evropský sociální fond v ČR
EVROPSKÁ UNIE
MINISTERSTVO ŠKOLSTVÍ, MLÁDEŽE A TĚLOVÝCHOVY
OP Vzdělávání pro konkurenceschopnost
INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

EXERCISE LOAD, LOADING

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Systematic development of the individual components of sports training is a long-term dynamic process, which has a predetermined logical relation.

Process of Sports Training

Dynamics at the time

Key proceses of sports trainig:

- Sports training as a process of morpho-functional adaptation
- Sports training as a process of motor learning
- Sports training as a process of psychosocial interaction

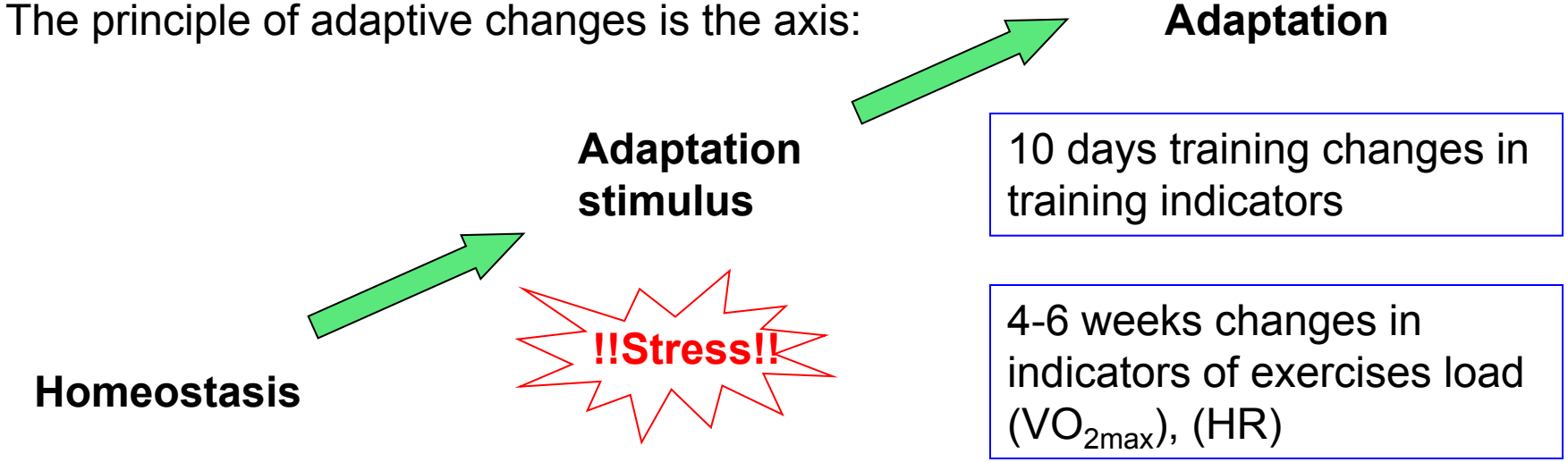
Sports training as a process of morpho-functional adaptation

- The increase in performance generally is related to the achievement of adaptive changes in the organism.

- Adaptive changes can be achieved by repeated application of Exercise load.

??way??

The principle of adaptive changes is the axis:



Adaptation stimulus = physical exercise

Adaptation stimulus must be applied in the appropriate strength:

- Subliminal
- Superthreshold
- Optimal

Exercise load

If motor activity is carried out in such a way that it evokes desirable **current change** of human functional activity, and consequently long-term, structural and psycho-social changes, it can be referred to as **Exercise load**.

The Exercise load is characterized by:

- **Frequency exercise**
- **Intensity**
- **Type of exercise**
- **Time**

In general, for any activity (FITT)

The Size of load is created by **load characteristics**:

- **Exercise intensity**
- **Exercise volume**
- **Rest interval**
- **Way of rest**

In specific activity (sport)

Rate of specificity of exercise

Indicates how to what extent exercise is similar to the final design of sports activities.

We distinquish:

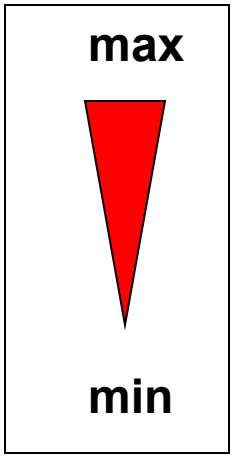
	Rate of specificity
Generally nonspecific exercises	**Small**
Special exercises	**Medium**
Competition exercises	**High**

Intensity

Can be expressed as HR

- Intensity exercise is characterized by a degree of effort.
- Exercise intensity is on te outside manifested as movement velocity, movement frequency
- The higher the exercise intensity, the greater the energy expenditure (kJ/s)
- Related to ways energy coverage:

→ Maximum intensity (phosphagen system) (ATP – CP)
→ Submaximal intensity (fast glycolysis) (LA)
→ Moderate intensity (slow glycolysis) (LA – O_2)
→ Low intensity (slow glycolysis, fat oxidation) (O_2)



Volume

- The volume of exercise expresses the quantity of load.

- Volume can be epressed in time, i.e. duration of exercise or the number of repetitions of an exercise respectively.

  Frequency of repetitions of an exercise

- Given the number of training units for a given period (usually one week)

Sport season	Frequency guidelines (session per week)
Off-season	4-6
Preseason	3-4
In-season	1-3
Postseason (active rest)	0-3

Rest interval, Way of rest

- **Depends on the specific training aims**

% of maximum power	Primary system stressed	Typical exercise time	Range of work-to-rest period ratios
90-100	Phosphagen	5-10 seconds	**1:12 to 1:20**
75-90	Fast glycolysis	15-30 seconds	**1:3 to 1:5**
30-75	Fast glycolysis and oxidative	1-3 minutes	**1:3 to 1:4**
20-30	**Oxidative**	**>3 minutes**	**1:1 to 1:3**

Increasing the size of the load

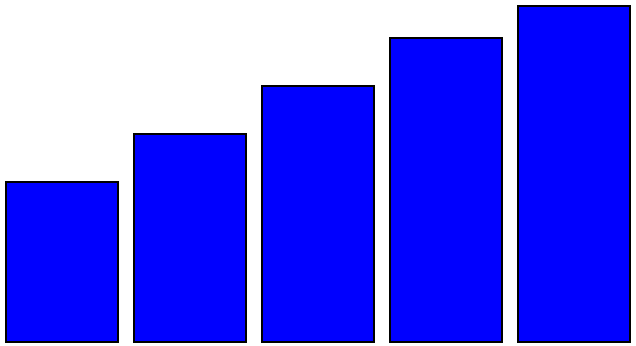
- Crucial features for the volume of load are duration and intensity of exercise.

- Relationship between duration and intensity of exercise

INDIRECT PROPORTION

Possibilities of increasing the size of the load

A



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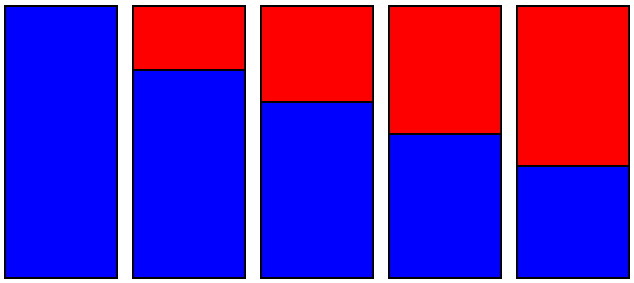

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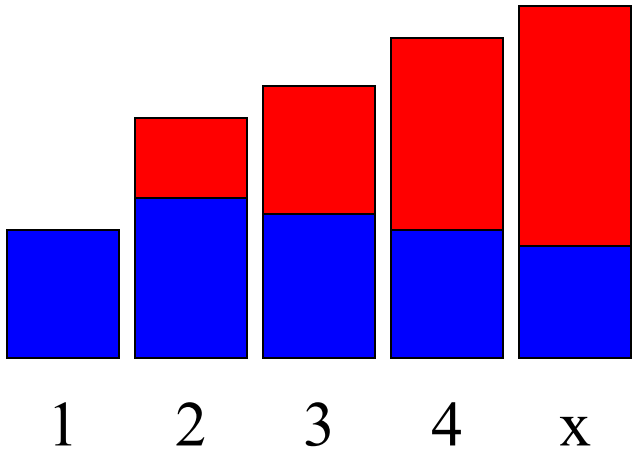


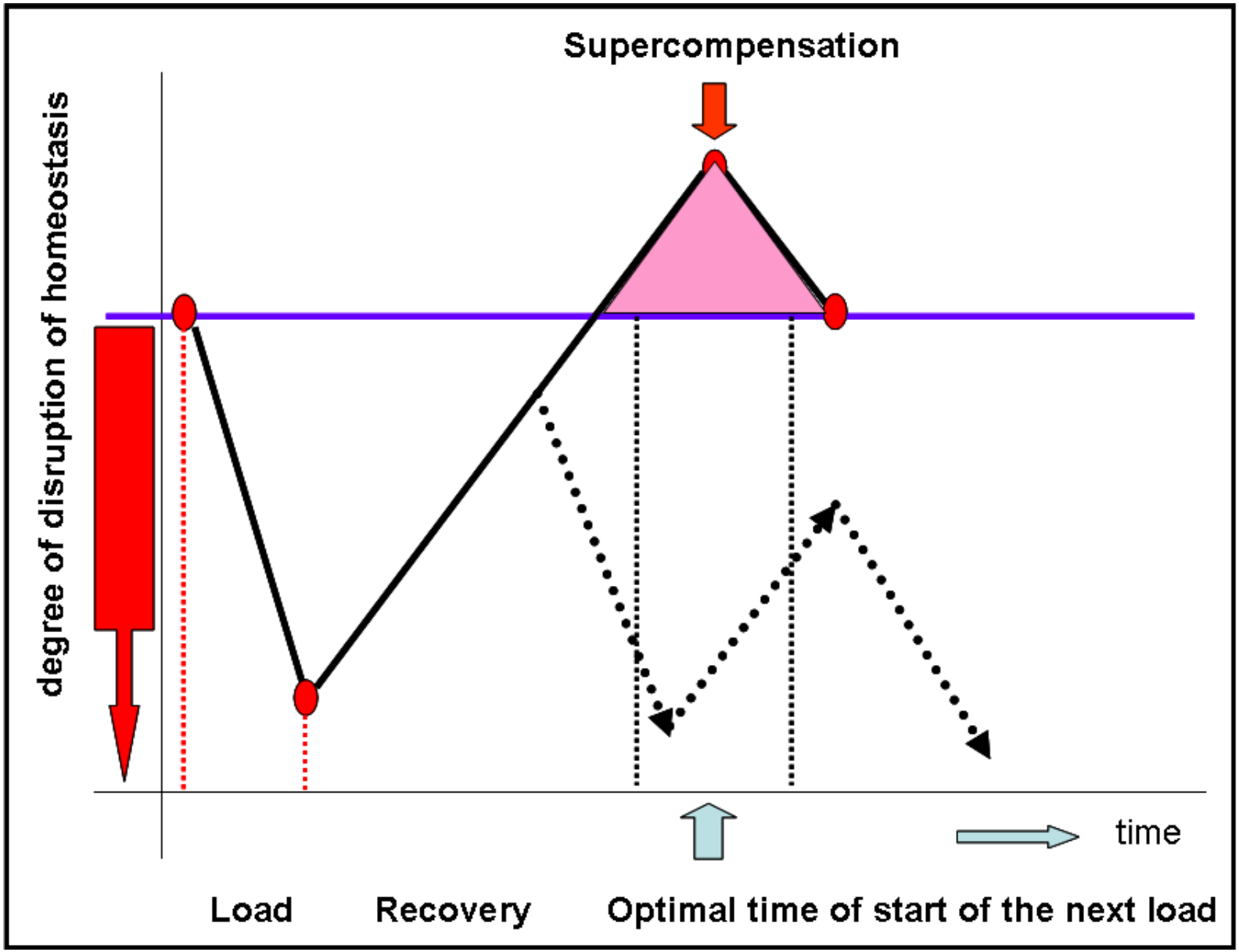
Volume increased intensity

Loading

- Loading is a process of applying load which has been devined in advance repeatedly in time.

- Cumulative training effect arises form the phenomenon of supercompensation.

- Supercompensation is understood as increasing energy resources of the organism as a consequence of previous exercise load (defined by intensity and size).


Supercompensation
degree of disruption of homeostasis
time
Load
Recovery
Optimal time of start of the next load

Thank you for your attention.