JST Online Support

Modul 1: Training Fundamentals

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Capacity

Motor skills and abilities

Know that there are skills and abilities. Imagine that you were born with a certain potential. This is more or less the same with healthy babies. Depending on the demands of the environment, this potential comes to light and is utilised in the child's development.

Instead of potential, you could also speak of abilities. Every person has inherent abilities. They need to be developed and brought to light. In physical training, there are conditional and coordinative abilities (we will go into this in more detail later).

While every person is equipped with abilities from the outset, skills must first be learnt. Skills are learnt through action and supported by abilities. Skills, on the other hand, are trained with the help of abilities. Sounds complicated, but it's not at all. An example:
The conditional skill ‘strength’, can be trained with the help of the skill ‘squat’. The squat can be learnt and improved by performing it, because it is a movement. Now there are simpler skills that are easy (or easier) to learn, such as the squat (we start doing it as babies) and more complex skills such as climbing, judo or acrobatics.

To learn these skills risk-free and better, well-trained conditioning and coordination skills are important.

To summarise, it can be said that conditional skills are developed with the help of simple (less dangerous) skills. With more complex patterns, coordinative skills are developed (the more complex, the more stimuli for the brain). More complex skills are learnt with the help of the conditional and coordinative skills developed. Skills are innate and can be trained. Skills have to be learnt. The greater the capacity, the more capable the person is.

Physical capacity

THE CONCEPT OF OUR PERFORMANCE AND WELL-BEING

As you learnt in the last paragraph, the higher your capacity, the more you can learn, the lower your risk of injury and the better you can feel.

Capacity is a **concept** that we use in our work.
Capacity **combines** conditioning and coordination skills.
Capacity development involves a whole range of activities aimed at **strengthenin**g the individual.
Capacity is therefore a basis for good movement.

If we consider the concept at the level of the person rather than the impairment of specific bodily functions or structures, physical capacity is an important way in which people maintain their ability to perform activities. Capacity therefore also means potential. Reduced or impaired capacity due to laziness, illness or injury contributes to activity limitations. On the other hand, high capacity can bring out one's potential and lead to a healthy body full of possibilities.

What's in it for you? A lot, but certainly a sustainable physique, good looks, a good body image, longevity and the opportunity to explore and experience life with your body in a positive way. In our eyes, this is important for everyone - of course, as always, within an individual framework.

Capacity training utilises concepts and attributes such as balance, coordination, strength, agility, endurance and speed and offers a wide variety of options.
The great thing is that capacity training can range from simple to complex. However, our aim is always to reduce the chaos to the point where people can learn something about themselves. One important thing you can learn from or with capacity work is to get to know your body and build a good muscle-mind connection. The more you know and the better your connection is in general, but also to individual body parts, the more precise your intention can be and the more you develop.

Note that we have only talked about physical capacity - of course there is also mental, emotional, spiritual or social capacity.

Skills & abilities

THE BASIS OF PERFORMANCE

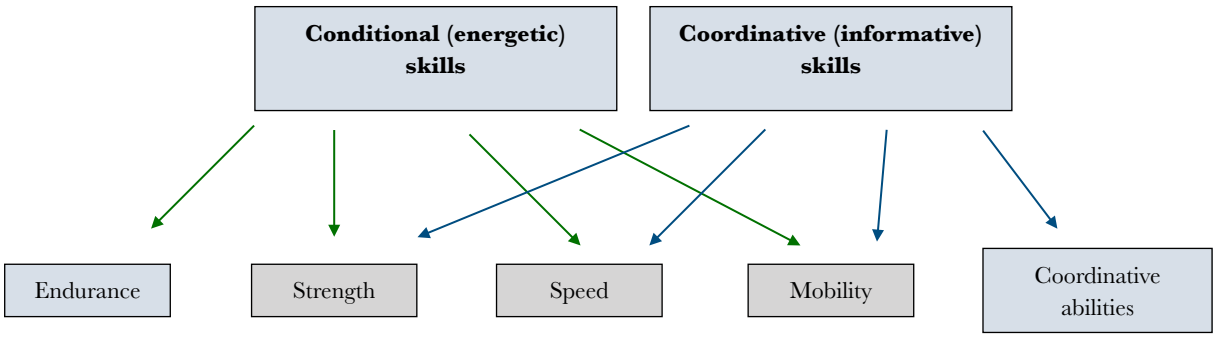
In physical training, we can train various motor skills such as endurance, strength, speed, agility and coordination. Motor skills are understood as the totality of all control and functional processes that underlie posture and movement (Bös & Mechling, 1983). An ability is understood to be a 'relatively stable intrapersonal state as a prerequisite for the performance of an activity' (Wick, 2005, p.99). This state is characterised by both genetic and extragenetic influences.

At the first level, motor skills are divided into energy-related, **conditional skills** and information-orientated, **coordinative skills** (Bös, 2006). The second level subdivides conditional abilities such as endurance, strength, speed and agility as well as coordinative abilities such as coupling, reaction, orientation, balance, adaptation, rhythm and more. Nowadays, agility is usually no longer clearly

categorised as a conditional skill, as coordinative aspects have an important function (Meinel/ Schnabel 1998). In our opinion, the same applies to strength and speed, as they are also based on the control processes of the central nervous system.

As can be seen in the diagram below, there are interrelationships between conditional and coordinative abilities in the basic motor skills of strength, speed and agility, so that grey areas in the sense of transition zones arise in their classification. Strength, speed and agility cannot be attributed to either purely conditional or purely coordinative abilities (Hohmann et al., 2003). One can also speak of a third level in which the main motor forms are further subdivided into nine ability components (aerobic endurance, anaerobic endurance, strength endurance, maximum strength, speed, speed of action, speed of reaction, coordination under time pressure, coordination for precision tasks).

Chart 1: Motor skills



The basic motor skills are interrelated and often occur in combination as sport-specific requirements (e.g. speed strength, speed endurance, etc.) and are also linked to coordinative aspects.
Martin et al. (1999) report on practical experiences that have shown that improvement in a particular skill area is accompanied by an increase in performance in other motor skills. Recall the principle of carry-over effect that you read about in the 'About Training' document. This theory is based on the realisation that performance requirements do not lead to an isolated, but at best to an accentuated use of performance prerequisites.

The transferability of performance developments can be statistically proven. Pahlke (1999a) confirms the interactions between the individual motor skills and establishes connections between speed and the skills of strength, coordination and endurance. Without the involvement of strength and coordination, the execution of movement speed is inconceivable. Improvements in strength and/or coordination go hand in hand with an increase in speed (Pahlke, 1999b). In general, every movement action requires a minimum of strength and must be coordinated. These are the basics of movement and also of our capacity training.

Physical performance and well-being always depend on the development of motor skills and their interplay. In other words, this characteristic is the observable, measurable and analysable external appearance of a physical performance (Martin, Nicolaus, Ostrowski & Rost 1999).

It should be noted that conditional abilities must be trained permanently or continuously, otherwise their function will diminish. This means that capacity work is always part of our training. Only the amount of time and content changes over time.

Following you will find a detailed description of the motor skills and abilities.

The motor skills and abilities

DESCRIPTION OF MOTOR SKILLS AND ABILITIES

Coordination

The term coordination is the collective term for coordinative abilities (Hohmann, 2003), which represent 'relatively consolidated and generalised course qualities of specific movement control processes and performance prerequisites for coping with dominant coordinative performance requirements' (Martin et al., 1999, p.83). According to Hirtz (1985). Coordinative abilities include the ability to react, rhythmisation, balance, spatial orientation and kinaesthetic differentiation. These skills enable the individual to perform movements with high quality, which is of great importance in sport (Hohmann, 2003) and in everyday life (Pfeifer, Grigereit & Banzer, 1998). You will learn more about coordination in another lecture.

Strength

Strength refers to the ability of the nerve-muscle system to overcome resistance through muscle contraction (concentric work), to counteract it (eccentric work) or to hold it against gravity (static work). 'Strength abilities are based on neuromuscular conditions and generate muscle performance when force is applied in defined athletic movements with values that are above 30% of the individually achievable maxima' (Martin et al. 1999, p. 106). Strength is a very important ability for us, as it is not only relevant for correct movement training, but can also help with mental or emotional health problems. More on this in further lectures.

Endurance

Endurance is defined as mental and physical resistance to fatigue. In addition, it is ascribed the central role of the ability to regenerate after tiring exertion. Endurance can be systematised according to the extent of the musculature used (global, regional, local), the duration of exercise (short, medium and long-term endurance) or the type of primary energy supply (aerobic, anaerobic) (Conzelmann, 1994, Hohmann et al., 2003). Aerobic energy production is characterised by the formation of energy carriers with the consumption of oxygen; in contrast to anaerobic energy production, which occurs during intensive exercise with the exclusion of oxygen and leads to an accumulation of lactate in the blood (Hohmann, 2003).

Mobility

'Mobility is the ability to perform movements arbitrarily and purposefully with the required or optimal range of motion of the joints, muscles, tendons and ligaments involved' (Martin et al., 1991, p.214). It is also partly responsible for the quality of the movement actions. Mobility, also known as mobility, consists of the components passive and active mobility. Passive mobility describes joint mobility, which depends on the passive functional systems and is largely genetically predetermined.

Active mobility and flexibility describes joint mobility in interaction with the surrounding muscles, tendons and ligaments, whereby neuromuscular conditions play a major role.

Speed

'In the context of complex sporting performance, speed is characterised by the ability to react as quickly as possible to stimuli or signals and/or to perform movements at maximum speed and with low resistance' (Martin et al., 1991, p.147). Speed and strength can be traced back to the nerve-muscle system as a determining factor (Schmidtbleicher, 1994).

That was our introduction to the topic of how to train. You now know how crucial a high capacity is for your well-being and your possibilities and what the basics for and of exercise are.