



UNIVERSITY OF PÉCS  
MEDICAL SCHOOL

# Sport as therapy

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# Definition

Using elements of sport in rehabilitation

Complex activity in which we train patient's general and special condition with the aim to treat their illness and help their daily routine

Effects :

- Physical: improve and/or maintain condition
- Mental: confidence, courage, willpower, perseverance, tolerance of pain
- General: ease in everyday life, improve quality of life

## Fields :

- Musculoskeletal diseases
- Internal medicine diseases
- Neurological diseases
- Psychiatric diseases
- Paediatric diseases
- Physical and mental disabilities

## Contraindications :

- Contraindications of the disease
- Lack of motivation
- Lack of cooperation

## Sport - therapic team

- Patient
- Doctor
- Physiotherapist
- Trainer



## What determines which sport to choose?

- By type of disease (ind., contraind .)
- Physical abilities of the patient
- Magnitude, extent and nature of the conditioning stimulus
- Mental status
- Aims , interests, hobbies



## Internal medicine – diabetes mellitus

- Exercise program:
  - 20 minutes of aerobic exercise
  - 15 minutes of muscle building exercise
  - Intensity: 60-80% of max. heart rate
  - light weight 2-5 kg
- Contraindications: blood glucose above 16 mmol/l, acetonuria (renal failure, autonomic neuropathy), retinopathy (exercise not recommended for 6 weeks)
- Post-exercise hypoglycaemia occurs 6-14 hours after exercise



# Internal medicine – high blood pressure

- Exercise program:
  - 30-60 minutes of aerobic exercise per day at age-appropriate submaximal frequency, can cause a 4-9 mm Hg systolic blood pressure reduction
  - 4-7 times per week
- Blood pressure reduction over 10-22 hours
- Regular exercise can reduce diastolic blood pressure by 2-10 mm Hg
- The fall in blood pressure is seen from the second week of physical activity, recovering after 1-2 weeks following cessation of exercise
- Exercise with an energy expenditure of 4-8 kcal/min is recommended: walking (above 6 km/h), light physical work, jogging-running, dynamic ball games, aesthetic sports, speed sports, golf, Nordic walking, etc.
- Stress management, relaxation techniques: eutonia, autogenic training, progressive relaxation



# Internal medicine – high blood pressure

## Pay attention :

- Pressing movements can raise blood pressure .
- Movement that requires maximum effort can raise blood pressure .
- Holding your breath during movement can raise blood pressure .
- Resistance training should not be done or only if patients know the correct breathing technique .
- Isometric muscle activity can be maintained for up to 4 seconds, and isometric muscle activity above 4 seconds can raise blood pressure .
- Head should not be placed below the hip line, cerebral circulation should not be increased as it may strain cerebral blood vessels .
- Inverted postural exercises increase cerebral circulation and may strain cerebral blood vessels, such as yoga, some elements of Pilates, some elements of suspension exercises such as TRX, some elements of gymnastics and some elements of aerobics .



# Internal medicine – high blood pressure

## Contraindications :

- Do not exercise if your resting systolic blood pressure is 170 mm Hg or higher.
- Do not exercise if resting heart rate is 90 beats/minute or higher
- Exercise should be discontinued if the exercise heart rate exceeds  $(220 - \text{age (years)}) \times 0.7$   
(Hungarian Hypertension Society Professional Guideline, 2009).



# Pulmonology – asthma bronchiale

- The duration of the sports therapy is 20-60 minutes, depending on the patient's workload .
- The intensity of the sports therapy training is 30-70% of the maximum oxygen consumption, on a Borg scale of 15degrees .
- Suggested movements : gait training (power walking, walkfit , nordic walking), bicycle training, hydrobic , aquafitness , swimming, cave sports therapy .
- Physical exertion leads to deeper breathing and increased respiratory rate, improved physical fitness, increased aerobic capacity, increased muscular strength and cardiorespiratory endurance, and improved breathing technique .

## Contraindications :

- Exercise that calls for active exhalation or sports that emphasise active exhalation .  
Strong exhalation may cause spasm of bronchial smooth muscle .

# Obesity

Intensity and duration of your exercise programme :

- long 60-90 minute
- medium (50-60%) intensity, dynamic, aerobic exercises.
- Suggested movements: walking (power walking, walkfit, nordic walking), aquatic exercise (aqua jogging, aqua fitness, aqua bike, aqua treadmill), cycling exercise programmes, aerobic programmes.

Pay attention :

- Exercises with full weight bearing on the joints of the lower limbs and spine should be considered.
- In the case of overweight, consideration should be given to cycling instead of walking, or to subaqueous exercise such as aqua jogging, or Nordic walking, where the use of poles can reduce the load on the large joints.

Contraindications :

- Contraindications defined in co-morbidities, non-gradual loading and overloading of the joints of the lower limbs and spine.

# Neurology

- Strengthening : asymmetry , pathologic pattern (Wernicke - Mann)
- Relief spasm : trunk rotation , anti - reflex positions , closed kinetic chain
- Cycling movements , aerobic exercises

## Contraindications :

- contraindications defined in co - morbidities



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**Thank you for attention !**