Biostatistics – epidemiology**
Course in basic statistical concepts
- **Theory of science**
Philosophical disciplin about scientific methods, norms and background
- **The patient perspective**
'Patient centred care'
- **Manual treatment – theory and evidence**
The chiropractic theories and evidence for manual treatments
- **Research methodology**
The structure of scientific methods
- **Scientific project**
The bachelor project



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Integration

Modul	Biomedical track	Profession track	Academic track
B1	Cells and tissue	→ First aid	← Introductory research project
B2	The MSK system	→ Theoretical biomechanics 1	
B3	Molecular medicine	→ Observation and palpation Movement palpation	
B4	Genetics	→ Theoretical biomechanics 2	← Biostatistics – epidemiology Manual therapy: theory and evidence
B5	Circulation and respiration	→	
B6	Nutrition and growth	→ Thoracic technique	← Theory of Science
B7	Reproduction and pharmacodynamics	→ Clinic internship A Lumbar technique Pelvic technique	← The patient perspective
B8	Homeostasis	→ Cervical technique Communication: Ethics	
B9	Brain and senses	→ Elective internship	
B10	Attack and defence	→	← Research methodology
B11	Bachelor project/optional subjects	→ Orthopaedic and neurological examination Soft tissue techniques	← Bachelor thesis
B12	From health to disease	→ MSK diagnosis and management	

Year 1

Year 2

Year 3

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Masters

Clinical Biomechanics

Clinic



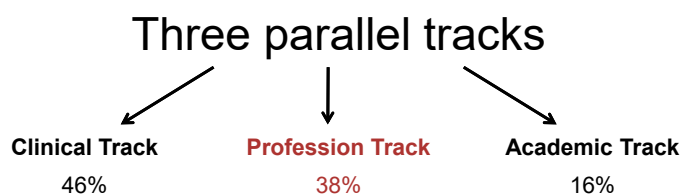
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Structure of the M.Sc.

The 'clinical' part of the education

8 modules of 8 weeks duration + 1 week for exams/module



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The Clinical Track

General diagnosis



Advanced level

- Orthopaedics
- Rheumatology
- Neurology
- Diagnostic imaging

Basic level

- General medicine
- Dermatology
- Endocrinology
- Urology
- Cardiology
- Lung disease
- Surgery
- Geriatrics
- Occupational medicine
- Paediatrics
- Gastroenterology
- Onkology
- Infectious medicine
- Psychiatry

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The Clinical Track

Musculoskeletal diagnostic imaging (advanced level)

- Normal diagnostic imaging
- Differential diagnostic imaging



Conventional
X-rays



CT-imaging



MRI



(Ultrasound-scanning)

Pharmacology

- MSK pharmacology



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The Profession Track

Diagnosis and treatment of extremity problems



Exercise therapy and training

- Strength training
- Stabilization training
- McKenzie exercises
- Clinical application



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The Profession Track

Radiography

- Radiological imaging
- X-ray protection
- X-ray projections
- Examination techniques

Theoretical skills

Taught by radiographic physicians

Practical skills

Internships in radiology departments



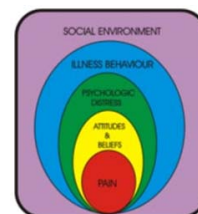
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The profession track

Electives (2 out of 3)

- Sports injuries – diagnosis and treatment
- Masterclass in musculoskeletal management
 - The Bio-Psycho-Sociale model
 - Patient-centered management
 - University Hospital Pain Clinic
- Clinical internship



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The Profession Track

Clinical Internship – 1 year

- *Main clinical internship – 16 weeks*
 - 4 rheumatological departments
 - Broad spectrum of MSK problems
 - Part of a multidisciplinary team
- *Focused clinical internships – 12 weeks*
 - Orthopaedic departments
 - Rheumatological departments
 - Occupational medicine departments
 - Private chiropractic practice



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The Academic Track

M.Sc. Dissertation

1. Course in evidence-based practice
2. Dissertation
 - ¼ year ≈ 400 hours
 - Independent work
 - Often part of a research project
 - Public defence



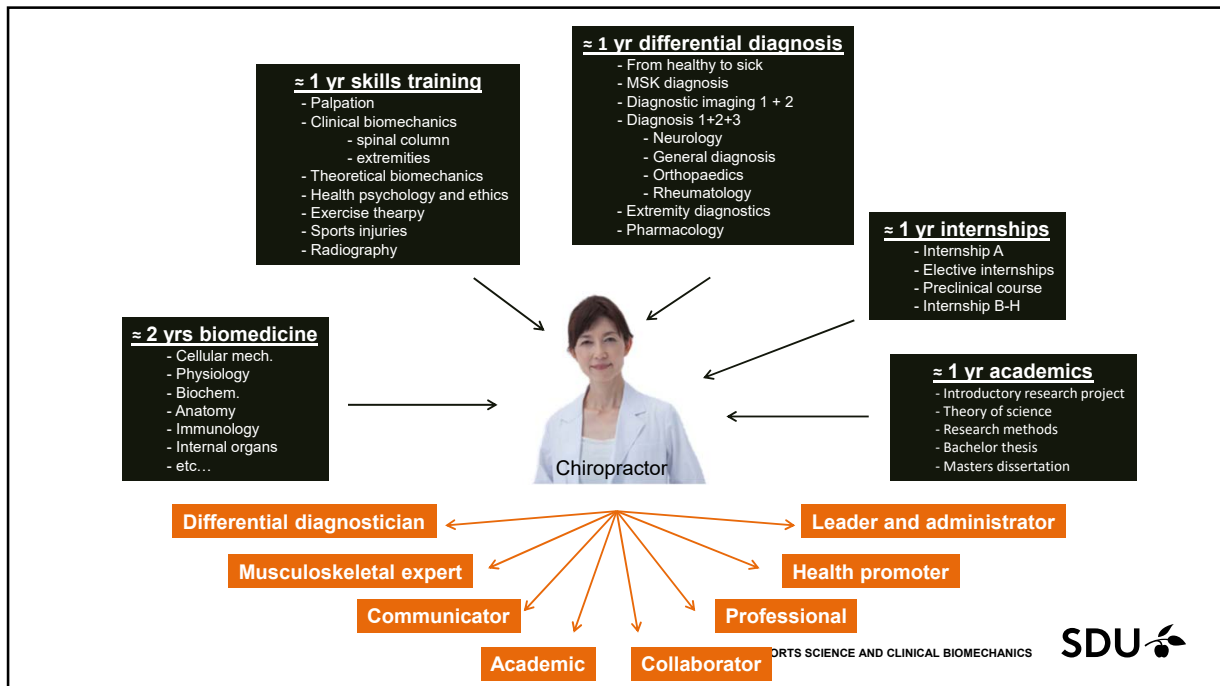
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Research

Highly prioritised

18 % of the curriculum
 - equivalent to ≈ 1 year full time



Thank you for your attention



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