Remedial Physical Education 1

Department of Adapted PE and Sports Medicine 2020

Credit, examination

- 100% of practical lessons
- Practical part of examination:
  - 10 „control“ exercises
  - Leadership of exercise unit with a specific aim
- Theoretical part
  - Test
  - Interview

Introduction

- What do we mean by word „remedial“
- HEPA = health – enhancing physical activities
- Remedial Physical Education
- prevention, correction, health improvement with the use of exercise
- lifelong: kids at school age, adults, elderly
- principles: evidence-based exercise, consciousness while exercising, appropriate exercise according to age, health impairment and motor competencies, methodology, progressiveness (step by step, from easy exercise to more difficult), illustration and permanency (exercise adherence)

Health groups in Physical Education and Sport (dividing school kids according to their health status)

I – healthy individuals, highly trained, full workload possible

– PE, elite sport

II – healthy individuals, less trained (average and subaverage fitness)

– PE, recreational activities

III – individuals with health impairment (permanent or temporary differences in development of the body, health status or anatomy/physiology) – they have some limitations in PE and sport

– Remedial PE

IV – ill individuals

– Physiotherapy, rehabilitation

Forms of exercises in Remedial PE

- **Regular exercise units** (lessons) lead by a teacher / instructor

  school, sport club, fitness facility

  indoor vs. outdoor vs. aquatics

- **Home exercise** (e.g. morning exercise, afternoon exercise)
- **Summer / winter camps** (kids with asthma, obesity, after cancer …)
- **Reconditioning stays and camps** (elderly, obese people, post-stroke individuals …)

Type of exercises in Remedial PE

a) exercises that help to form the correct posture, which is evaluated not only in its static position, but also in all kinds of movement activities as a dynamic stereotype

b) breathing exercises, which support the development of the respiratory function during physical exercises and are a part of exercises that are suitable for the correct posture and relaxation exercises

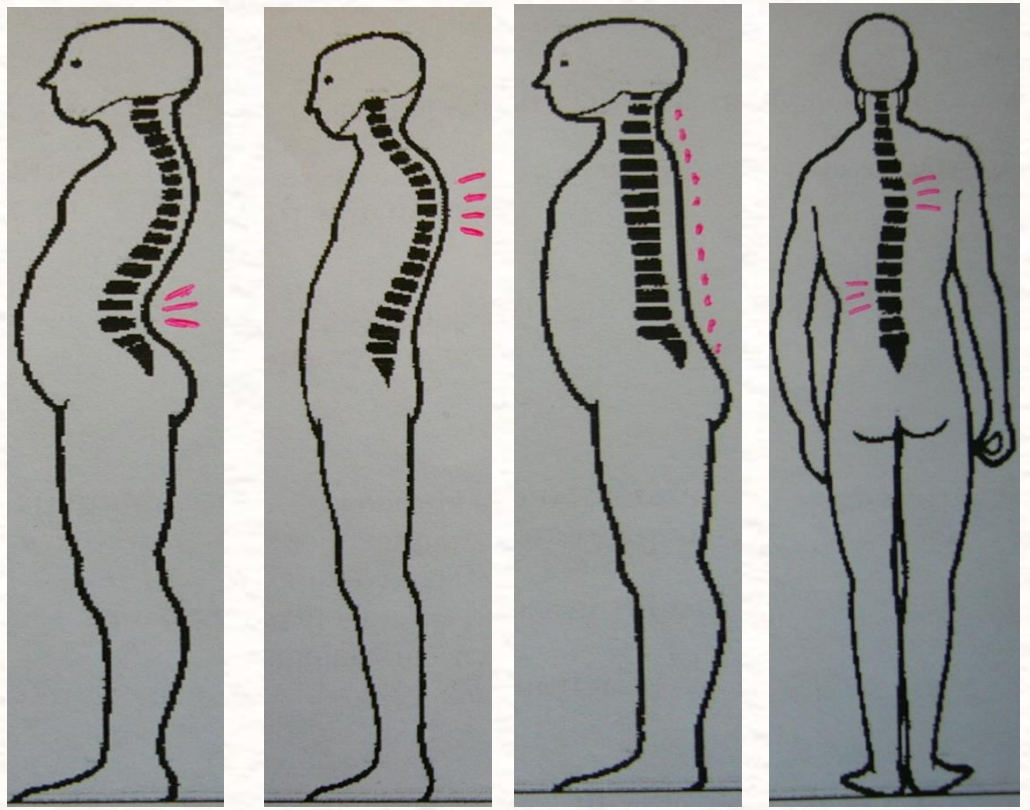
c) relaxation exercises that lead a gymnast to a conscious ability to relax certain muscle groups and regulate, if possible, his mental stress

Exercise / „training“ unit

- basic organizational form, where the movement content of the health physical training takes place
- from 45min lesson at school to about 90 min, three parts: opening, main and closing part
- **opening part (10 min):**
  - our students are briefly acquainted with the programme of the lesson
  - a simple movement game or running = warming up
- **main part (40 min):**
  - compensatory (20 min, essential and basic movement activities that are chosen by a teacher with regard to category, type and degree of students' weakening)
  - developing (20 min, health and educational goals, = to educate gymnasts to enjoy movement activities that make them healthy, we try to use all other accessible physical training activities that may develop motor skills of weakened gymnasts through their specific movements)
- **closing part (10 min):**
  - often focused on physical and mental relaxation through undemanding gymnastic activities

Kinesiology / neurophysiology = basis for exercise quality

- functional anatomy
- breathing
- head position
- eye movement



<u>Types of muscle groups</u>:

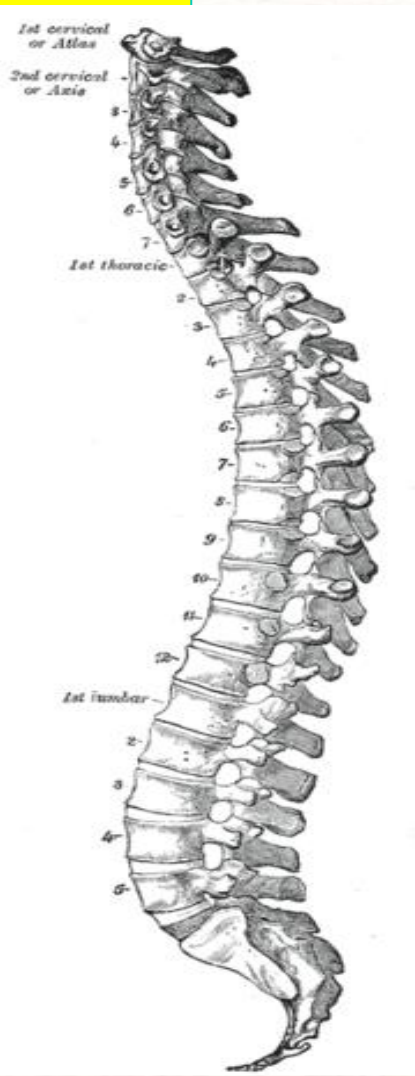
- muscles with a tendency to shorten /postural muscles/
- muscles with a tendency to weak /

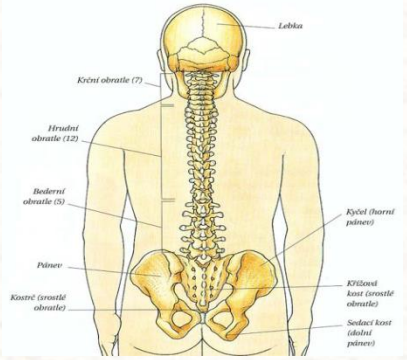
Examples of impairment in locomotor system:

- functional vs. structural
- postural impairments
  - hyperlordosis, hyperkyphosis, flat back, skoliosis
- cross syndromes (upper, lower)

Spine

- Posture – upright position
- Movement
- Safety for important parts of neural systém
- Connection with head, pelvis, chest (ribs) and extremities
- 31-34 vertebrae: 7 – 12 – 5 – 5 – 2-5
- 23 intervertebral discs – spine movement, „shock absorbers“





Physiology of spine - movements

- Not same / uniform in the spine parts (C, TH, L)
- The biggest movements possible in C and L spine
- Lower mobility in Th spine
- No mobility in vertebraes of sacral part
- Little movement in coccygeal part

- <u>Possibilities of movement in different spine parts:</u>

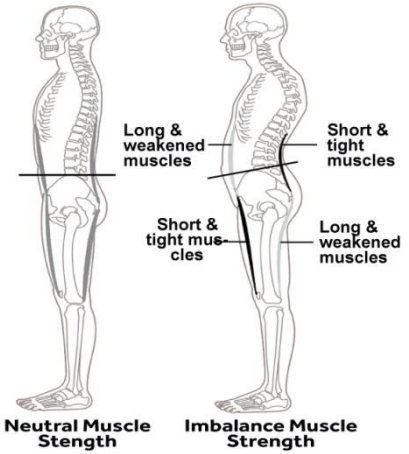
  flexion

  extention

  lateroflexion

  rotation

Muscle imbalance



- stronger agonist vs. weaker antagonist
- abnormally shortened or lengthened
- **STABILIZERS (postural muscles)** – fix a joint, prevent excessive movement, approximate the joint surfaces, more deeply placed in the body, usually one-joint muscles, more slow-twitch muscle fibers, more tonic muscles, more fatigue resistant
- **MOBILIZERS (task muscles)** – responsible for movement, create motion of a body part, more superficial in the body, usually two-joint muscles, more fast-twitch muscle fibers, fatigue quickly
- If there is balance between them, the joint is in equilibrium - equal resting tone of agonist and antagonist muscles allows the joint to assume a balanced resting position with the joints surfaces evenly loaded and the joint´s inert tissues not excessively stressed

Inhibited

Deep cervical flexors

Facilitated

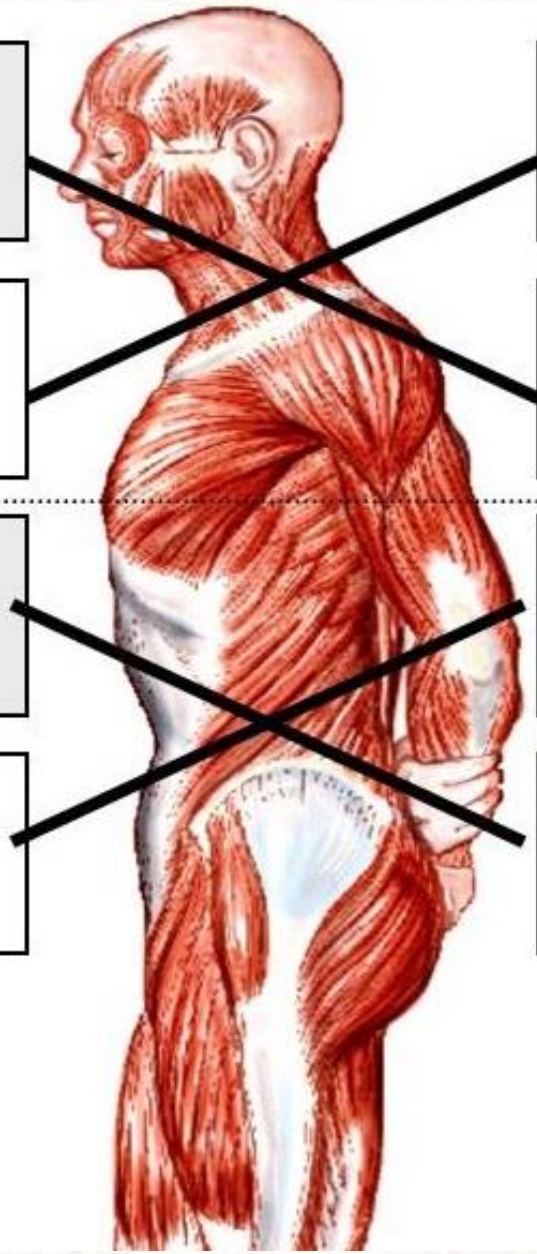
Upper Trap / Levator Scapula

Facilitated

SCM / Pectoralis

Inhibited

Lower Trap / Serratus Ant.



Inhibited

Abdominals

Facilitated

Thoraco-lumbar extensors

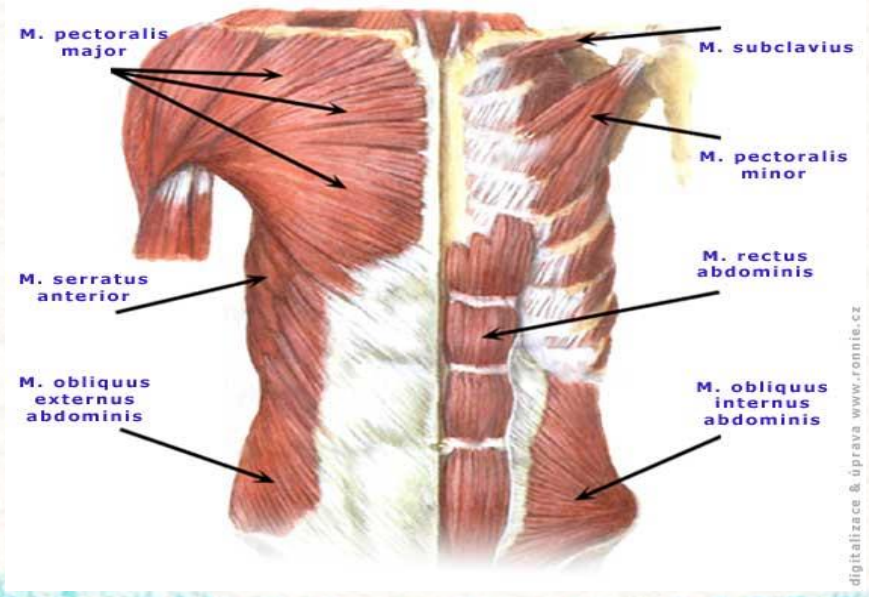
Facilitated

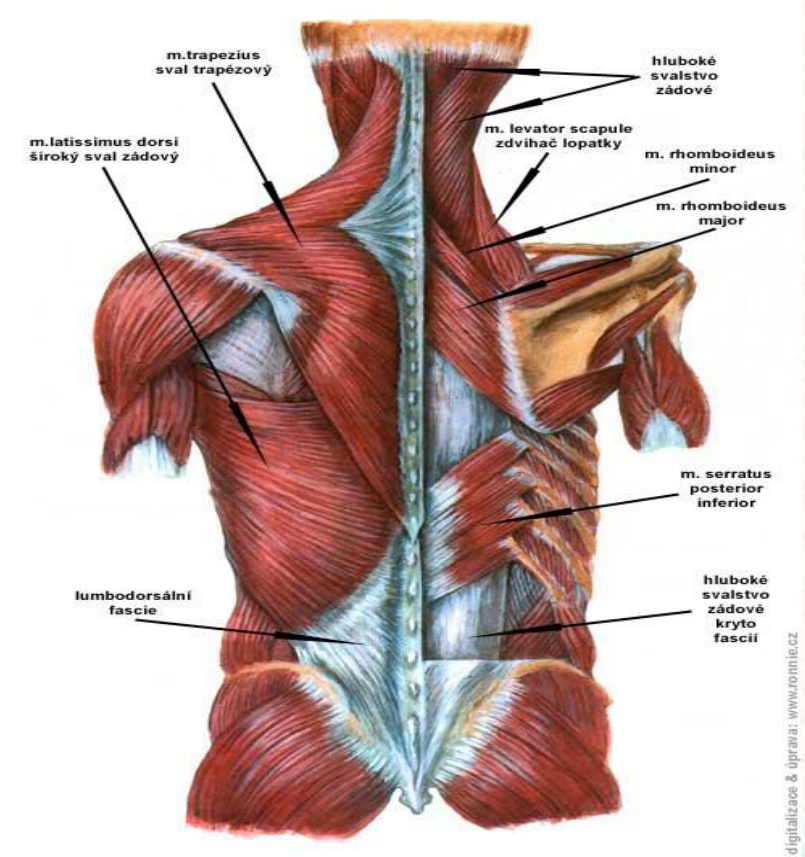
Rectus Femoris / Iliopsoas

Inhibited

Gluteus Min / Med/ Max

Muscles – do we know them? Do we know how to stretch them and how to strengthen them in a proper way?





Stretching muscles

- active vs. pasive
- Before and after exercise, during static load, during inactivity
- Warming up the tissues before stretching
- Stable and comfortable position, possibility of muscles to relax
- Slowly, smoothly, up to pleasant feeling / perception of muscle tone, with holding , never using swinging movements
- Usually while beathing out
- Usage of reflex mechanisms, post-isometric relaxation
- Not painful

Strengthening muscles

- Usually resistence exercise – movement against a resistence,
- Static and dynamic,
- After warming up
- The whole body functional concept
- While breathing out

Health-oriented physical training process

- Attention
- Interpretation of the subject matter
- Precision of practice
- Concentration of the movement effort
- Synchronous compensation
- Subsequent compensation
- General concept of compensation
- Exercise tempo / speed
- Repetition, exercise frequency
- Rhytm
- Checking pupils and their performance