Importance for aquatic therapy in the different locomotor diseases

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22.05.2004.- Eger
Introduction

- Importance of water and its relationship with rehabilitation.
- Timing.
- Why?
The main topics of my presentation:

- Fluidmechanics
- Physiological effects
- Indications, contraindications
- Incidence of the diagnosis
- The principle of gradience
- Use equipments
- Prevention
The fluid mechanics and its relationship to physiological effects

- hydrostatic pressure
- buoyancy
- density
- temperature
- + psychological effects

Process of reflex
Hydrostatic pressure

- Depends on water depth
- Effects:
  - pulmonary and
  - cardio – vascular system
Pulmonary system, pneumodynamics

- increase abdominal pressure
- higher diaphragm
- increase chest pressure
- resistance for inspiration
- forced expiration
- decrease breathing
- deeper breathing
- decrease VC
Cardio – vascular system:

- compression of blood vessels and lymph vessel
- increase circulation
- increase blood oxygen level
Buoyancy

- weightlessness
- less stable
- less force
Neuromuscular system

- sensomotor
- perception
- cognition

Stimulus: facilitation of balance
facilitation and posture
reaction

Reflexes
Density

- Resistance
- Open chains
Temperature

- Indifferent
- Thermomechanical effects:
  - hyperaemia
  - shunt
- effects of the muscle tension
- reduction of spasm
- reduction of pain
- relaxation effect
Psychological effect

- condition, calming, antidepressive,
- better circulation, better tissue regeneration, sense of cleanliness and health.
- self confidence
Indications, Incidence of diagnosis

- Chronic locomotor diseases (except acute inflammation)
- Articular and muscular pain
- Vertebral disc disease
- Post-operation rehabilitation (orthopedical and traumatological)
- Ankylosing spondylitis
- Peripheral circulatory disorders
- State of exhaustion, tiredness
- Stress
Contraindication

- Acute inflammation
- Cardiac diseases (cardiac failure, decompensation)
- Steady high blood pressure
- Feverish condition
- Thrombosis and superficial phlebitis
- Open wounds
- Skin disease
- Acute disease of digestive system
- Infectious diseases (AIDS, tuberculosis)
- Malignant tumour
The principle of gradience

From influence to resistance

- the influence
- communication- information
  - timely range of movement
  - movement co-ordination
  - postural control
  - balance control-equilibrium
  - stability of patient
  - psychological state of patient
Gradience

- The state of patients condition
- Closed chains to open chains
- The exercises:
  - be dynamic
  - don’t hold too much the starting and final position
  - give time and repeat
Learning

- water
- different behavior of the body
- different culture of movements
- exercises with the physiotherapist
- increase the sense of security
- increase ROM
- increase muscular work and its function
- change direction of movements
- increase speed of the motion (don’t less ROM)
- use rhythm, increase resistance of the water
- ----use equipments
Use equipments (1)

- In the first and middle parts of therapy:
  - beginning of ROM
  - relive of extremities
  - whole ROM
Use equipments (2)

- In the middle and final parts of therapy:
  - increase the muscular work
  - different waterdepth

- during therapy:
  - preclude the possibilities of paracoordination
  - develop of the movement coordination
Prevention

- Everyday routine
- Good condition