

Curriculum in Musculoskeletal Medicine

Danish Society of Musculoskeletal Medicine

Summary in short:

Name: DSMM

Nationality: Danish

Requirement for certification: 300 lessons required to obtain Diploma (1 lesson = 45 min)

All teaching is **in person**, no online teaching.

Theory teaching: 33%

Hands-on teaching: 66%

Teacher ratio: 1:6

Clinical teaching: in local groups with patients and a DSMM teacher.

Self-study: Clinical experience in own clinic (GP) or hospital and study of DSMM's and other recommended textbooks. No control or demands.

Recognition: Musculoskeletal Medicine is recognized as additional competence by the Danish Health Authority.

Accrediting Body: DSMM's educational board

Visions and aims of DSMM:

- To spread the knowledge of Musculoskeletal Medicine to all Danish Medical Doctors.
- To integrate Musculoskeletal Medicine into the general health system in Denmark.

Musculoskeletal Medicine, MM, is the knowledge of and skills in diagnosis, treatment and prevention of reversible dysfunctions in the neuro-musculoskeletal system. Atraumatic therapies and exercise are used to correct dysfunctions in the muscles, joints and surrounding structures. The aim is to restore maximal painless movement and postural balance.

Teachers:

The teachers of DSMM undertakes all musculoskeletal training of Medical Doctors in Denmark.

All teachers have achieved a 300 lessons Diploma and most teachers have many years teaching experience in Musculoskeletal Medicine.

The teachers are expected to maintain their professional knowledge at the Master courses, Annual Meetings and International Congresses.

New teachers participate in the Teachers Education Programme:

- After 200 lessons you can become assistant on the Columna course (Basic course) - after appointment by the chairman of Education Committee.
- The chairman of Education Committee performs a personal education plan. You have to agree to the terms of your plan.
- You need to participate as an assistant in several courses, appointed by the chairman of the education committee.
- You can start teaching with an experienced teacher at your side, when you have obtained the 300 lessons Diploma and have worked as an assistant as pointed out in your personal education plan.
- To further develop skills as a teacher you have to participate as an assistant, before you can take on the task of teaching on that specific course.

Certification:

Diploma in Musculoskeletal Medicine

In order to be awarded a diploma in musculoskeletal medicine, it is expected that you:

- are a member of DSMM
- have a Danish medical specialist authorization in a recognized specialty
- are familiar with the theoretical knowledge behind musculoskeletal medicine
- can recognize range of movement of the individual joints incl. the joints in the entire columna
- can treat dysfunctional joints with both direct and indirect treatment techniques
- can diagnose muscular imbalance
- can treat tight postural muscles
- can give the instructions in relevant home exercises

Educational requirements for awarding a diploma in musculoskeletal medicine:

- 300 lessons, completed within the last 15 years
- completed all courses in the Danish Syllabus
- attended at least 2 annual meetings / congresses in musculoskeletal medicine
- Participating in bedside teaching of musculoskeletal medicine in local groups with patients and a DSMM teacher can account with a maximum of 66 lessons.
- Other relevant courses / meetings can be recognized - after a concrete assessment by the chairman of the education committee. Can account for a maximum of 49 lessons.

Requirements for recertification of diploma status:

The diplomat undertakes to maintain his / her competences by participating in min. 2 courses among the courses of DSMM within 5 years, one of which must be a Mastercourse.

The Danish Syllabus in Musculoskeletal Medicine:

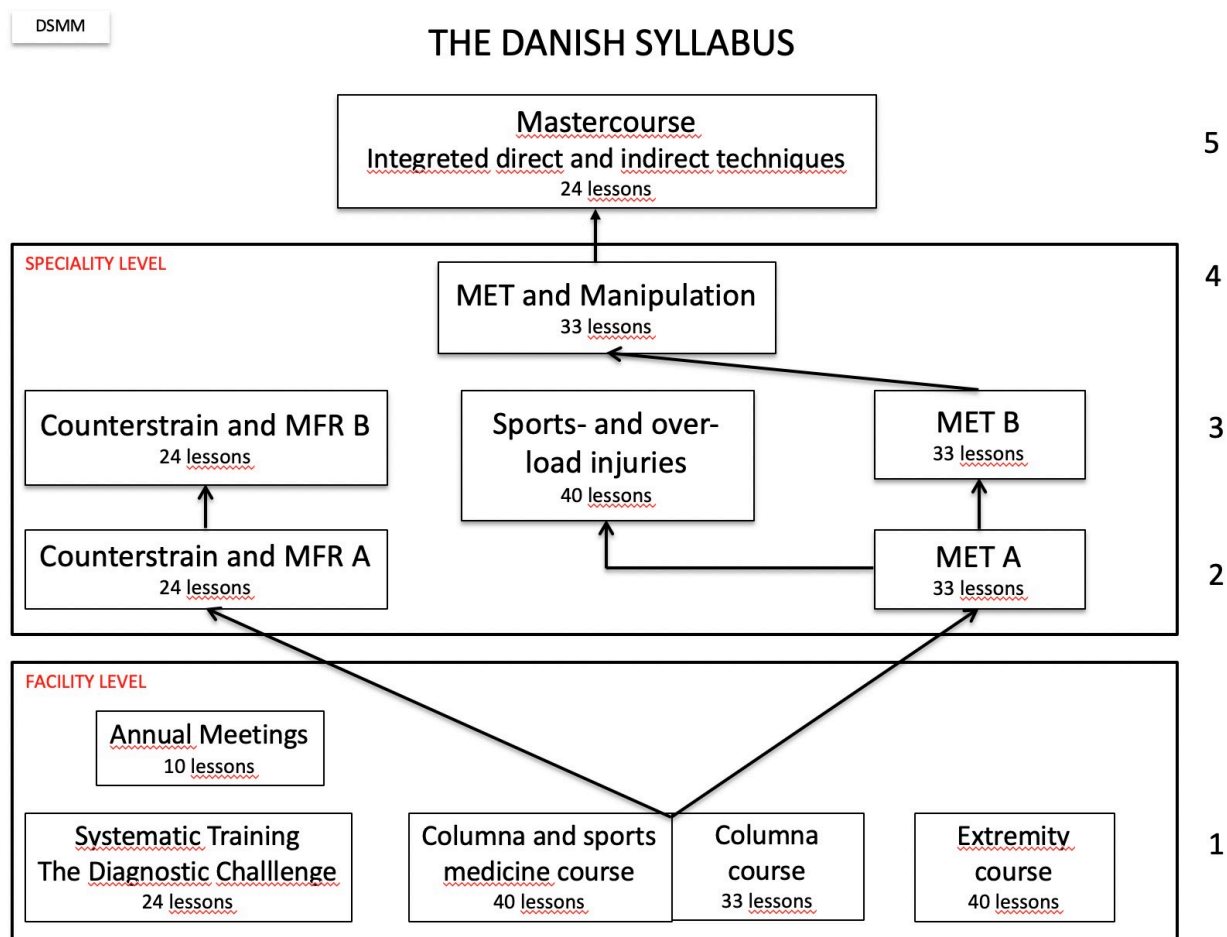


Figure 1.

Facility level:	104 lessons
Speciality level incl. Mastercourse:	211 lessons
Total programme:	315 lessons

Abstracts of DSMM's courses, as presented on www.dsmm.org:

Facility level:

Systematic Training, “The Diagnostic challenge”

(3 days – 24 lessons)

We take you through the diagnostic process with unspecific symptoms incl. the vegetative symptoms.

We combine examination techniques with the diagnostic process to get the right diagnoses, to be aware of the sick people, and let the healthy remain healthy.

After this course, you have gained knowledge of the diagnostic process from the patient's symptoms to the choice of the right examinations including paraclinical examinations and imaging. What is the most likely diagnosis? After this course you are well prepared to give an explanation and treatment plan to your patient.

Columna course or Columna and Sports medicine

2 almost identical basic courses in Musculoskeletal Medicine

(4 days – 33 lessons or 5 days - 40 lessons)

The course gives you an overview and makes it easier to work with the musculoskeletal system in a busy working day.

The course is the compulsory basic course on the subject musculoskeletal medicine.

You learn to examine and treat back pain, as well as being taught to diagnose shoulder and muscular imbalances around the hip and pelvic girdle. Through theoretical presentations and repetitive training you will acquire practical skills in diagnostics, soft tissue treatment and other modalities, which you can apply in your practice immediately after the course.

These are the patients that you will be better able to help after this course: Patients with pain in the neck, thorax, hip, lumbar and shoulder, besides patients with headache, dizziness and whiplash symptoms. All of these are diseases and dysfunctions of the musculoskeletal system and a very large area of concerns in general practice.

In addition to this the course in Columna and Sports medicine will address the most frequent sports injuries in the musculoskeletal system. You will be taught training physiology and get control of the examinations and treatment techniques of acute and stress induced sports injuries. We will go into rehabilitation and exercise treatments via a brand new app with interactive training programs for the most frequent disorders of the musculoskeletal system.

After completing one of these Basic Courses in Musculoskeletal Medicine, you will be able to attend courses at the Speciality level, in the order as shown in the Syllabus or continue courses at the facility level.

Extremity course

(5 days - 40 lessons)

This is a new course at Facility level and still on planning. We expect the first course will be in 2020. We are planning to work our way through the joints with theory, tests, diagnostics and treatment methods.

Annual meetings

(2 days – 10 lessons)

A mixture of lectures and workshops with a specific topic related to Musculoskeletal medicine. The topic is changing from year to year.

All medical doctors, physiotherapists and chiropractors are welcome.

Speciality level:

Counterstrain and MFR A - Counterstrain and Myofascial Release Technique A

(3 days - 24 lessons)

Counterstrain, CST, and Myofascial Release, MFR, are two gentle therapies that aim to give the patient an immediate pain relief. CST is an indirect technique, where you work away from the restrictive barrier to a "balance point" with the least possible tissue strain in all levels. By passive positioning the patient a reduction in the inappropriate proprioceptive activities in the dysfunctional area - and thereby pain relief - is achieved. MFR is based on the tissue's viscoelastic and neuromuscular properties, and can be used against the barrier or away from it.

On this course your ability to feel tension in the tissue gets optimized.

Both treatment methods can be used for very acute patients where other treatments is not possible. But the techniques are also extremely useful for patients with chronic muscular pain, osteoporosis or pain around scars.

This course deals primarily with columna and costae.

Counterstrain and MFR B - Counterstrain and Myofascial Release Technique B

(3 days – 24 lessons)

This course is a continuation of the Counterstrain and MFR A course and, in addition to repetition and optimization of some of the techniques from Counterstrain and MFR A, it also deals with examination and treatment of the extremities all the way from the hip and pelvis to the feet and from the shoulder to the hand.

After this course you can apply the CST and MFR concepts in all regions.

It is a requirement that the Counterstrain and MFR A course are completed.

MET A, Muscle Energy Technique A

(4 days - 33 lessons)

This course is an extension of the Columna course. You will learn to master the functional diagnostics and treats with MET.

The technique is gentle and atraumatic. At the MET A course we are focused on the biomechanical and neurophysiological background for the treatment technique, as well as on the diagnosis and treatment of dysfunctions throughout the spine including the ribs.

These are the patients that you will be better able to help after this course: Patients with headache, upper cervical syndrome, thoracic pain, and patients with cardiac, gastrointestinal and urogenital symptoms due to muscular dysfunction.

MET A is the first course in a series of courses and is followed by MET B.

MET B, Muscle Energy Technique B

(4 days - 33 lessons)

MET B is a continuation of the MET A course. In addition to repetition and optimization of some of the techniques from MET A this course deals with diagnostics and treatment of the extremities and the pelvic girdle. The concepts can then be used in all the regions of the body.

Beside dealing with Muscle Energy Techniques, you will be introduced to the manipulation technique HVLA, High Velocity Low Amplitude for the first time.

The symptoms you will be able to diagnose and treat better after the course includes: Pelvic pain, pelvic pain in pregnant women, shoulder pain, tennis and golf elbow, recurrent sprains and pain in the foot.

It is a requirement that the MET A course is completed.

MET and Manipulation

(4 days - 33 lessons)

This course is a combined course and a graduation course for the MET courses. It is based on our daily life, where a MET treatment just lack the last "little notch" - the HVLA manipulation - in order to succeed. The course will focus on learning and

implementing the various manipulation techniques that can be used with advantage in the interaction with MET. It is a requirement that the MET B course is completed. After this course you will be even better at working in a natural flow with test and treatment for the benefit of you and your patients.

Sports and overload injuries

(5 days - 40 lessons)

This course builds on a neurophysiological exercise concept and includes diagnostics and treatment techniques that can be used both in general practice and in the field of sports medicine. The pain embossed or injured patient can be evaluated and treated solely on the basis of this concept, which is based on Janda's principles of tight postural and weak phasic muscles. In addition, an assessment of the entire overall motor control of the individual muscles and muscular dysfunctions is taught.

Exercise therapy is the basis for all post-treatment of musculoskeletal disorders and can serve as a relapse prophylaxis. In 2017, a new course material was prepared with pictures and description of the home exercises. The course participants get the exercises handed out on a USB key just to print specific exercises to the patients.

In this course we also teach risks and damage mechanisms in connection with our patients' exercise and sports activities. La Santa is chosen as a course venue, because the facilities of the place allow the course participants to gain practical knowledge of biomechanical conditions, movement patterns and, not least, injuries during the exercise of different types of sports. Completed both MET A and Counterstrain and MFR A is a requirement for participation in the Sports and overload injuries course.

Mastercourse - Integrated direct and indirect techniques

(3 days - 24 lessons)

This course is an integrated mastercourse where all treatment techniques are mixed and the treatments will look like our daily life as much as possible. The topics are different from course to course. Currently we have a series of courses with Michael Kuchera from the USA. The courses can be taken independently of each other. See the announcement of the current course.

In order to participate at the Mastercourse, it is recommended that you have completed all the courses at the Specialty level. If you are unsure whether you are ready to participate in the Mastercourse, contact the chair of the educational committee.

The broad overview of DSMM's curriculum contains the following:

- Functional anatomy and biomechanics of the locomotor system
- Physiology and pathophysiology of the locomotor system
- Principles of MM medicine and major postulated mechanisms of action
- Anatomy, physiology and pathophysiology of the nervous system in relation to pain and dysfunction
- Specific postulated mechanisms of MM medicine diagnostic and therapeutic techniques
- Clinical syndromes and differential diagnostics of the locomotor system
- Relevant ancillary diagnostics (e.g. laboratory-, imaging-, electro-diagnostics) to MM medicine
- Risks and benefits of other relevant therapeutic modalities compared to or in conjunction with manual medicine
- Indications and contraindications for different therapeutic options

Detailed curriculum:

In all courses theory and practical training are integrated. The differentiations of the below in different skills are an estimate.

The main frame of the training sessions is: screening, scanning, treatment, re-examination and instruction in specific exercise or general training.

The Scanning, treatment and re-examination are performed as a flow from part of examination to specific treatment to re-examination. An example of this is while we do the provocation test, we treat addressing the resistance and immediately after make a re-test for the range of motion.

Essential skills:

- Informing the patient adequately about their condition in order to obtain informed consent
- Effectively inform the patient about anticipated benefits and outcomes, potential risks and complications of MM treatments
- Applying affective, cognitive, and psychomotor skills to conduct effective history taking and physical examination
- Applying affective, cognitive, and psychomotor skills to conduct effective, accurate palpatory diagnosis

- Applying knowledge and competence to deliver safe, effective MM medicine treatment in a general population
- Applying knowledge and competence to deliver safe, effective MM medicine treatment in complex morbidity or special musculoskeletal complaints

Columna course	1,3 lessons
Extremities	1 lesson
MET A	1 lesson
CST-MFR A	2,3 lessons
CST-MFR B	0,5 lesson
Sports medicine	1 lesson
Mastercourse	2 lessons

Anatomy, Physiology and Evidence:

- To comprehend and to describe the normal functions of the muscles and joints of the axial and appendicular skeleton, and the function of the nervous system as it pertains to the functions of the locomotor system
- To understand the anatomical basis of techniques used to investigate and manage complaints of the locomotor system
- To evaluate critically the established and new theories on the pathogenesis, mechanisms and management of complaints regarding the locomotor system
- To describe macrostructure, anatomical relations and surface anatomy of the elements of the locomotor system, including bones, joints, intra articular inclusions, bursae, ligaments, muscles, tendons, entheses, fasciae and nerves
- To understand the principles of tensegrity
- To describe the attachments and actions of muscles related to the main syndromes of the locomotor system
- To describe the course and relation of the peripheral arteries (especially the vertebral arteries) and the effects on these vessels of movements of the associated skeletal structures
- To state the peripheral and segmental nerve supply of muscles and joints related to the main musculoskeletal syndromes
- To describe and demonstrate the course and distribution of the peripheral and autonomic nerves in a detail appropriate to the interpretation of

musculoskeletal complaints and the comprehension of investigations involving these nerves as they pertain to musculoskeletal complaints

- To describe the disposition and attachments of all the structures within the vertebral canal, and the effects on these structures of movements of the vertebral column, head and limbs
- To describe the basic neuroanatomy to explaining the motor and sensory mechanisms involved in movements and musculoskeletal complaints
- To recognize anatomical variants in neural and musculoskeletal structures
- To describe muscle adaptability
- To distinguish the ability of postural and phasic muscles
- To describe the effects of rest, exercise and ageing on skeletal muscle, in terms of histochemistry and molecular structure
- To describe the neurophysiology, activity and function of reflexes involving the locomotor system including somato-visceral, viscera-somatic, and somato-somatic relationships
- To describe the effects of rest, exercise and ageing on fascia, in terms of histochemistry and molecular structure

Columna course	4 lessons
Extremities	5 lessons
MET A	4 lessons
MET B	1 lesson
CST-MFR A	1,3 lessons
CST-MFR B	2,7 lessons
Sports medicine	1 lesson

Presumed knowledge from pre-graduate studies:

- To describe the anatomical basis of mechanotransduction
- To describe different types of muscular fibres
- To describe the basic metabolic principles and physiology of bone, muscle, connective tissue and nerves pertaining to the locomotor system
- To describe the molecular and cellular processes implicated in mechanisms of muscle contraction

- To describe the molecular and cellular processes involved in the generation and propagation of action potentials in nerve, muscles, and excitatory and inhibitory synapses

Biomechanics:

- To understand certain precepts of biomechanics and apply them to the locomotor system
- To recognize and describe the aberrations of function of the locomotor system
- To define, in biomechanical terms, the following terms as they are applied to joints: hypomobility, hypermobility and instability
- To describe biomechanical differences between capsular and somatic dysfunction and capsular patterns
- To demonstrate an ability to apply and interpret the following terms with respect to any of the tissues of the locomotor system: stress, strain, stiffness, toughness, viscoelasticity, creep, hysteresis and fatigue failure
- To describe the movement of any joint in terms of translation and rotation about biomechanical axes
- To demonstrate an ability to apply precepts of biomechanics to clinical features, posture, the gait cycle, and activities of daily living, including occupational and recreational activities

Columna course	3,2 lessons
Extremities	2 lessons
MET A	3 lessons
MET B	2 lessons
CST-MFR A	0,4 lesson
Sports medicine	4 lessons

Pain physiology, acute and chronic manifestations:

- To understand the physiology of pain and the pathophysiologic and biopsychosocial implications of pain
- To understand the somatic and visceral structures which contain receptors

capable of creating pain

- To describe, at an appropriate level, the taxonomy of pain
- To differentiate acute and chronic pain and their proposed mechanisms
- To describe the anatomy, physiology, pathophysiology, and currently understood mechanisms of pain
- To describe the understood patterns of referred pain to and from the locomotor system
- To describe the relationship between psychosocial factors and chronic pain
- To describe the role of the autonomic nervous system in relation to pain

Columna course	1 lesson
Extremities	1 lesson
MET A	2 lessons
CST-MFR A	Totally integrated
CST-MFR B	Totally integrated
Sports medicine	1 lesson

Integration of MM with medical examination:

- To perform a conventional medical examination to understand the condition of the patient with respect to indications, contraindications and therapeutic options
- To perform thorough history and examination with emphasis on biomechanical, occupational, orthopaedic, neurological, biopsychosocial factors, to inspect posture, gait, and gross ranges of motion
- To perform orthopaedic, neurological, systemic and ancillary tests where indicated
- To prioritize diagnostic tests based on sensitivity, specificity and cost-effectiveness
- To describe practice guidelines or critical pathways in sequencing diagnostic evaluation for the patient

Systematic Training 16 lessons

Manual medicine examination and evaluation, the main frame of all courses:

- To perform screening examination to identify if there is a problem in the locomotor system that deserves additional evaluation
- To perform a scanning examination to identify which regions and tissues within the region are dysfunctional and of relevance at a level appropriate to the treatment skills
- To conduct regional palpatory examinations of the tissues of the locomotor system to identify dysfunctions
- To conduct palpatory examinations of local tissues to determine the specific dysfunctions considered for MM treatment and the characteristics important in the selection of the treatment modality including indications and contraindications
- To conduct different palpatory examinations in order to look at and record elements of pain provocation, sensory changes, tissue texture changes, examination of range of motion, and Characteristics of end feel barrier. Using STAR (Sensory change, Tissue texture abnormality, Asymmetry, Range of motion) and MIP (Mobilisation, Irritation, Provocation) as mnemonics.

Columna course	3 lessons
Extremities	8 lessons
Systematic Training	8 lessons
MET A	3,5 lessons
MET B	5 lessons
CST-MFR B	2,3 lessons
MET-Manipulation	2,5 lessons
Sports medicine	3 lessons
Mastercourse	4 lessons

Diagnostic technology, evaluation of treatment, re-testing:

- To record the patient evaluation and patient progress by using various methods of measurement
- To record relevant specific findings in terms of MM medicine

Columna course	4 lessons
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Extremities	2 lessons
MET A	1 lesson
MET B	1 lesson
CST-MFR A	Totally integrated
CST-MFR B	1,5 lessons
Sports medicine	4 lessons

Presumed knowledge from the postgraduate medical specialist education:

- To record pertinent related outcomes measures e.g. visual analogue scale (VAS), dolorimeter, impairment scales, general health scales

Types of modalities of treatment:

DSMM's courses cover the following modalities of treatment.

1. Soft Tissue technique.
 2. Myofacial Release technique (MFR).
 3. Mobilisation without impulse.
 4. Neuromuscular therapy (Muscle Energy Technique, MET).
 5. Mobilisation with impulse (HVLA, High Velocity Low Amplitude thrust technique).
 6. Integrated techniques (Indirect Functional Techniques).
 - Balance and Hold.
 - Dynamic Functional Procedures. operator active.
 - Dynamic Functional Procedures. operator passive.
 - Release by positioning (Counterstrain)
 7. Integrated techniques at the cranium.
- To conduct mobilisation techniques including specific techniques for muscle inhibition or muscle relaxing (muscle energy techniques, techniques based on post isometric relaxation and on reciprocal inhibition, and positioning techniques)
 - To conduct segmental manipulation techniques of the spine and the peripheral joints
 - To supervise or monitor physiotherapy and training for rehabilitation
 - To conduct myofascial techniques

- To conduct trigger point therapy
- To apply treatment strategies for interlinked functional (chain reaction) syndromes
- To integrate the principles of treatment of MM medicine into multimodal treatment concepts

Columna course

Mobilisation without impulse, introduction to MET 12,5 lessons

Extremities

Mobilisation without impulse, introduction to MET 17 lessons

MET A 15 lessons

MET B

MET 19 lessons

HVLA 5 lessons

MET and Manipulation

MET 16 lessons

HVLA 15 lessons

CST-MFR A

CST 12 lessons

MFR 6 lessons

CST-MFR B

CST 12 lessons

Indirect Functional Techniques 1 lesson

MFR 3 lessons

Sports medicine

Mobilisation without impulse, MET 3 lessons

Mastercourse

All modalities 18 lessons

Disease prevention and health promotion:

Exercise and training according to the musculoskeletal ailment.

- To use all treatment modalities to prevent recurrence of presenting problems in MM medicine
- To maximise biomechanical and physiological functions in activities of daily living, in activities in work and in sports
- To recommend exercise and sound ergonomic behaviour for rehabilitation and prevention

Columna course	2 lessons
Extremities	4 lessons
CST-MFR B	1 lesson
Sports medicine	14 lessons

MM approach in clinical pictures (syndromes):

- Disorders or dysfunctions of axial and appendicular structures:
 - Cranium
 - Cranio-cervical junction, Upper cervical syndrome
 - Cervical spine
 - Cervico-thoracic junction, Thoracic outlet syndromes
 - Thoracic spine
 - Thoraco-lumbar junction
 - Lumbar spine
 - lumbo-sacral junction
 - Sacroiliac joints
 - Pelvic girdle
 - Peripheral joints
 - Visceral organ dysfunction related to biomechanical disorders
 - Viscera-somatic, somato-visceral, psycho-somatic and somato-somatic reflexes
- To understand the differential diagnosis, relevance and interrelationship to MM medicine of the following:
 - General neurological semiology (signs and symptoms)
 - Neurological disorders
 - Headache due to metabolic pathologies
 - Orthopaedic disorders
 - Rheumatologic disorders
 - Spinal affections
 - Vascular abnormalities
 - Paediatric disorders
 - Trauma of the spine
 - Tumours of the spine
- To understand special consideration with respect to age and development (esp. paediatrics and geriatrics)

Columna course	2 lessons
MET A	3,5 lessons
MET B	Totally integrated
CST-MFR A	2 lessons

CST-MFR B
Sports medicine

Totally integrated
9 lessons