

## Modul 1 - Training Fundamentals

# About Training

Training is one of four main modules that make up our practice and training. This document was primarily created for you to give you a basic overview of what the term ‘training’ means in our work, how it is structured and how you can work independently despite our planning. You will also learn important terms that will help us to communicate in a common language.

In combination with your ongoing training phases and the attached plans, this document should help you to build up a theoretical understanding alongside your practical experience. This theoretical knowledge plays an important role in our philosophy and teaching. It should also encourage a critical mind and the ability to question things.

As you are at the very beginning of your training and many things may be completely new to you: Don't stress yourself out! Read the document and take notes. Ask yourself questions and read it again if necessary. Whenever something is unclear, consult it or add to it as you go along. In the following documents and calls with us, you will also go into more detail on various sub-points of this document.



# Index

About the training - What is it?	3
The Bigger Picture	6
Training & Adaption	7
Biopositive training adaptations	8
Terminology	9
AAI & Additional	13

# About the training - What is it?

## **NOT ALL TRAINING IS THE SAME - WHAT TRAINING IS NOT**

To begin with, we would like to talk about the term 'training'. We know that many people in different disciplines, forms of exercise or recreational sports use the term without meaning it or even practicing according to its definition. It is important for us to know what training means because it directly dictates how we approach it. To better explain what training means/is, it is first important to describe what it is not. We would like to discuss three terms that are also used in our practice, but which should be distinguished from the term training:

### **1. Physical activity**

According to the American Heart Association (AHA), we should exercise every week. We would go even further and say every day. Anyway, 'Physical activity is anything that gets you moving your body and burning calories,' according to the association's website, which makes it clear what the AHA believes is necessary to maintain good health. Physical activity therefore means everything except sitting and lying still. Examples include walking, swimming, playing volleyball with friends and so on. Doing the washing up, laundry or other activities in and around the home can also be classed as physical activity. As already mentioned, light physical activity should ideally take place frequently during the day. It is characterised by its light intensity and the regenerative effect that these activities have on your body and mind.



## 2. Non-binding physical activity

A non-committal physical activity is a physical activity performed for the effect it produces today - now, in this moment (thanks to Mark Rippetoe and Andy Baker). Each activity is performed with the goal of creating stress that satisfies the immediate needs of the person performing it: Burning calories, sweating, swelling biceps, stretching, etc. - You do a certain number of exercises and then go home pleasantly exhausted. So non-compulsory physical activity is physical activity that you do because of the effect it has on you during or immediately after your workout. You can do your workout the same way year in, year out as long as it fulfils its purpose and creates the feeling you want to have today.

## 3. Play

The game can be seen as similar to a non-committal physical activity, with the difference that it is not about pursuing a specific goal (such as burning calories, etc.), but rather about discovering the body and the movement possibilities with curiosity and without a specific plan. This form or concept is very important in a practice. However, like the other two, it should be distinguished from the concept of training.

## TRAINING - CHANGE IS POSSIBLE

The basis of training is the assumption that change is possible. By training within a specific practice, we change ourselves.

When we talk about training - as opposed to physical activity or non-committal physical activity - it is not about being able to do something. It's about getting into the stream of change and swimming in it. To get started, to start exercising, it is important that you are open to change and believe in it. Don't hold on to what you think you are or who you were yesterday. The world changes with every breath - and so do you. We train and training means conscious change.

Unlike physical activity or non-binding physical activity, where it's all about the moment, in training we're always working for something that comes much later. So it's not about the moment. It doesn't matter whether I am maximally exhausted or excited during or after training. We strive to optimise the expression and performance of our body by continuously doing more and by using certain parameters to measure our improvements and the development curve. We strive to improve our coordination, conditioning and skills.

Training is a **purposeful, planned and systematic process** to improve performance. The aim of training is to change and improve the body and thus its performance.

## SYNERGIES - NOTHING EXISTS IN A VACUUM

These changes through training can change your outward appearance (weight loss, muscle growth), they can also show up in better coordination (more efficient & aesthetic movements), flexibility or in measurable ways (faster times, you can move heavier weights, etc.). There is the obvious change and the less obvious change. What I mean by this is that when you do a push-up, for example, you get better at push-ups - obviously. BUT imagine this:

When you pull on your t-shirt, the surrounding parts move with you and if you pull more, the whole t-shirt moves. When you do push-ups, you don't just get better at push-ups. It also has what are called carry overs. There are carry overs. We don't know what exactly, but it ranges from clear carry-over effects to other push-up exercises, to general physical effects such as strong bones, better glucose processing, etc., to psychological, social or spiritual levels.

This is because everything we do in life has an impact on other areas. Nothing works alone. Synergies are created - actions that support each other. When you train, you will notice this over time: things will happen that could not have been foreseen when simply looking at the individual exercise/task.

This can lead to magical moments when we realise that we can suddenly do something that we didn't even train for. As we train in many different ways, we regularly encounter such synergy effects.

The increase in performance can then be expressed in a deeper and more complex context and in the exploration of our physicality. We train to gain more possibilities, movement experiences and freedom. We train in order to be able to participate in life.

In this context, training is understood as a physical activity that serves to achieve a **long-term performance goal**. It is therefore more about the overall process and less about the individual training sessions that make up this process. And because the process is intended to produce a clearly defined result at a specific point in time, it must be carefully planned. The training is aimed at long-term improvement. This requires both the time and the willingness to postpone the satisfying feeling of having achieved a goal until it has actually materialised. But hey, DON'T HURRY, ENJOY!

**In conclusion**, training should be planned in the short, medium and long term in order to maintain control of the process and create a training programme that is well thought out and in which one builds on the other. Training is systematic. Training takes time, expert guidance and commitment to the goal you are training towards. It is important to understand that each training session only has value if it follows the common thread that leads to the desired goal. This is not to say that training is not fun or that the small gains that make up a successful workout are not satisfying - after all, this is a feeling that everyone strives for. For the exerciser, however, it also means that all the pieces of the puzzle have to fit together to form a bigger picture: A picture that most people who only do non-committal exercise will never know in its entirety and probably never even see.

## The Bigger Picture

The Bigger Picture is an idea based on the principle of 'Nothing Exits In A Vacuum', which you will explore in more depth in an additional lesson.

In short, it's about realising that training is not just about the part where the stress impulse is set - the physical exhaustion. This is only one part of the overall training process. At least as important, perhaps even more important, is the recovery phase that you have in the hours and days following physical exhaustion. This means that taking care of the time after the physical part of the training is crucial.

Nutrition, environmental influences, temperature stimuli, breathing, sleep, emotions, etc. are all things that need to be taken care of if you want to get the most out of your training. In addition, physical activity, non-compulsive physical activity (with light intensity/volume) or play - as described above - can be used to promote a faster and high-quality recovery phase.



# Training & Adaption

Training is a process of adaptation to stress stimuli and is always based on the concept of stress-recovery-adaptation. Repeated activities can lead to adaptation. To improve performance, it is first necessary to present the body with a new, unfamiliar task (= effective training stimulus). The body responds by adapting (fatigue + recovery = supercompensation). Training always leads to physical fatigue, in the subsequent recovery phase the organism adapts to the load. This adaptation is a specific performance development. The physical processes underlying training and the desired adaptation are explained in more detail below.

## 1) Homeostasis

Homeostasis refers to the biochemical balance of build-up and breakdown processes within an organism. Every human being has its own homeostasis. Homeostasis creates a dynamic balance and is therefore an essential principle for the life support and function of an organism or organ. An example of homeostasis is blood pressure and its regulation. If blood pressure rises or falls too sharply, the organism takes countermeasures to maintain homeostasis. With his need to constantly engage in new learning processes, the human being consciously breaks through the homeostatic state of his body-soul unit again and again. They end up in an imbalance that is only restored to a harmonious state once the desired goal has been achieved.

The law of homeostasis states that the organism tends to maintain a dynamic balance between its performance capacity and the demands of the environment. Without this biochemical balance, without the body's ability to adapt to stress, training would be pointless. Homeostasis is therefore the basic prerequisite for training.

## 2) Stress

Events that cause a change in the physiological state of an organism are called stress. It is important to understand that stress can arise in many different ways. For example, not only training that is subjectively perceived as strenuous is a stressor, but also other training sessions, a sunburn, an insect bite, poor sleep or sitting/lying down a lot. Stress disturbs the homeostasis (state of equilibrium), i.e. the normal physiological conditions that prevail in the organism.

## 3) Recovery

This is perhaps the most important step in the adaptation process. To ensure its survival and create a buffer for the next stressor, the body uses recovery as a measure to restore the state it was in before the stressful stimulus and even expand it a little to be better prepared for the next one.

## 4) Adaptation

All of the body's systems are geared towards daily recurring stress. This adaptation to stress can be seen as a clever strategy of the organism. It attempts to survive in an environment in which living organisms are exposed to a variety of changing influences. The ability to adapt to stress is therefore an essential characteristic of all life. We use the term antifragility, coined by Nassim Nicholas Taleb, to describe this.



## Biopositive training adaptations

The body is therefore able to adapt to changing conditions or stresses. All systems in the body react to certain training. Here are a few examples:

- The cardiovascular system is improved (the heart becomes stronger and larger, can transport more blood and thus better supply the muscles with nutrients and oxygen, the resting heart rate decreases, blood pressure and cholesterol levels become positive, the risk of heart attack decreases, etc.),
- the nerve-muscle system is improved (the muscle gains strength without gaining mass or can simply work faster),
- the respiratory system becomes more efficient (more oxygen can be transported to the muscles),
- the blood volume changes,
- Ligaments, tendons and bones become stronger and do not tear or break as quickly,
- Cartilage tissue becomes thicker and therefore more resilient,
- muscles gain mass (bodybuilding),
- the skin becomes firmer (cornea),
- the immune system is improved (you are less ill),
- the hormone situation changes and more enzymes are produced, which makes metabolic processes more effective (e.g. losing weight).

The muscles are only strong enough to cope with a normal day, the cardiovascular system is only as efficient as it is required to be day after day. The heart of a computer geek who sits in front of a screen for 12 - 14 hours a day will certainly be weaker than the heart of someone who is very physically active in their job. A carpenter will have better trained muscles than a telephone operator. Everyone has the opportunity to manipulate and train their body. If we all suddenly only walked barefoot, a thick callus would develop very quickly to protect the body from this unaccustomed strain. When we wear shoes again, the skin will change, it will become softer again because it no longer has to protect the foot.

These positive changes in the body should be achieved through optimal training. This is called biopositive training adaptations. However, if you train incorrectly, i.e. too light/hard or too little/frequently, this can lead to bionegative adaptations. This means that the above-mentioned systems and structures atrophy or become overloaded (tendonitis, muscle injuries, significant increase in resting heart rate, skin tears, joint complaints, periostitis, etc.).

Successful training consists of disrupting homeostasis in such a way that biopositive adaptations become apparent. This means that the body systems change positively without harming the person in any way. It should be noted that the individual structures take different lengths of time to adapt. The passive musculoskeletal system (ligaments, tendons, bones, cartilage) takes around 3 months to respond to training, while the active BWA (the skeletal muscles) shows the first microscopic changes after just 3 weeks. This is important in order to know how to progress with training volume and intensity.



# Terminology

As in any other field and in training in general, there are different terms to communicate clearly. In order to communicate in a standardised and clear language and to find your way around our training, it is important that you know some of the most important training terms. We would like to briefly describe these below. Over time you will come across more terms & concepts, but we don't want to give too much (now unnecessary) information at once.

**Bilateral & Unilateral** - Bilateral stands for bilateral and means a movement that is performed with both arms or legs. Unilateral, on the other hand, means that only one side of the body is trained during a repetition. A one-legged squat variation is an example of a unilateral exercise.

**Contralateral & Ipsilateral** - In anatomy, we speak of contralateral when a body part is on the other side of our 'reference object', the torso. For example, if the left foot and right arm are in front of the body, this is a contralateral position/movement. Ipsilateral, on the other hand, means that they are on the same side of the body. So if the left foot and left arm are in front of the body, this is an ipsilateral position/movement.

**Range of Motion (RoM)** - The RoM describes the extent of a movement. The maximum RoM describes the maximum possible range of a joint.

**Concentric, Eccentric, Isometric** - These terms describe the direction of a movement and how the muscles work. In the concentric phase, you move against gravity (in the opposite direction that gravity wants to pull you): You overcome resistance. In the eccentric phase, you yield to gravity in a controlled manner (you move with it in the direction in which gravity wants to pull you); you counteract the resistance. Isometric means that you assume a position at a certain point within a certain frame; you maintain resistance against gravity.

**Repetition (rep or r)** - In training, repetitions determine the number of times a movement is performed. As described above, each exercise has certain RoM standards that clearly define a start and an end point of the movement. Traversing the entire range between these points is a repetition (r). In a unilateral movement, we speak of repetitions per side (r/s).

**Seconds (secs or s)** - If the respective exercise is not a movement but a (static) position to be held, there is no repetition. The measurement is then made in seconds (s), which describe how long the position is held. If we have to hold a one-sided position, we speak of seconds per side (s/s).

**Time under Tension (TuT)** - In training, TuT describes the duration of the load. It results from the speed of execution and the number of repetitions or the time in which a position is held. Different physiological adaptation reactions occur depending on the TuT. The TuT is important for the total volume of a training session and for the specific adaptations.

**Tempo** - The tempo is set to force certain adaptations or to work on weak points. An additional tempo for each repetition can therefore manipulate the TuT and thus influence the training effect. The tempo is always given as TXXXX. The first number stands for the eccentric phase, the second number for the pause at the lower point, the third number for the concentric phase and the fourth number for the pause at the upper point. The tempo is crucial during training, so make sure you keep to it. If no tempo is specified, always stick to the basic rule of performing the eccentric phase slower than the concentric phase.

**Sets** - They indicate how many rounds of an exercise or exercise combination(s) are performed. Each set usually contains a certain number of repetitions or seconds at a certain tempo, resulting in a total TUT.

**Plateau** - A plateau is a point in your process where you do not make progress over a longer period of time, but stagnate.

**Super set** - Agonist superset means that after performing an exercise, you immediately perform another exercise for the same body part/muscle of exercise 1. Antagonist superset means that after performing an exercise, you immediately perform an exercise for the antagonist of exercise 1. We usually do a superset without a break between exercises, but only with a rest period afterwards. However, sometimes - if a superset consists of more than two exercises, for example - we also take a break between the exercises. This is always described as follows: XY rest between sets = no rest between exercises or XY rest between exercises (or specifically A2 and A3, for example) = rest between exercises in a superset. The advantages of supersets are the time saved by shortening the rest periods between exercises, the possibility of overloading a muscle and the increased aerobic demand.

**Mechanical Advantage Set (MAS)** - A good way to overcome a plateau. With a Mechanical Advantage Set you can increase the intensity without putting too much strain on yourself and thus manipulate your organism. The key is simply to make the eccentric phase of a particular movement harder than the concentric phase. This can be done in one movement or in several movements.

Example 1: You are working on a full push-up. Let's assume you can't do a full push-up yet, but you can already perform the eccentric phase quite well and easily. Then you could use a MAS and perform the eccentric in a full PU position and go down on your knees for the concentric. This allows you to manipulate the intensity during a repetition.

Example 2: You are working on increasing your push-up capacity with the push-up as your exercise. You can already do two sets of 3 full push-ups, but then you get tired. At this point you are at a plateau, you can no longer make progress. Instead of filling the remaining sets with a full regression of the exercise, you could perform the remaining sets with a full eccentric push-up, a short isometric pause at the end and a reduced concentric movement (e.g. knees on the floor). Remember this so that you are prepared if you reach a plateau and can't progress any further in an exercise.

**Cluster sets** - Another way to overcome plateaus. Cluster sets allow you to focus on increasing volume without putting undue stress on the central nervous system. When you work with the cluster set scheme, you don't do all the set repetitions per set in one go (as we normally do), but split the set up and accumulate the set repetitions with short rests, usually between 10 and 30 seconds, in between. Imagine you can do 3 pull-ups for 3 sets, but you can't get any further. With a cluster we can increase the reps per set, for example to 4r, but instead of doing 3r in a row, you then do 2r, 30s rest, 2r to finish the set. At the end of the session you will have done 3 more reps in total, increasing the overall volume of the session. Then you can start by reducing the rest time between sets to 10s. Then you can work on a new set, for example 3 repetitions, 30 seconds rest, 1 repetition - and so on. Remember this so that you are prepared if you reach a plateau and can no longer progress in an exercise.

**Deload** - Through constant training you can reach a temporary limit (plateau). To avoid this as much as possible, we use deload days or weeks. A deload involves a reduction in your training. This can be in terms of both intensity and volume.

**Intensity** - The intensity is the difficulty in relation to the respective maximum load/complexity of the work. The 'training intensity' or 'intensity' describes how intense the training, the set or a repetition is. However, this does not mean how hard it feels (subjective perception), but the intensity in relation to the repetition maximum (1-RM). The intensity is so crucial because it determines the recruitment of the muscle fibres. At high intensities (around 80% of your 1-RM, i.e. 5-8 repetitions), all available muscle fibres are activated from the first repetition. This means that all fibres receive the full training stimulus from the first repetition. This is important because only activated fibres are trained and thus stimulate hypertrophy.

**Volume** - The volume is the amount of work you do. The volume includes the variables repetition, set and training weight and indicates the extent of the training. There are different ways to calculate the volume. It can be calculated with or without a weight variable:

- (a) number of sets x number of repetitions x weight
- b) Number of sets x number of repetitions

**Frequency** - The frequency indicates how often per week/cycle you repeat the work. That is, how often you train per day, per week or per phase. Often refers to a specific muscle group or a general training task.

**1-Rep Maximum (1-RM)** - Describes the maximum intensity for one repetition. The 1-RM is used in strength training to indicate the maximum force for an exercise. It describes how much weight a person can move for exactly one repetition. The intensity of a training session always refers to the 1-RM or the M-RM and not to the subjective feeling of intensity. The 1-RM is only tested before a new phase and not during it.

**Multiple-Repetition Maximum (M-RM)** - M-RM is the maximum number of repetitions you can perform at a certain intensity, or the maximum intensity you can perform at a certain repetition pattern (for example 5-RM). Otherwise, see 1-RM.

**Relative intensity** - Never confuse an effective workout with a particularly hard workout. Hard is subjective here and not always what we want. Many people believe that if it feels hard and strenuous, it must also be effective. That's rubbish. At this point, we would like to take a small step back. Charlie Francis is considered one of the legends of athletics. His athletes have won a huge number of Olympic gold medals. Francis was guided by an interesting principle: Athletes should never exhaust their adaptability. The training stimulus should trigger an adaptation, but not the absolute maximum. This meant that his athletes never burnt out and had the opportunity to constantly develop. The relative intensity refers to the 1-RM. Imagine you manage a maximum of 200kg in the squat for one repetition (1-RM). Then you can only do an average of 87% of this for 5 repetitions, i.e.  $200\text{kg} \times 0.87 = 174\text{kg}$ . However, since we don't always want to go to the maximum in every set in a training programme, there is the 'relative intensity' (better: load). So let's assume that you shouldn't go to the extreme (you can't lift as much in several sets as you can in one set anyway), but should only lift 80% of the load you can actually lift. With five repetitions, the relative intensity is normally 87% of the 1RM. In regular training, however, I want to work a little lighter and not at maximum intensity, so you take 80% of 87% (=5RM). This means  $0.8 * 0.87 = 0.696$ . So round up 70% of 200kg for the 5 repetitions. Instead of the 174kg you could do in a complete set, that's 140kg.

**Rate of Perceived Exertion (RPE)** - It is a tool that allows you to subjectively measure the intensity of any set of your workout. You will learn more about it in the future.

**Microcycle** - means training planning from a few days to one phase. A microcycle is a short period in which you repeat the same units every week. It usually lasts 4-8 weeks. Each week must be scheduled so that you can fit in enough quality work, recover well and, of course, live your life.

**Mesocycle** - means training planning in the range of weeks to several months/phases. It consists of several microcycles.

**Macrocycle** - means the longer-term planning of training, up to years. A macrocycle is a period of time in which you have a certain number of structured mesocycles, which in turn contain a certain number of microcycles. It is important to ensure that these microcycles are varied and provide relevant stimuli to which you can adapt. The macrocycle can be divided into annual periods. This means that we would repeat the mesocycles several times in a given year. As you can see, this is incredibly complex.

## AAI & Additional

To conclude this document, we want to make sure that you do not forget the most important science, namely YOUR experience. Information combined with real and deep experience gives you knowledge and brings wisdom. Learn to listen to your body: Observe, be attentive, draw conclusions, observe again, try, listen, try again, repeat, repeat, repeat.

Last but not least, we would like to introduce you to the AAI principle (thanks to Mark Walsh): 'Become aware of your body in every activity, accept how you are, and then choose a clear intention of how you want to be. This can be a good foundation for anything, really!'

**A** = Awareness

- Feel your body

**A** = Acceptance

- Say yes to the way you are before you start to change

**I** = Intention

- How do you want to do something or how do you want to be?

### **ADDITIONAL TIPS**

Light physical training is better than none at all! If you have tension, a slight cold, etc., you should do a little exercise without high intensity. Do things like spinal work, general relaxation work, etc. - Use terms such as physical activity, non-binding physical activity, play or deload training sessions as a guide.

Training should be fun and push you forward. If you have to skip training, that's totally fine - it's part of the training: learn when it's just too much and when you should rest, even if it's not in your training plan.

**Train your body's intuition and intelligence too!**