PÉCSI TUDOMÁNYEGYETEM
ÁLTALÁNOS ORVOSTUDOMÁNYI KAR

A modern approach to warm up

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Warming up in general

- To prepare the organs and organ systems for training and competition, so that they can function more efficiently in a more coordinated and higher level.
- The level of presentation of technical and tactical elements is increased.
- The aim of the preparation phase is to improve the actual performance of the competitor according to the needs of the sport.
- It can be general (functional) or specific (sport-specific) both in nature and in purpose.

The aim of the warm-up is both physiological and psychological:

- increases **muscle temperature** - results in more efficient enzyme activity in the muscles(even a 1 °C rise in muscle temperature can increase contraction speed by 10–13%)
- Increases muscle **blood flow** - ensures that the necessary nutrients are delivered to the appropriate place,
- stimulates the **enzyme activity** of various organs (liver, muscle),
- speeds up **nervous system function** - improved reaction time,
- increases **joint** range of motion and **muscle elasticity,**
- improves concentration and **quality of movement**,
- **familiarisation** with certain movement patterns and dynamic stereotypes

What is the problem with bad techniques?

Traditional technique structure:

- Circulation enhancement (running)
- gymnastic exercises
- Static, ballistic stretching

Emerging issue:

- It ignores the **connective tissue** that permeates and surrounds the muscles
- In running, the cold and inelastic muscle bundle cannot follow the work of the muscles
- **Static stretching** relaxes the muscles, slows down the conduction of the neurons, resulting in a slowdown in muscle function for up to 2 hours, reducing effort by 5-30%, not sport-specific
- While dynamic stretching is controlled and continuous, **ballistic stretching** is jerky and irregular.
- **Time**-consuming
- Does not consider preventive aspects

Building a modern warm-up to avoid injuries

- prepare you for training, competition

It should be:

- time-saving,
- preventive,
- sport-specific,
- accessible,
- easy to learn,
- requires few and preferably portable tools

How do warm up to avoid injuries?

- Muscle knots and fascia treatment
  - Use of SMR or MCT techniques
- Correction exercises (stability, mobility)
  - Addressing individual problems – assume measurements
- Gluteus activation
  - Awakening and activating the gluteus maximus, which is weakened due to postural problems and a sedentary lifestyle
- Dynamic stretching
  - Complex stretching and muscle toning exercises
- Sport specific exercises
  - Running school, dynamic footwork, according to sport-specific objectives

SMR and MCT technique before warm-up

- MCT – Myofascial Compression Technique
  – self-massage with compression device

- SMR – Self Myofascial Release
  – instrumental self-massage (Foam Rolling)

Objective:
- to prepare the muscular bloodsupplay for movement
- remove waste products
- injury prevention, performance enhancement
- increase mobility, stability

Correction exercises (stability, mobility)
Addressing individual problems

- Increasing stability/mobility in the joint
- Selection based on test exercises (FMS)
- According to defined objectives
- Strengthening weak areas
- Stretching shortened muscles
- 2-4 exercises

Stabilising exercises

- Reduce lower back pain
- Increase **core** stability
- Enable more efficient force transfer to the limbs
- Static support positions should be made dynamic as soon as possible
- Weight training can be built on stable core strength without injury

Mobilising exercises

- Increasing the narrowed range of movement
- Reduction of posture problems
- Improving sports technique
- Dynamic warm-up
- Avoid static stretching
- Do not overstretch hypermobile joints!
- Stretching types:
  - Static
  - Dynamic
  - Ballistic (injury risk)
  - PNF-stretching
- Anderson method
- Effective protocol for static stretching :
  30 sec, 3 set, (5x/week)
  rest time: 2x longer

Gluteus activation

- Postural defects and a sedentary lifestyle cause the glutes to be elongated and weak
- Difficult to activate when exerted
- Affects areas above and below the kinetic chain
- Weak gluteus = overstretched knee flexors + change in lumbar spine position (L4 and L5)
- Exercises with rubber bands, unstable equipment

Dynamic stretching
Complex stretching and muscle toning exercises

- Increasing muscle temperature
- Increased blood circulation, improved oxygen transport and oxygen uptake
- Increased range of motion, increased stability
- Improves coordination, balance and proprioception
- Works more joints simultaneously according to function
- Exercises in all directions of space, mostly progressive

Dynamic stretching exercises

- Walking with high knees, heel pull
- Lunge walk with trunk turn, trunk bend backward
- Sumo squat
- Lunge to the side with a step forward, crossing legs
- Walk out into push-up
- Modified balanced stance

Sport-specific exercises

- Traditional running school exercises (jog, heel lift, knee lift, eagle, side lunge, rhythm knee, canoe)
- Lunges forward, sideways, forward and sideways in pairs and single-legged
- Sport-specific exercises, according to the structure of the sport
- https://www.youtube.com/shorts/NKhA3fmGTwQ

- https://www.youtube.com/shorts/1p9yXAl2T58

Functional Movement Screen (2006)

Deep Squat

Hurdle Step

In Line Lunge

Shoulder Mobility

Active Straight Leg Raise

Trunk Stability Push Up

Rotary Stability

Score	Criteria
0	Pain, regardless of performance
1	Unable to perform
2	Performed with compensation
3	Performed as directed

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Thank you for your attention!

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