

The Theory of Sport Training

Basic Principles

LESSON 4
THE MOTOR ABILITIES
THE COMPONENTS OF ST

The Components of ST



- Structure of sport performance
- Training process = development of F (Phys. Cond.), Ta, Te, Th, Ps. **components of performance**
- Physical condition, Fitness component
- Motor abilities
What is it?

Motor abilities



- The scheme of Měkota
- The scheme of Bompa

Condition motor abilities



- Strength, Endurance
- Quality depend mainly on energy systems

Condition – coordinative motor abilities (hybrid, interspecific)

- Speed
- Quality depend on – very quick supply of energy
 - good neuromuscular work (coordination)

Coordinative motor abilities



- Co-ordination , flexibility
- Coordination – complex of motor abilities
- The Base is the quality of the neuromuscular work, which allow to the right time and space solution of movement task

Physical condition or fitness component



- The general or universal condition
- The specific condition

ENDURANCE



- What it is?
- It is the ability to perform...
- The kinds of endurance:
muscle or function endurance
aerobic – anaerobic,
cyclic – acyclic,
global – local,
dynamic- static,

Type of endurance



- **Speed endurance** - till 20-30 sec. – energy system CP,ATP
- **Short time endurance** – from 30 – 2(3) min with increasing rate of anaerobic lactic metab, peak of anaer met.– about 1 min, then anaer. met. rate is going down – about 2 min 50:50, very high level of LA

Type of endurance



- **Middle time endurance** - to 8-10 min – prevalence of aerobic met., but about 5-6 min still about 30% of anaerobic met.
- **Long time endurance** over 10 min – steady state, LA round individual ANT

Rate of metabolisms' involvement



Time of event	ATP-CP	LA	O2
5 s	85	10	5
10 s	50	35	15
30 s	15	65	20
1 min.	8	62	30
2 min.	4	46	50
4 min.	2	28	70
10 min.	1	9	90
30 min.	1	5	95
1 hod.	1	2	98
2 hod.	1	1	99

Criteria of good endurance



- Somatotyp
- Composition of body,
- Ability to transport oxygen,
- High value VO_{2max} – primarily relative per minutes and body mass, $VO_{2max}/kg/min$
- High fractional utilization of VO_{peak} ,
- Resistance against the fatigue and against the high level of LA,

Development of endurance



- Age
- Exercises
- Time of practise
- Intensity
- Methods – next lesson – practical seminar, out of faculty in the forest