

JST Educational Online Support

Modul: Modul 1 Training - Lesson 1 The Foundations

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Capacity

Motor Abilities & Skills

Know that there are abilities & skills. Imagine that you come into this world with a certain potential. This is more or less similar for healthy babies. Depending on the environment, this potential comes out and is used in the child's development.

Instead of potential we also could say abilities. Every person has abilities from the ground up. They need to be worked out and brought to light. In physical training there are the **conditional** and the **coordinative** abilities (we go deeper into it later). While every human is endowed with abilities from the ground up, they have to first learn skills. Skills are learned by doing and are supported by the abilities. Abilities, on the other hand, are trained with the help of skills. Sounds complicated, but it is not. An example:

The conditional ability "Strength" can be trained using the skill "Squat". The squat can be learned and improved by doing it. Now there are simpler skills that are easy (easier) to learn, such as a Squat (we start doing it as a baby) and more complex skills such as climbing, judo or acrobatics.

In order to learn these skills in a risk-free and better way, well-trained conditional and coordinative abilities are important.

In summary, with the help of simple skills (little dangerous) conditional abilities are developed. With more complex patterns, coordinative abilities are developed (the more complex, the more stimulus for the brain). More complex skills are learned with the help of the **developed conditional and coordinative abilities**. Abilities are inherent and can be trained. Skills must be learned. The greater ones capacity the more able this person is to take action.

(PHYSICAL) CAPACITY - THE CONCEPT OF OUR PERFORMANCE & WELL-BEING

As you got to know from the last paragraph above the higher your capacity the more you can learn, the less is your risk for injury and the better you can feel.

Capacity is a **concept** we use in our work.

Capacity **unites** the conditional and coordinative abilities.

Capacity development encompasses a whole range of activities designed to **empower** individuals.

If we consider the concept at the person level - rather than impairment of specific bodily functions or structures - physical capacity is an important pathway through which people maintain their ability to engage in activities. Capacity, then, also represents potential. Reduced or impaired capacity due to

laziness, disease, or injury contributes to activity limitations. On the other hand, high capacity can bring out your potential and result in a healthy body full of possibilities.

What does this give to one? A lot, but for sure a sustainable build, good looking and feeling body, longevity and the chance to explore and experience your life with your body in a positive way. In our eyes this is important for everyone - of course as always in an individual frame.

The capacity training uses concepts and attributes such as balance, coordination, strength, range of motion as well as endurance and speed and offers a wide variety of capabilities.

The cool thing is that capacity work can reach from being little to being more complex. Anyway, the goal for us always is to reduce the chaos to such an amount that a person can learn something about themselves. So one important thing to learn from or with the capacity work is to get to know your body and building a good muscle-mind connection. The more you know and the better your connection is the more precise your intention can be and you develop.

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

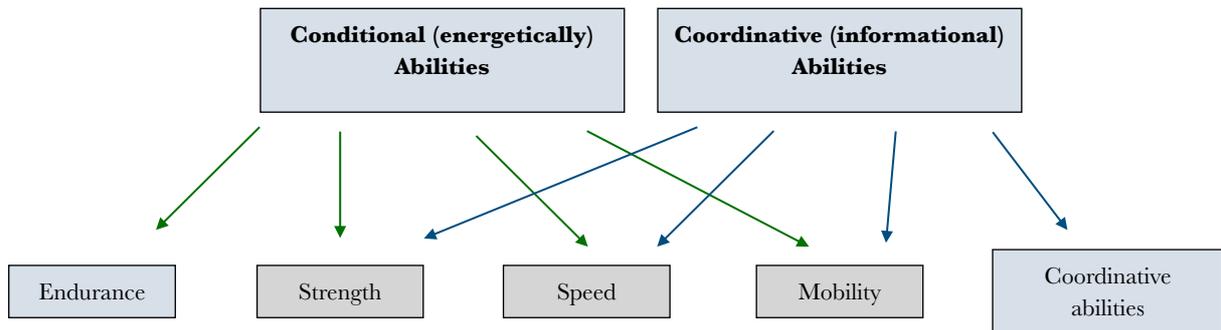
ABILITIES & SKILLS - THE BASE OF CAPACITY

In physical training we have different motor skills we can train such as endurance, strength, speed, mobility and coordination. Motor activity refers to the totality of all control and functional processes underlying posture and movement (Bös & Mechling, 1983). An ability is understood to be a "relatively stable intrapersonal condition as a prerequisite for performance of an activity" (Wick, 2005, p.99). This condition is characterized by both genetic and extragenetic influences.

On the first level motor abilities are differentiated between **energetically** determined, **conditional** abilities, and **information-oriented**, **coordinative** abilities (Bös, 2006). The second level divides the conditional abilities including **endurance**, **strength**, **speed** and **mobility** as well as coordinative abilities including the ability to **couple**, **react**, **orientate**, **balance**, **adjust**, **rhythm** and more. Nowadays, mobility is usually no longer clearly assigned to conditional abilities, since coordinative aspects have an important function (Meinel/Schnabel 1998). I think the same goes for strength and speed since they are also based on central nervous control processes.

As you can see in the graphic on the next page, in the basic motor properties of strength, speed and mobility there are interrelationships between conditional and coordinative abilities, so that grey zones in the sense of transition areas arise when these are assigned. Strength, speed and mobility can neither be attributed to purely conditional nor to purely coordinative abilities (Hohmann et al., 2003). We can also speak about a third level, in which the main motor forms are further subdivided into nine ability components (aerobic endurance, anaerobic endurance, strength endurance, maximum strength, high-speed strength, action speed, reaction speed, coordination under time pressure, coordination for precision tasks).

GRAPHIC 1: MOTOR ABILITIES



The basic motor characteristics are mutually related and often occur in combination as a sport-specific requirement (e.g. speed strength, speed endurance etc.) and are also related to coordination aspects. Martin et al (1999) reports on practical experience which has shown that improvement in one particular skill area is accompanied by an increase in the performance of other motor skills. Remember the principle transfer (carry-over effect) about which you've read in the *About Training* document. This theory is based on the insight that performance requirements do not lead to an isolated, but at best to an accentuated claim to performance prerequisites.

The transferability of performance developments can be demonstrated statistically. Pahlke (1999a) confirms the interactions between the individual motor skills and establishes relationships between speed and the skills of strength, coordination and endurance. Without the participation of strength and coordination, it is inconceivable to execute movement speed. Improvements in strength and/or coordination are accompanied by an increase in speed (Pahlke, 1999b). In general, every action of movement has a **minimum** of **strength** and must be **coordinated**. These are the foundations of movement and also of our capacity work.

A physical performance and well-being always depends on the development of motor abilities and their interaction. This means that this characteristic is the observable, measurable and analyzable external appearance of a physical performance (Martin, Nicolaus, Ostrowski & Rost 1999).

One thing to note, conditional abilities need to be trained permanently or continuously otherwise they will diminish in their function. This means that the capacity work is always part of our training. Only the scope of time and content changes over time.

On the next and last page you will find a further description of the motor abilities and skills.

DESCRIPTION OF MOTOR ABILITIES & SKILLS

Coordination

The term coordination is the collective term for the coordinative abilities (Hohmann, 2003), which represent "relatively consolidated and generalized progression 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, rhythmise, balance, spatial orientation and kinesthetic differentiation. These abilities enable the individual to perform movements with high quality, which is of great importance in the context of sports (Hohmann, 2003) and in daily life (Pfeifer, Grigereit & Banzer, 1998). More about coordination will come in a further 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 capabilities are based on neuromuscular conditions and generate muscle performance during the application of force in defined athletic movements with values that exceed 30% of the individually achievable maxima" (Martin et al. 1999, p. 106). Strength for us is a very important ability since it is not only relevant for proper movement training but can also help with mental or emotional health challenges. More in further lectures.

Endurance

Endurance is defined as mental and physical resistance to fatigue. In addition, it is attributed the central role of the ability to regenerate after tiring loads. Endurance can be systematized according to the extent of the musculature used (global, regional, local), the duration of exertion (short, medium and long-term endurance) or the type of priority energy supply (aerobic, anaerobic) (Conzelmann, 1994, Hohmann et al., 2003). Aerobic energy provision is characterized by the formation of energy carriers with the consumption of oxygen; in contrast to anaerobic energy production, which takes place under exclusion of oxygen during intensive exertion and results in 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 oscillation range of the joints, muscles, tendons and ligaments involved" (Martin et al., 1991, p.214). It is also jointly responsible for the quality of the movement actions. Mobility consists of the components passive and active mobility. Passive mobility describes the joint mobility that depends on the passive functional systems and is largely genetically predetermined. The active mobility and extensibility describes the joint mobility in interaction with the surrounding muscles, tendons and ligaments, in which neuromuscular conditions play a major role.

Speed

"In connection with complex athletic performance, speed skills are shown by the ability to react as quickly as possible to stimuli or signals and/or to perform movements at the highest speed with low resistance" (Martin et al., 1991, p.147). Speed and strength can be attributed to the nerve-muscle system as a determining factor (Schmidtbleicher, 1994).