

Modul 1: Training

About Training

Training is one of four main modules our practice consists of.

This document has been created primarily for you to give a basic overview of what training means in our work, how it is structured and how you can work independently despite our instructions. You will also learn important terms that help us to communicate in a common language.

In combination with your ongoing training phases and the included plans, this document should help you to build up more theoretical understanding besides your practical experience. This theoretical knowledge plays an important role in our philosophy and can open many doors for you in the future. It also should support a critical mind and the possibility to question things.

Since you are at the very beginning and many things might be totally new to you: don't stress yourself! Do not read the document and never look at it again. Read it, take notes, ask questions, read it again and if there is anything unclear, consult it for help or add to it for you over time. You will also go deeper into various sub-points of this document in following lectures with us.



About Training - What is it?

TRAINING IS NOT IMMEDIATELY TRAINING - WHAT TRAINING IS NOT

To start with I want to talk about the term „Training“. I know that many people in various disciplines, movement forms or leisure sports use the term without meaning or even doing the same. For us it's important to know what Training means because it directly suggests how we approach it. To better explain what training means/is, it is first important to describe what it is not. I would like to discuss three terms that are also used in our practice, but which should be distinguished from the term Training:

a) **Physical Activity (PA)**

Physical activity is what the American Heart Association (AHA) says you should practice every week. I would even go further and say every day. Anyway, "Physical activity is everything that makes you move your body and burn calories," is a quote from the association's website that clearly states what the AHA considers necessary to maintain good health. Physical activity therefore means everything except sitting and lying still. Things we can mention here are going for a walk, swimming, playing volleyball with friends and so on. Also washing up, doing the laundry or other activities in and around the household can be mentioned as physical activity. As mentioned above, light physical activity should take place frequently every day at best. The characteristics are the **light intensity** and **regenerative effect** this activities have on your body and your mental state.

b) **Non-Binding Physical Activity (N-BPA)**

A non-binding sports activity is a physical activity that is performed because of the effect it produces today - now, at this moment (credit to Mark Rippetoe and Andy Baker). Every activity is performed with the purpose of **creating stress that satisfies the immediate needs** of the person performing it: burning calories, exercising, swelling biceps, stretching - you do a certain number of exercises and then you go home pleasantly exhausted. **Non-committal** physical activity is therefore a physical activity that you do because of the effect that it has on you during or immediately after your workout. You can do your workouts the same way year in, year out as long as they serve their purpose and create the feeling you want to feel today.

c) **Play**

Play can be seen similar to a non-binding physical activity, with the difference that it is not about following a certain goal (like burning calories etc.) but more about enjoying discovering the body and movement possibilities without a concrete plan. This form or concept is very important in a practice, but as the other two it should definitely be distinguished from the concept of training.

Physical activity, non-binding physical activity and play all strive more for the feeling you get in this moment. Training goes **beyond** that.

TRAINING - CHANGE IS POSSIBLE

The basis of Training is the assumption that change is possible. By doing training within a certain practice we change ourselves.

When talking about Training - different to Physical Activity or Non-Binding Physical Activity - it is not about being able to do something. It is about stepping into the stream of change and swimming in it. To start this, to start Training it is important that you are open for and believe in change. Don't hold on to who you think you are or who you were yesterday. The world changes with each breath - and so do you. We train and Training means deliberate change.

Different to PA or N-BPA, where it's about the moment, in Training we always work for something which comes much later. So it's not for the moment. It's not interesting if I'm maximal exhausted and or excited during or after the training. We strive to optimize the expression of our physical by doing more and by using given parameters to measure our improvements and the development curve. We strive to improve our coordinative and conditional abilities as well as skills.

Training is a **target-oriented, planned** and **systematic process** for performance enhancement. The aim of the training is to **change** and **improve** the body and thus its performance.

SYNERGIES - NOTHING EXISTS IN A VACUUM

These changes through training can externally change the appearance (weight loss, muscle growth), they can also manifest themselves in better coordination (more aesthetic movements), mobility or show up in a measurable way (faster times, you can move higher weights etc.). There is the obvious change and the less obvious. What I mean by that is, that if you do for example a Push-Up you will get better in push-ups - obviously. BUT picture the following: If you pull your t-shirt the surrounding parts move with it and as you pull more the whole t-shirt will move. Doing Push-Ups will not only make you better at push-ups. It will also have so called carry-overs. It has transfers. To what exactly we don't know but it ranges from clear carry-over effects on other pushing exercises over general physical ones like strong bones, better glucose processing etc. to psychical, social or spiritual layers. This is because all we do in life has effects on each other. Nothing is working alone. Synergies - actions that mutually support one another - are arising. When training you will notice this over time: Things will arise that were not predictable from merely looking at the individual exercise. Thus magical moments can occur where we find that we can, suddenly, do something we haven't trained directly at all. Since we train in a wide array of ways, these kinds of synergetic effects happen regularly to us.

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

Training in this context is understood as a physical activity that serves to achieve a long-term performance goal. It is therefore more about the **entire process** and less about the individual workouts/sessions that make up this process. And because the process is intended to produce a clearly defined outcome at a given time (regardless of the number and length of the sessions), it must be carefully planned. Training aims 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 occurred. But hey, DON'T RUSH!

Training should be planned short, medium and long term in order to always keep control over the process and to design a training which is thought through and in which one builds on the other. Training is systematic. Training also needs time, expert guidance and commitment to the goal towards which you are training. Important is to understand the fact that every session has value only if it follows the thread that leads to the achievement of the desired goal. This is not to say that the sessions are not fun or that the small steps forward that make a successful session should not give the you satisfaction - after all, this is a feeling that every person strives for. But for the person exercising, 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 engage in non-binding sports activities will never see in its entirety and probably never even know.

The Bigger Picture

The Bigger Picture is an idea which builds on the principle *Nothing Exits In A Vacuum* and which you will dive deeper into with an additional document in your second phase. In short it's about the awareness that training not only consists of the stress stimuli part, so the physical exhaustion. This is only the first part of it. At least the same important, maybe even more, is the recreation or recovery phase you have the hours and days after the physical exhaustion. This means caring about your time after you did the physical part of a training is crucial. Nutrition, environmental influences, temperature stimuli, breathing, sleep, emotions etc. are things you have to take care of if you want to get the most out of your training. In addition physical activity, non-binding 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 it is always based on the concept of stress-recovery-adaptation. Repetitive activities can lead to adaptation. In order to improve performance, it is first necessary to give the body a new, unaccustomed task (= effective training stimulus). The body reacts to this with adaptation (fatigue + recovery = supercompensation). Training always leads to physical fatigue, in the following recovery phase the organism adapts to the stress. This adaptation is a **specific** performance development.

The following goes a bit deeper into the explanation of the physical processes behind training and the adaptation we are looking for.

1) Homeostasis

Homeostasis is described as the biochemical balance of building and decomposition processes within an organism. Every human being has its own homeostasis.

Homeostasis creates a dynamic equilibrium 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 the blood pressure rises or falls too much, the organism takes counter-regulatory measures to maintain homeostasis. With their needs to continuously engage in new learning processes, the human being deliberately breaks the homeostatic state of their physical-soul unity again and again. They enter into an imbalance which is only restored to a harmonious state when the desired goal is reached.

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 equilibrium, without the body's ability to adapt itself to adjust your load, training would be pointless. Homeostasis is therefore the basic prerequisite for the training. It is the most important biological law. As a note, beginners have a weak and unstable homeostasis that is easily disrupted. Advanced practitioner have a high and stable homeostasis.

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 a subjectively perceived exhausting training is stress, but also other workouts, a sunburn, an insect bite, bad sleep or lots of sitting/lying. Stress disrupts homeostasis (state of equilibrium), i.e. the normal physiological conditions that prevail in the organism.

3) Recovery

Maybe the most important step in the process of adaption. In order to ensure its survival and to provide a buffer to cope with the next act of stress, the body uses recovery as a measure to restore the state it was in before the stress and even expand it a bit to be prepared for the next stress stimulus.

4) Adaption

All systems of the body are based on the everyday recurring stress. This adaptation to stress can be considered a clever strategy of the organism. It tries to survive in an environment in which living beings are exposed to a multitude of changing influences. The ability to **adapt** to stress is therefore an essential characteristic of all life. We use the word *antifragil* for it.

The body is able to adapt to changing conditions or loads. All systems in the body react to a specific training. The cardiovascular system will improve (the heart will be stronger and larger, can transport more blood and thus provide the muscles better with nutrients and oxygen, the resting heart rate drops, blood pressure and cholesterol levels become positive, the risk of a heart attack decreases...), the nerve-muscle system can be improved (the muscle gains in strength power, without increasing masses or simply can work faster), the respiratory system can become more efficient (more oxygen can be transported to the muscles), the amount of blood can change, ligaments, tendons and bones become stronger and do not tear or break that fast, cartilage tissue becomes thicker and therefore more resilient, muscles can gain mass (bodybuilding), the skin can become firmer (callus), the immune system is improved (one is less sick), the hormonal situation changes and more enzymes are formed what makes metabolic processes more effective (e.g. losing weight).

The musculature is only as strong that it can cope with a normal day, the cardiovascular system is only as efficient as it is demanded day by day. The heart of a computer freak, who sits daily 12 - 14 hours before their screen will certainly be weaker than the heart of a person who has been mailman who always has to follow their route. A carpenter becomes a more trained musculature than a telephone operator. **Everyone** has the possibility to manipulate and train the body. Would we all suddenly only walk barefoot (what in our community many people do), a thick cornea would very quickly develop to protect the body from this unusual strain. When wearing shoes again the skin will change, it will become softer again, because it doesn't have to protect the foot anymore.

These positive changes in the body should be achieved through optimal training. This is called **biopositive training adaptations**. However, if you train wrongly, i.e. too easy/hard or too little/often, it can lead to bionegative adaptations. This means that the above mentioned systems and structures atrophy or get overloaded (tendon inflammations, muscle injuries, clear increase in resting heart rate, skin cracks, joint complaints, periostitis etc.).

Successful training consists of disturbing homeostasis in a way that biopositive adaptations show up. 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) needs approx. 3 months to react to the training, the active BWA (the skeletal musculature) shows first microscopic changes already after 3 weeks. This is important to know how to progress with training volume & intensity.

Terminology

As in any other field and in training in general, there are different terms to speak clearly about the topic. To read this document and understand it better but also use it later for your training with us it is important that you get to know some of the most important terms. I would like to describe the most important ones briefly. In the course of time you will probably come across more, but I don't want to give too much (now unnecessary) information at once. How to read your training plan exactly is described in the plan itself.

- **Bilateral & Unilateral** - Bilateral stands for two-sided and means a movement performed on with both arms or legs. Unilateral on the other hand means that only one side of your body is trained during a repetition. A single leg Squat variation is an example for a unilateral exercise.
- **Contralateral & Ipsilateral** - In anatomy we talk about contralateral when a body parts are on the other side of our reference „object“ the torso. For example, when the left foot and the right arm are in front of the body it is a contralateral position/movement. Ipsilateral on the other hand means on the same side of the body. So if the left foot and the left arm are in front of the body it is a ipsilateral position/movement.
- **Range of Motion (RoM)** - the RoM describes the extent of a movement. The maximum RoM describes the maximum possible circumference of a joint.
- **Concentric, Eccentric, Isometric** - These terms describe the direction of a movement and how the muscles work. The concentric phase is when you go against gravity (in the opposite direction that gravity wants to pull you in): you overcome resistance. The eccentric phase is when you yield gravity in a controlled way (go with it in the direction gravity wants to pull you); you counteract resistance. Isometric means that a position is held at a specific point within a specific RoM; you hold resistance against gravity.
- **Repetition (rep or r)** - In training repetitions determine the number of times a movement is performed. Each exercise has certain RoM standards, as described above, which clearly define a start and end point of the movement. Going through the entire space between these points is a repetition (r). When we have a unilateral movement we talk about reps per side (r/s).
- **Seconds (secs or s)** - If the respective exercise is not a movement but a position to be held (static), there is no repetition. The measurement is then measured in seconds (s), which describe how long the position is held. When we have a unilateral position to hold we talk about seconds per side (s/s).

- **Time under Tension (TuT)** - In training, the TuT describes the duration of the load. It results from the speed of execution and the number of repetitions or the time a position is hold. Depending on the TuT, different physiological adaptation reactions occur. TuT is important for the total volume of a training session and for the specific adaptations.
- **Tempo** - The tempo is set in order to force certain adaptations or work on weak points. An additional tempo for each repetition can thus manipulate the TuT and thus influence the training effect. The tempo is always marked as TXXXX. The first number stands for the eccentric phase, the second number for the pause at the bottom point, the third number for the concentric phase and the fourth number for the pause at the top point. The tempo is crucial in training, make sure to follow it. When no tempo is given always follow the basic rule of performing the eccentric slower than the concentric.
- **Sets** - They specify how many rounds of an exercise or exercise combination(s) are done. Each set usually contains a certain number of repetitions or seconds with a specific tempo resulting in a total TuT.
- **Plateau** - A plateau is a point in your process at which, over a longer period of time, you do not progress but stagnate.
- **Super Set - Agonist** superset means that you, after performing an exercise, immediately perform another exercise for the same bodypart/muscle of exercise 1. **Antagonistic** superset means that you, after performing an exercise, immediately perform an exercise for the antagonist of exercise 1. Mostly we do a super set without rest between the exercises but only a resting time after. Anyway, sometimes - if for example a super set has more than two exercises - we also rest between the exercises. This will always be described as follows: XY rest between sets = no rest between exercises or XY rest between exercises (or specific A2 and A3 for example) = rest between exercises of a super set.
The benefits of supersets are that they save time by reducing the rest interval between exercises, allow overloading a muscle as well as an increased aerobic demand.
- **Mechanical Advantage Set (MAS)** - A great way to overcome a plateau. With a mechanical advantage set you can increase intensity without adding too much stress at one time and therefore manipulate your organism. The cue is to simply make the eccentric phase of a given movement harder than its concentric. This can be done in one set or over more sets.
Example 1: You're working on a full Push-Up. Let's assume that you can not do a full Push-Up yet but you already can do the eccentric quite good and easy. Then you could use a MAS and do the eccentric in a full PU-position and for the concentric you go on your knees. So you manipulate the intensity during a rep.
Example 2: You're working on increasing your pushing capacity using the Push-Up as the tool. You already can do two sets of 3r full Push-Ups but then you get tired. At this point you find yourself on a plateau, you can not progress anymore. Instead of filling the rest of the sets with a full regression of the exercise, you could do the rest of the sets with a full Push-Up

eccentric, a short isometric at the bottom and a decreased concentric (knees on floor for example). Remember this one to be prepared if you reach a plateau and cannot progress further in an exercise.

- **Cluster Sets** - Another way to overcome plateaus. With cluster sets you can focus on increasing volume without unduly affecting the central nervous system. When you work with the cluster set scheme you do not do all given reps per set in one go (as we usually do) but split the set and accumulate the given reps with short pauses, mostly between 10 and 30s, between. Imagine you can do 3r of Chin-Ups for 3 sets but you're stuck there. With a cluster we can increase the reps per set for example up 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 did 3 more reps in total and therefore increased the total volume of the session. Then you can first reduce the resting time in-between a cluster down to 10s. After that you can work on a new cluster, for example 3r, 30s rest, 1r - and so on. Remember this one to be prepared if you reach a plateau and cannot progress further in an exercise.
- **Deload** - Through constant training you may reach a temporary limit (plateau). To avoid this as much as possible we use deload days or weeks. A deload provides for a reduction of your training. This can be done both in intensity and volume. The basic principle is to deload every third training session - only do 50% of the total volume of each exercise; intensity stays the same. In addition you can do a full deload week at the end of a phase.
- **Intensity** - Intensity is the difficulty, related to the relevant max load/complexity of the work. The "training intensity" or "intensity" describes how intense the training, the set or a repetition is. However, we do not mean how hard it felt (subjective sensation), but we do mean the intensity relative to the repetition maximum (1RM). The intensity is so crucial because it determines muscle fiber recruitment. At high intensities (around 80% of your 1RM, i.e. 5-8 repetitions), all available muscle fibers are activated from the first repetition. This means that all fibers have the full training stimulus from the first repetition. This is important because only activated fibers are trained and thus stimulate hypertrophy.
- **Volume** - Volume is the amount of work you do. The volume includes the variables repetition, set, and training weight, and indicates the scope of the training. There are different ways to calculate the volume. It can be calculated with or without weight variable:
 - a) Number of sets x number of repetitions x weight
 - b) Number of sets x number of repetitions
- **Frequency** - Frequency is the amount of times per week/cycle you repeat the work. This means how often you train per day, per week or per phase. Often related to a specific muscle group or general training task.
- **1-Rep Maximum (1-RM)** - It describes the maximum intensity for one repetition. The 1-RM is used in resistance training to indicate the maximum strength in 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 amount of repetitions you can do at a given intensity or the max. intensity you can do for a given rep-scheme (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, to repeat myself, that is not what we are after. For many, the belief is that if it feels hard and exhausting, it has to be effective. This is bullshit. At this point I would like to take a little step back. Charlie Francis is considered one of the legends in athletics. His athletes have won enormous amounts of Olympic gold medals. Francis was guided by an interesting principle: the athlete should never exhaust his adaptability. The training stimulus should trigger an adaptation, but not the absolute maximum. So his athletes never burned out and had the opportunity for permanent development. The relative intensity refers to the 1-RM. Imagine you can manage a maximum of 200kg in a Squat for one repetition (1-RM). Then with 5 repetitions you can only manage 87% of that on average, so $200\text{kg} \times 0.87 = 174\text{kg}$. However, since we don't always want to go to the maximum in every set in a training program, there is "relative intensity" (better: load). So let's assume that you shouldn't go all-out (you can't take as much in several sets as in one set anyway), but should only take 80% of the load that you could actually do. At five reps the relative intensity is usually about 87% of the 1RM. But in regular training I want to work a bit lighter and not at maximum, so you take 80% of 87% (=5RM). That means $0.8 * 0.87 = 0.696$. So round up 70% of 200kg for the 5 repetitions. Instead of the 174kg that you could actually do in an all-out set, this will be 140kg.
- **Rate of Perceived Exertion (RPE)** - It is a tool to measure the intensity of any set in your training subjectively. You will learn more about it in the future.
- **Microcycle** - means the training planning of a few days up to one phase. A microcycle is a short period of time, where you repeat the same sessions each week. Usually this will last 4-8 weeks. Each week will need to be ordered so that you can fit in enough quality work, rest/recover well, and of course live your life.
- **Mesocycle** - means the training planning in the range of weeks up to several months/phases. It consists of multiple microcycles.
- **Macrocycle** - means the longer-term planning of the training up to years. A Macrocycle is a period of time in which you have a given number of structured Mesocycles, which in turn have a given number of Microcycles within. It is important to make sure that these microcycles are varied and produce relevant stimuli to adapt to. The Macrocycle may be split into yearly periods. Which means we would repeat the Mesocycles multiple times in a given year. As you can see, it's incredibly complex.

The End

To finish this document, I'll make sure that you don't forget about the most important science, YOUR **experience**. Only information is not knowledge. Information combined with real and deep experience gives you knowledge and brings wisdom.

Learn to listen to your body: Observe, be aware, make conclusions, observe again, try things out, listen, try again, repeat, repeat, repeat.

As a last thing I would like to introduce you the AAI principle (credits to Mark Walsh): „During any activity, become aware of your body, accept how you are, and then pick a clear intention for how to be. This can enhance or create a good foundation for anything, really!“.

A = Awareness - feel your body

A = Acceptance - say yes to how you are, before you start to change

I = Intention - how do you want to execute something or more deep how would you like to be?

ADDITIONAL NOTES

It's better to do an easy physical training than none at all! In case of tensions, light colds etc., please exercise a little without high intensities. Do things like spine work, general softening work etc. - orientate yourself on concepts as physical activity, non-binding physical activity, play or deload training sessions.

The training should be fun and help you to progress. If you have to skip the training, that's absolutely okay - it's part of the training: learn when it's just too much and when you should rest even though it's not on the menu in your training plan.

Train your body **intuition** and **intelligence** as well!