



BODY AND MIND WORK IN SPORTS TRAINING

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Bachelor Thesis





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BODY AND MIND WORK IN SPORTS TRAINING

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I do hereby attest that I am the sole author of this thesis and that its contents are only the result of the readings and research I have done.

A handwritten signature in blue ink that reads "Benjamin Scharf". The signature is written in a cursive style with a large, sweeping flourish at the end.

Benjamin Scharf

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I would like to say thanks to all my friends and family, who believed and supported me and giving energy to set up my foundations for my dreams. Special thanks to all the employees of Selinus University for allowing me to be a part of them.

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ABSTRACT

This thesis has been created to give the readers a better understanding of how body & mind work can be trained in sports, by dealing with the current concepts what are available on the market for mental training, by emphasizing on those, who are delivering the whole package of body and mind exercises to optimize the awareness of controlled thinking and to reduce inner inhibitions. It is about achieving a natural state of body control through purposeful exercising, breathing work that refers to both modern western techniques and ancient eastern techniques such as pranayama and meditation.

This paper focuses on the current situation in the sports industry and explains why Yoga is a major tool to achieve a total body awareness and to deliver the best benefits by special/certain combinations.

Chapter 1. Introduction

1.2 Introduction to the topic

The author of this thesis has been working for more than 5 years in teaching different types of sports, such as Thai boxing, Free-running, Tricking, Yoga and Acrobatics. Moreover, as a massage therapist, the body is giving a closer look at how the training is affecting the whole system. What do athletes need to thrive in their best versions?

A lot of people are into sports these days, whether they engage in sports themselves for well-being, or for a competition to gain respect and recognition. Our society loves sports. Most of the time we try to understand how our favorite sports work by looking only at the skeletal output of the brain, such as physical movement. What we fail to understand or realize is the connection between the mind and the body when it comes to sports.

Sports are more than just the physical body. When you are involved in sports, you do not only condition your body, you also have to condition your mind. The mind and bodywork hand in hand. There is still a lot to be discovered about training, however an essential key finding is that the athletic performance of a person depends on his or her mental state. Whatever goes on in your brain has a big impact on your physical performance and your physical performance also affects your brain. A sport scientist Gebauer puts in:” The mental health is a major resource for athletes concerning their performance and development.” (Sports Journal, 2017)

1.2 The aim of the thesis

The thesis aims to inform the readers about the body and mind work. What concepts are available on the market?

Firstly, to start with all we need to know, why is it important to condition your body and mind? A typical answer is, if you work out, you always train your mind simultaneously. There is nothing against that statement, but what would happen if you are exercising in different moods? We would see a fluctuation in the performance. This paper intends to figure out how to be on a consistent perfect mind setup for sports to make it as beneficial

as possible. A complete guidance is delivering us yoga as a tool to improve the physical and mental condition for sports.

By improving means adding the final help to make your mental training more efficient,

Most scientists agree with the statement that stretching has more benefits than disadvantages. Besides that, stretching is a huge term, it has to be divided into types and varieties. Yoga is not only about flexibility, it combines static stretching with dynamic, moving stretches, breathwork, meditation as well as balance and strength. This thesis focuses on the bridge to other disciplines and shows up techniques on, how the training should be set up to bring up the maximal potential of the body.

1.3 Explanation of the main vocabulary

Firstly, we have already heard about flexibility. The simplest way is to explain flexibility as a range of motion, it describes the range.

For others, flexibility also implies freedom to move, the ability to engage parts of the body in a wide range of purposeful movements at the required speed, the total achievable excursion of a body part through its potential ROM, normal joint and soft-tissue ROM in response to active or passive stretch and the ability to move a joint smoothly through its complete ROM. (Alter, p3, 2004)

Definitions/Explanation of stretching is given by Alter:

“Dynamic stretching can be described as bobbing, bouncing rebounding and rhythmic motion. Using movement to stretch the muscle”. (Alter, p157, 2004)

“Static stretching convolves a position that is held for a while and that maybe not repeated. Static stretch may be either the result of a static muscle contraction or assisted by gravity, a partner”. (Alter, p 159, 2004)

Active stretching means, the individual uses only the power that the agonist muscle can create to stretch the antagonist passive. The motion is limited by internal coordination. In exercising passive stretching the individual does not contribute to generate the

stretching force without active contraction. The motion is performed by an outside tool, which may be either a partner or special equipment.

Bandhas are related to the English word “bonding”. We bond a breath, movement, and awareness together. We are engaging specific muscles to reach a more beneficial stretch, normally after an exhalation.

- Mula Bandha translated as “root lock”. The root referred to here is the root of the spine, the pelvic floor or, the center of the pelvic floor, the perineum. “By slightly contracting the pub coccygeal muscle, which goes from the public bone to the tailbone, we create an energetic seal that locks prana into the body so prevents it from leaking out the base of the spine. “(Mahle 2006, p11)
- Uddiyana Bandha is activated by sucking the entire abdominal content up into the thoracic cavity. The transverses abdominal muscle is engaged. “To successfully switch on Uddiyana Bandha, it is important to isolate the upper transverse abdominal muscle from the lower part and use only the part below the navel.” (Mahle 2006, p12)
- Jalandhara Bandha is translated as a throat lock. It is the easiest lock to work on by pressing the chin against the chest. This technique is the only one you can use after inhale or exhale.

Asanas Sanskrit word for body poses.

Bhagavadgita is an ancient Indian text in the Hinduism culture, which contains the key topics of the intellectual and spiritual tradition.

Mudras are performed with hands and are symbolic gestures. It helps facilitate the flow of energy in the body.

Chapter 2 Related works

René Descartes was one of the firsts, who was addressing the problem of body and mind relationship in the 17th century. The question is about the connection between thought and consciousness in the human mind. It is another question apart from how mind and body function chemically and physiologically. The question arises when it comes to the higher understanding of mind-body relations. (Skirry, Justin, 2016) Since that time many new scientists such as Robert J. Schinkel, Natalia B. Stambulova b, Gangyan Sic and Zella Moore have been researching and dealing with those questions. Firstly, we need to understand what is the base for mental training the engine of your mental strength and what concepts are currently on the market.

2.1 Study about grit

The Science of Developing Mental Toughness in Sports

What is the difference between athletes who are training in the same team, but achieve different results concerning physical and mental perseverance? Why talents and intelligence doesn't play as a big role as you might think. The research of a study found out that intelligence only accounts for 30% of your achievement. Furthermore, it is already at the extreme upper end. What is the essence if not talent or intelligence? The scientist discovers that your mental toughness plays a big part in anything else concerning the achievement of goals. We are not only characterized by our genes because mental toughness is a skill that can be developed.

The study had been done with the united states military. To attend the military academy the applicants, have to complete a series of brutal tests. The program is ~~literally~~ known as "Beast Barracks". Each year, approximately 1,300 athletes are attending the entering class at the United States Military Academy, West Point.

The test is characterized by going on the physical, emotional and mental limits. Successfully people might think that they need to be bigger, stronger or more intelligent than their peers, but the leader of the study found something different. After observing

the participants, Angela Duckworth postulated that specifically mental toughness, endurance and passion impact constitute the ability to achieve goals. 2,441 athletes were tracked across two entering classes. The scientist recorded their high school rank, such as SAT scores, Leadership Potential Score, Physical Aptitude Exam and Grit Scale, which is measuring the passion go long term goals. She found out that on the one hand, it was not strength, on the other hand it was not leadership potential, that was essential to finish Beast Barracks. As a consequence of her research the mental toughness, endurance and passion to achieve long term goals made the difference.

Also, the applicants who had listed one standard deviation higher on the Grit Scale were significant 60% more likely to finish Beast Barracks than their colleagues. Talent, their genetics, or intelligence did not play the biggest role. The prediction felt significant on their mental toughness to be successful for the test. (Duckworth, 2007)

In other words, talent is overrated, so what makes finally someone mentally tough? The key is that mentally tough athletes are more consistent than others. They don't miss workouts. They don't miss assignments. The good news is that grit and perseverance can become your defining traits, regardless of the talent you were born with or without, as well as you could become more consistent. Everyone can develop superhuman levels of mental toughness. It is the brick that is forming the base of
Mental training.

The opportunity to have success to an immense content according to physical training methods let sporty people easy improve in the physical body, but the world for mental training is hardly developed compared to the physical training, nearly everybody can tell you what exercises you can do to train your body. When we put the question in the room of how you train your mind hardly anyone can put in a satisfying answer. Moreover, even the universal guru google is not showing you instantly reliable information. Some research is showing what reliable pieces of training are currently available in the next chapters.

2.2 Integrative Body-Mind Training

Yi Yuan-Tang reinvented a method called Integrative Body-Mind Training. This method originates from ancient Eastern tradition in the 1990s. A group of scientists has been studying the effects since the year 1995. The research was done from a big number of adults and children ranging from 4 to 90 years old in China. Usually the technique was adapted from Chinese medicine. Integrative Body-Mind training showed an improvement in self-regulation and attention. The techniques use mental imagery, body relaxation a mindfulness training by specific background music. To get on the desired state, the trainer uses an initial mind setting and a period of instructions. The effects are a cognitive and emotional set to benefit the training. The goal is to have a higher awareness of the body through breathing and external instructions. The method tries to control thoughts without stress by emphasizing on a gradual through relaxation, body posture and coaching. The harmony in these two systems of body and mind need to be in balance without any internal struggle due to trying to control thoughts. The physical body plays a role, because it is reflecting the mind, hence if the body is not healthy the mind is not healthy. Nevertheless, the method is not common in the European sports world, but in Asia many athletes are using the technique for well-being and preparation. (Yuan Tang, 2011)

Yuan Tang describes in his paper that there are three different levels for the training

- 1) Body-mind health

Technique involves body relaxation

- 2) Body-mind balance

The guider uses mental imagery about yourself and your body

- 3) Body-mind purifications

For purification, the guide focuses on mindfulness bringing awareness to that part what he was describing in the previous step

Benefits of Integrative Body-Mind Training

The most interesting benefit of the method is that it induces neuroplasticity in self-regulation networks in the brain. The participants became more resilient to negative emotional responses and a significant decrease of the following symptoms.

- Negative emotional response
- anxiety
- Depression
- Anger
- Fatigue

(Yuan Tang, 2011)

The usage for Sports was mentioned Aidan Moran, who puts in “The integrative body-mind training can improve an athlete’s executive attention” (Aiden, 2017, p 231)

In his paper was dealing with critical Sporty Psychology and he was enhancing the statement that the integrative body-mind training is a suitable solution for athletes to improve their performance.

2.3 Autogenic training

Autogenic training is a relaxation method that is widespread in Germany. It was not generally recommended for sporty people, but it is getting more famous in the European sports world.

The autogenic training was developed in 1932 by the German doctor Johannes Heinrich Schultz (1884-1970). The latter had long worked on hypnosis and knew the effects of suggestions. Schultz’s goal was to put himself in a state of relaxation through self-influence. Autogenic training is mainly used for many mental and psychosomatic disorders, but on the other hand, it was well-recognized in mental preparation for athletes.

The Principle of autogenic training is working as a form of self-hypnosis that results in the physical, vegetative functions (such as circulation, pulse rate, breathing) being switched to a state of rest. The relaxed state is not achieved indirectly, but through an

arbitrary process, the conscious tensing of the muscles. Rather, one comes to rest here directly through mental concentration. (Schultz, 1965)

The implementations of the technique are:

- Firstly, deliberately reach hibernation. The practitioner should let himself fall completely during these exercises and get the feeling that nothing can disturb him.
- The hard exercise is the body should consciously be brought into a state of gravity through concentration. Typical ideas are for example the legs are very heavy.
- The heat exercise gives the body a feeling of deliberate warming of the limbs with the resultant improved blood circulation.
- A conscious state of relaxation is achieved through controlled inhalation and exhalation. Statements like: "Breathing is very calm" are deliberately implied.
- The fifth exercise relates to influencing the heartbeat. The practitioner consciously tries to perceive the heartbeat.
- During exercise 6, the practitioner tries to focus on the solar plexus (middle of the body).
- In the last exercise, the entire concentration is deliberately directed onto the head. The goal is to imagine a cool forehead.

The benefits of autogenic training

Schultz found out that the main benefits are:

- Helpful for chronic pain, headache, digestion problems
- Tolerance for stress

(Schultz, 1965)

2.4 Affirmations

Gledhill describes: "An Affirmation is a positive statement that is designed to confirm goal achievement. It is often used alongside other forms of arousal-increasing techniques such as imagery or acting energized to increase arousal levels. "(Gledhill,

2007, p.316) Affirmations are used in all teams and single sports. Typical phrases are formulated personal like:

- I am confident to achieve the best result.
- I am prepared for the following task.
- My team is going to win the game.

Setting up and review them regularly. Practicing and believing in it has a big impact on your outcome. In a sense of a self-fulfilling prophecy for many athletes it is the golden rule to win a game, because the mindset could determine who has more endurance and spirit to succeed.

2.5 Acting energized

The sports rituals that are occurring for example after a soccer player made a goal when all players touch fists or hug each other that even the bystanders could feel the energy that is in that atmosphere. These interactions are kind of a technique known as acting energized. The trainer is guiding the athletes to feel cohesiveness. To understand those actions, we have to know the characteristics, which usually involve the combination of quick and forceful movements, strong emotional releases and positive thinking. If the energy in the group is strong it will increase the performance in several ways.

The benefits of acting energized are heighten concentration levels, reprioritize goal achievement, increase motivation levels and support the athlete to be more excited about the competition. Gledhill puts in “In an elite sport setting, the use of this type of body language can also increase arousal levels in athletes. It increases the arousal levels of the crowd, which further benefits the athlete.” (Gledhill, 2007, p 316)

Chapter 3. Yoga

3.1 Philosophy

Yoga means Union. This Union can be understood at different levels: Philosophically, like that of the relative, limited self with the absolute self. Psychologically, as the integration of the personality - a state where a person no longer lives a cross- purposes with himself. Emotionally, as the stilling of waves of the mind, that creates our thoughts and with that create our ego and suffering. Patanjali explained that “Yoga will help to reduce that ego in order to bring back our pure self that is peace, love, and happiness.” (Satchidanada, p112,1987)

In Patanjali's Yoga Sutra, the eightfold path is called ashtanga, which literally means "eight limbs" (ashta=eight, anga=limb). These eight steps act as guidelines on how to live a meaningful and purposeful life. They serve as a prescription for moral and ethical conduct and self-discipline; they direct attention toward one's health, and they help us to acknowledge the spiritual aspects of our nature.

1. Yama (ethical living)
2. Niyama (healthy living)
3. Asana (the meditative sitting posture, or the more physical yoga poses)
4. Pranayama (awareness of one's breath)
5. Pratyahara (withdrawing one's mind from the senses)
6. Dharana (deep concentration)
7. Dhyana (deep meditation)
8. Samadhi (enlightenment)

Another Yoga approaching by different gurus:

Yoga is an art, a science a philosophy. It touches the life of man at every level, physical, mental and spiritual. It is a practical method for making one's life purposeful, useful and noble.

“Yoga alone enables the practitioner to perceive and experience the world within and around himself, to touch the divine joy of creation, and then to share that nectar of divine wealth and happiness with his fellows' beings.” (B.K.S Iyengar, 2020)

“The whole science of Yoga, the whole technology of yoga is about transforming yourself for being just a piece of creation to become a creator.” – (Sadhguru, 2017)

Therefore, Yoga is not a religion, or a philosophical doctrine or mysticism. It is the wisdom of life. Yoga is a method of training the mind and develops its powers of subtle perception to discover the spiritual truths. Yoga is the realization of hidden powers.

3.2 The physical practice: Asanas

Regarding to the eight limbs of Patanjali -*Asanas*, the postures practiced in yoga, comprise the third limb. According to the yogic way of life, the body is identified with a temple of spirit, to reach the stage of spiritual growth we need to care about it. Through the support to practice asanas, the individual develops the habit of discipline and the ability to concentrate, both of which are necessary for meditation.

Asanas provides more than a physical workout. Performing them right builds character by facing your fears, limitations and challenges that extend the own comfort zone. Yoga practice should include a sense of peace, calmness and psychological equanimity.

Firstly, explaining the basics of the physical practice following criteria have to be considered:

As Lacerda(2015) puts in

- “Engage mula and uddhiyana bandhas.
- Engage the ujjayi breath and maintain deep conscious breathing throughout the yoga session. If your breath is suffering, then back off a bit.

- Keep the chest open and shoulder blades down the back.
- Lengthen the body and limbs on the inhale, deepen the pose on the exhale.
- Avoid jerky and uncontrolled movement during the poses that are based on flexibility.
- Square your hips.
- Don't let your knee go past your ankle when doing any kind of lunge.
- In Plank and the majority of arm balances, the shoulder should be just over the fingertips.
- Even if you are intermediate or advanced, start with the beginner modifications to ensure proper form and get the blood into the target muscle as a warm-up.
- Hold flexibility for a minimum of 30 to 90 seconds.
- Stretch to the edge of comfort and stimulation without straining
- Don't overstretch to the edge of comfort and stimulation without straining.
- Don't overstretch to the point of pain; your muscles will tighten up to protect themselves and your flexibility will decrease. “

Learn about understanding the limits of your body by passionate and conscious practice. We are all experiencing many sensations during physical practice, but the attention is going never inside the body because we fight most of the time with our self. We become the object of our mind. To be able to see yourself as a subject what is in resonance with the body we need to understand what Patanjali is describing in the next limbs, focusing on the awareness to the breath. Using the prana to fulfill the body with life force and reconnection energy, which will be described in the next chapter.

3.3 Pranayama

According to the Yogahastras, amongst the teachings of the ancient teacher, Patanjali, Pranayama occupies the fourth place in the Eight Limbs of Yoga.

The three limbs before that –Yama, Niyama and Asana, together form what we would call the foundation of Yoga for a yoga practitioner. The actual deeper practice starts with Pranayama, allowing the deeper inner transformation to come. Proficiency in Pranayama also allows the next four important stages of the eight limbs of yoga to take

place: Pratyahara, Dharana and Samadhi. Their practice becomes easier, in other words, you could say that effort put in the practice of Pranayama, paves the path for the next four steps. One does not have to continue to put the effort in, but just allow the natural changes to come in.

Pranayama is the conscious awareness of breath. The term Pranayam, that we in English add an 'a' at the end to make it easier to pronounce, comes from two Sanskrit words Prana, which means life force, the total of all energy that is manifested in the universe. It is the total of all the forces in nature. 'Ayam' means expansion. Pranayama can be defined as the expansion of this force thereby expanding of hidden potentialities that lies within us.

The prana, the vital force, flows in our body through the energetic channels, which is the Nadis There are 72000 nadis in our body. From these, the three main and important nadis,

1. Ida nadi that activated from the left side of the nose, influences the moon energy, which is cooling.

2. Pingala nadi, that activated from the right side of the nose, influence from the Sun energy, where the breath is distinctively warm.

3 Sushuma that is located in the middle of the body

This main three nadis meet in seven points in our bodies, those points are the chakras, which are located in the spine. That is why the body posture plays a big role because not having a proper body position leads into energetical locks of the chakras and in scientific language to a scoliotic posture.

The techniques involve slow, fast, rhythmical breathing, using mudras for the energy flow through the body and closing nostrils. Most people breathe incorrectly using only a small part of the lung's capacity. The breathing is then generally shallow, depriving the body of oxygen and prana essential to its good preparatory techniques. Pranayama helps to improve the lungs capacity and conscious connection to the body. The breath is the most vital process of the body. It influences the activity of each cell and most importantly it is intimately linked with the performance of the brain. For a higher goal

for everyone, it is recommended to train your breath in order to have a functional body system. The author Swami Satyananda (2018) describes that you receive benefits in relieving anxiety and stress, it improves your concentration, it lowers your heart rate and calms down your nervous system

purifies body

- Clears energetic channels and releases toxins
- Balances solar masculine energies with lunar feminine energies
- Relieves anxiety and stress
- Improves concentration
- Lowers heart rate
- Calms the nervous system

3.4 Meditation

According to the eight limbs of Patanjali –

7. Dhyana

Meditation or contemplation is the seventh stage of ashtanga yoga, the goal is to have a consistent and uninterrupted flow of concentration. Even though concentration (*Dharana*) and meditation (*Dhyana*) may appear to be the same, but there is a distinction between these two stages. Where *Dharana* focuses on one-pointed attention, such as looking into a candle with closed eyes, instead *Dhyana* is the higher state of being keenly aware without the focus on a single object. At this stage, the mind reached already quietness and, in the stillness, it produces hardly some thoughts at all. After your mind reached the strength and endurance to be in absolute stillness the inner healing process initiated by helping your neurological plasticity to repair brain cells. In our modern world eyes this seems to be a difficult nearly an impossible task for most people, but remember that yoga is not about being perfect it is a long process to self-love and inner peace. Even though we may not experience in this life the perfect pose if we compare us with others, but the individual needs to understand that comparison with others is not important, because everyone could be perfect the way he or she is. We want to experience the ideal state of consciousness, we benefit at every stage of our progress.

Similarly, in modern terms of meditations, people invented methods for the “new” society to help them going on another way to go inside them, but this is a way is never leading into higher consciousness.

When we are looking to Asia, many people are practicing meditation for hours or even for weeks like a Vipassana meditation. Due to most people common life people, have no time to do meditation separately of their practice. We need a cheated way of mediation that we call mindfulness meditation, which is helping us to get closer to the real Dhyana. Focusing on one thing, like your breath is helping yourself to increase brain functions.

Swanson (2019, p. 185) explains a study of mindfulness-based stress reduction (MBSR) meditation training that “Anatomical magnetic resonance imaging scans have shown changes in subjects’ brain gray matter concentration after they participated in an eight-week MBSR program, suggesting that MBSR affects areas of the brain involved in learning and memory processes, emotion regulation, self-awareness, and new perspective-taking. Another study showed that even brief training in mindfulness reduced fatigue and anxiety, while longer training seems to particularly improve attention and focus.”

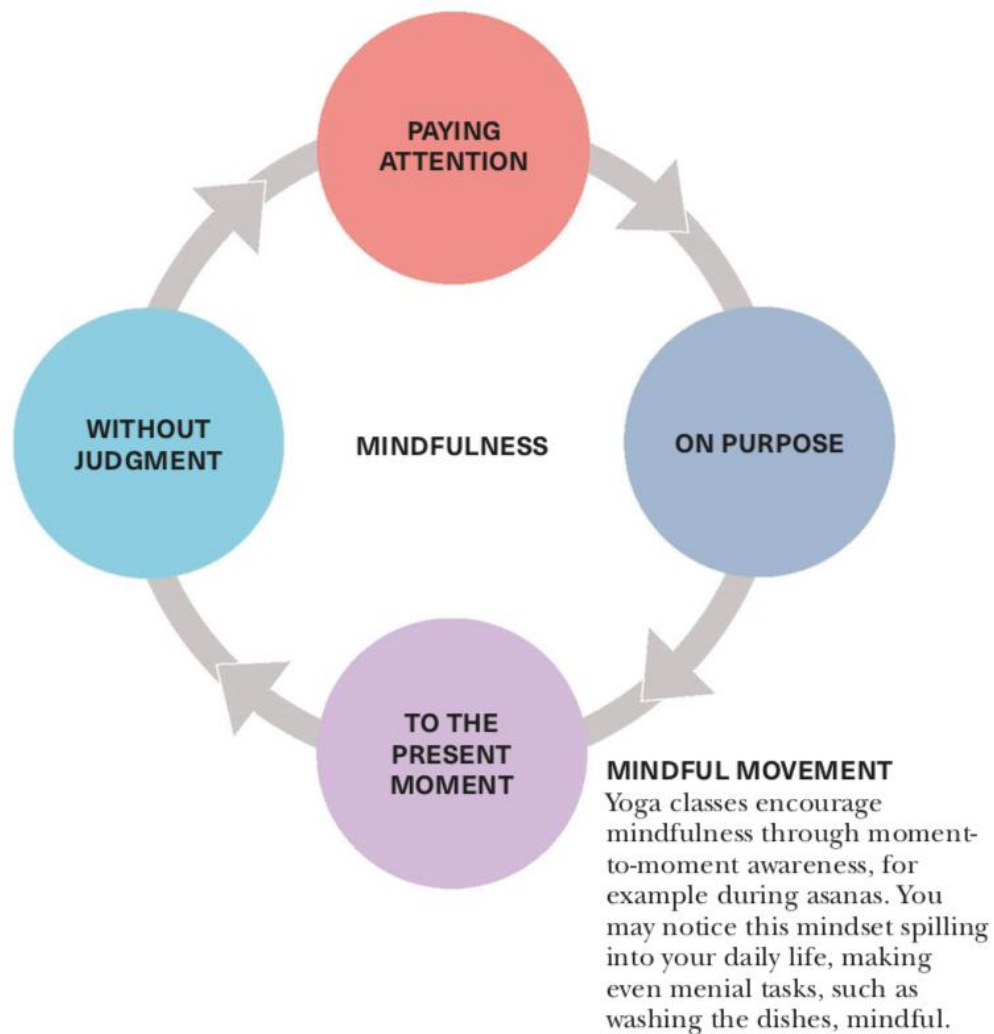


Figure 1 Science of yoga, page 184

But do mind-body practices such as yoga and meditation serve to overcome the ego or not inflate it. It could also be argued that people in these practices focus strongly on themselves or their selves. This increases their positive self-image and they even think they are better than others. This seems plausible among other things because one generally improves continuously through constant practice of an activity including yoga and meditation and the activity becomes more important for oneself. However, if yoga and meditation play a central role in your own life, you can develop an identity as a yoga or meditation practitioner and attach it to it. So, you think "I am a good yogini" or - more neutrally - "I am a meditator", which according to the Buddhist view is a false

identification with a constant identity and thus a fertile breeding ground for the ego. Because every idea of “I am so and so, this and that, but not so and so” is ultimately only construction of thinking, a thought that should not be adhered to. (Gebauer, 2018)

Chapter 4. Implementations

Mediation is an important tool in life that helps in focusing on and achieving your goals. All-new forms of meditation are going back to yoga. The new following forms are just modern varieties to help modern humanity to see themselves clearly. The mind needs a lot of work to be able to see the inside processes, normally it is hard for common people because we never experience ourselves in a complete withdrawal of senses. The new forms of meditation are another practice of mindfulness to get one step closer to real mediation. Wim Hof experienced a dramatic life story, but due to his mental state he managed to find a way out of it through his breathing and suddenly he was realizing that he can do more in his life. His way of clearing the mind was opening new doors of unknown human skills.

4.1 Wim Hof

Wim Hof has developed a method characterized by simplicity and effectiveness. The Radboud University was investigated the physical mechanism in the body. Initial results have shown that the method appears to affect the autonomic nervous system and immune system. This means that application may be of particular importance in the fields of sports and at many other levels. Wim Hof impressed the world by enhancing his resilience in the face of extreme conditions using his techniques. He was able to constantly explore his physiology and mental capacity in greater detail. After his performance he got the nickname “The Iceman”, because he has accumulated almost 20 world records, including the longest ice bath, climbing snowy mountain peaks wearing only shorts. (Hof, 2006)

4.1.1 The method

From the previous chapter we know already that a strong mindset can be an important weapon when it comes to thinking, doing and achieving. For the Wim Hof Method (WHM) is a strong mindset important to realize your inner strength. Concentration/meditation is an important part of this. This concentration is required for what you wish to achieve for certain purposes. If Wim Hof would not concentrate, for example, he would feel just as cold as everyone else. Focus is thus very important. To summarize the three components of the method.

- Breathing exercises
- Training of mindset/concentration
- Gradual exposure to the cold

The breathing technique is first and foremost premised on inhaling deeply and exhaling without any use of force! Hof explains:” By not breathing out entirely, you come to a point where a residual of air remains in the lungs. After doing these thirty times, you exhale again without any use of force. This time though, you do not immediately inhale again, but wait with inhaling until you sense your body needs new oxygen. After this, the whole process starts again. While you start to sensations of lightness, laxity and tingling, these rounds are repeated several times”. (Hof, p.6, 2006)

1. Comfortable environment

Try to watch out for a comfortable place to do your breathing exercises where you are not getting distracted by something. The position you should be is sitting, but it is not required - lying on your back is possible as well.

2. 30-40 power breaths

Until arriving in your sweet spot, you start by breathing in and out for 30 times. The essence of the technique is to breathe steady and deep in and out through the mouth. The inhalation is fully, but the exhalation is not all way out. Pay attention to the expanding of your belly when you are breathing in to get your lungs full of air. On the other hand, when you exhale feel how the navel is going towards your spine. After practicing you will notice it feel like you are hyperventilating, but the difference makes your control.

3. Hold your breath

After the last exhale hold your breath with empty lungs for as long as you can hold, then inhale deeply again and feel expansion of chest a belly. Hold the breath again for some time until you feel you need to breathe.

4. Set circles

Repeat step 2-3 for at least 3 times. Wim Hof recommends 3-4 times.

5. The last step for the technique is to let undergo yourself to cold, by sitting into a bath full of ice or jumping into a cold lake.

Mechanism in the body

Summarized the pillars of Wim Hof.

1. Meditation in order to build up a strong mindset to achieve your goal
2. Breathing exercises
3. Exposure yourself to cold gradually

After practicing the three pillars you will release your inner fire. There are many different studies done about the physiological effects of the body to prove that the method is working for everyone. Moreover, the studies were conducted by different institutes and always came to the same conclusion. With the help of the three tools the body can influence the autonomic nervous system. Decreasing the stress level in the body. Due to decreased inflammation processes the body recovers faster. Your mind is more focused and your performance is better. (Hof, 2006)

4.2 Coherence devises

To understand meditation better there is a way to measure it by coherence state. The HeartMath Institute in Boulder Creek, California was founded in 1991 by Doc Childre to research and provide ways and means that make it easier for people to come into

contact with the intelligence of their heart and their intuition and heart qualities in a wide variety of life situations like practicing balance, confidence, and care.

The HeartMath Institute's activities have always focused on dealing with stress and reducing its negative effects on health. At the same time, the exercises of the HeartMath Institute make it possible to strengthen your resistance (resilience). The use of the HeartMath method also has a beneficial effect on the quality of social relationships and interpersonal communication.

The exercises, courses and devices developed by the HeartMath Institute are based on many years of scientific research into the communication between heart and brain and the relationship between cardiac rhythm, physiology, emotions and mental abilities. The concept of coherence, which stands for a psychophysiological state in which the autonomic nervous system and the emotional state are in balance, plays a major role. A coherent state can be brought about by paying attention to the area of the heart, breathing calmly and focusing on a positive attitude or emotion itself. Coherence is a state that comprehensively promotes and supports physical, emotional and mental health.

Numerous studies have not only examined the physiological relationships, but also the practical effects of the exercises in management, at school and university, in sports and health care. The HeartMath method has since been taken up by thousands of specialists such as doctors, psychotherapists, trainers and teachers and integrated into their respective areas of work. As research into heart rate variability (HRV), the research of the HeartMath Institute was taken up by countless other research institutions and applied to a multitude of questions that have become almost impossible to overlook.

EmWave, the Inner Balance Trainer are biofeedback devices developed by HeartMath that evaluate the current pattern of the heart rhythm and the heart rate variability. You can use it in a wide variety of situations and challenges to practice, deepen or rediscover your inner peace, emotional balance and mental clarity. Such an internal constitution is called coherence for short. A perfect tool for athletes to develop a stable mental base.

Furthermore, we understood already, that emWave is measuring Heartbeats

Helpful for different factors of mental health issues:

On that graph underneath we can see different emotional states. The chart is based on heartbeats records of individuals, who were experiencing different emotions.

The top graph shows a feeling of frustration, which is an incoherent heart rhythm pattern characterized by jagged and irregular waveform. Typically, it is linked to stress and negative energy, such as frustration, anger and anxiety.

If we compare it to the graph underneath that shows an example of individuals of a coherent heart rhythm pattern, which is coming by positive emotions, such as appreciation, compassion, or love. The chart is characterized by regular waveform.

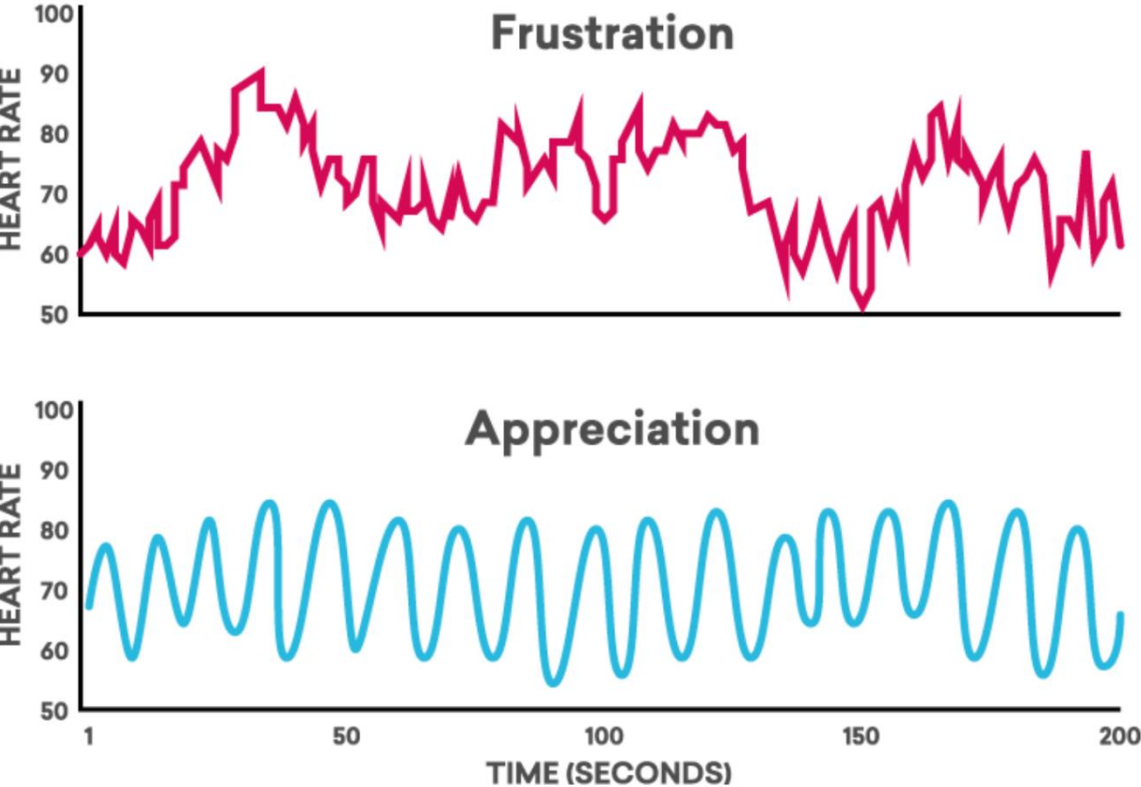


Figure 2 Hearthmaths studies

The bottom graphs underneath are showing the heart rate variability of an individual. By using the quick coherence technique, which will be described in the next chapter. The rhythm is over a 10-minutes period. When we have a closer look, we can see that at the 300-second mark, the individual is using the technique to create feelings of appreciation and love to shift into the coherence state. To understand that we can see that all the rhythms of the three graphs came into entrainment, being harmonious and synchronized. Clearly, different from the out of sync waves before.

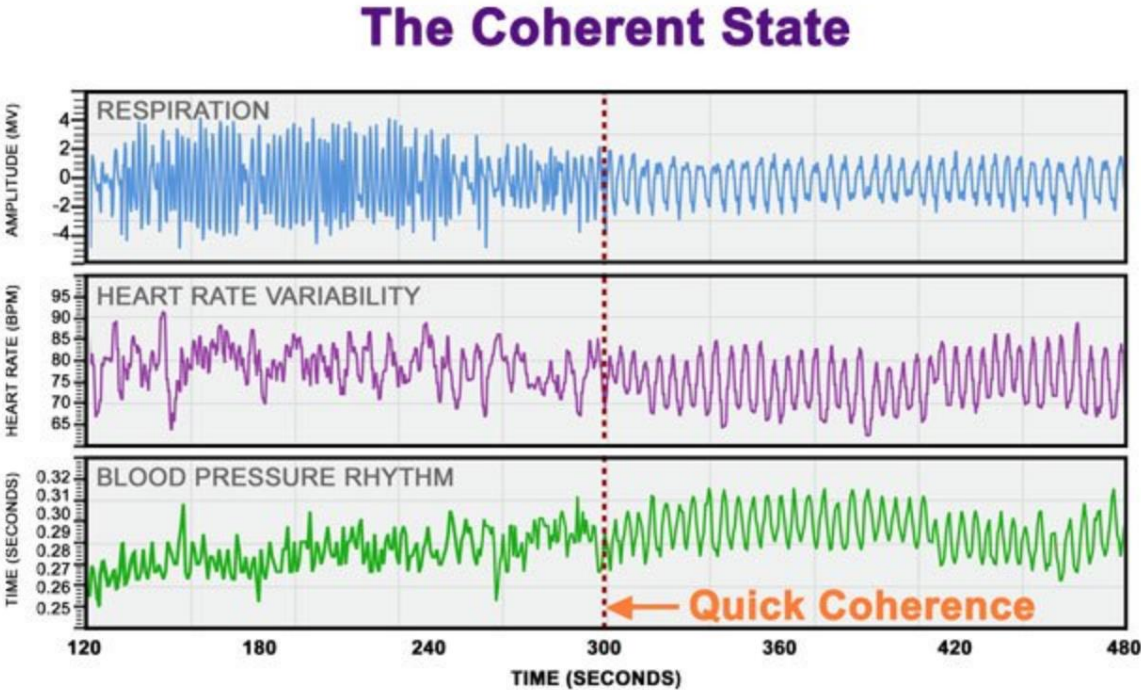


Figure 3 Hearthmath studies

4.2.1 Technique of quick coherence

Now we could understand what is happening in a coherence state. How you bring your mind into a more aligned state at the physiological level. Firstly, we have to know coherence is not relaxation. We are maybe relaxed, but the key is not to release your body. It is about opening the brain, to flow to a positive emotional state that we want in our life. Everyone knows that pleasure feeling inside. For example, a special moment with your husband, eating special food, dancing moment, a present that you got, or whatever you can imagine. Best is to compare it with a momentum. Due to inertia a ball is kept on rolling. As well as we can bring our mind into a consistent coherence state by being mindful to bring ourselves back into that synchronized well-being.

To practice the technique, you can open or close your eyes whatever is comfortable for you.

There are three steps:

1. Heart focus

Shift your attention from the crown of the head down into the area of your heart. Focusing on the center without getting distracted by thoughts and things around.

2. Heart focused at breathing

Your breath is naturally, but it could get deeper as you would do it normally. As you take in a breath, notice the in and out motion of your chest, the area where you should have your focus. Try to feel the with every inhale the press coming in through the heart and the other way feel with the exhale every back out through the heart.

3. Heart feeling

The last step is the most important one. By being able to shift the attention into your heart it is time to activate a positive emotion. Perhaps that is for everyone a different memory. As a guidance try to feel appreciation for the good things in life, things that you have experienced and know exactly how happy you felt, emphasizing on that sensation, compassion for others, or some love of care you have for someone or something. Keep on with breathing in and out through the

heart. Do not let strain yourself just try to achieve a heart-related emotion like you experienced in your life before.

Chapter 5. Conclusion

Practice intensity is the will, commitment and enthusiasm to practice with purpose. Most coaches consider it as an important characteristic of any successful team. The best athletes are still those, who have learned to get the most of their practice. Choosing the right way to train depends mainly on the type of sports you are practicing. When we look back to our first chapter the mental toughness plays an important role in all ways of practice to reach your goal. Coaches should consider that building up grit is essential for top performance. How to get there is the time when all concepts play in.

The integrative body-mind training has many similarities to Yoga, such as mindfulness training, meditation and muscle release. Nevertheless, it is not as beneficial as yoga, to achieve high goals, you need to be conscious while practicing and even when you rest.

Autogenic training is a perfect tool to help to get out of a crisis. All people know the feeling when your ego does not let you put in that effort you need, due to emotional feelings, such as frustration or depressions. Even in sports all top athletes know the fear of failing and buck fever. Self- hypnosis is a good way to help yourself jumping over your shadow. The question is: does it work in the long run? Being able to face your fears should be a developing skill, escaping always back in self-hypnosis is not a sustainable solution in the long run.

Wim Hof technique is bringing your body definitely on the next level by combining it with the meditation and Pranayama practice. Many studies have shown that you boost up your immune system and influence your autonomic nervous system very beneficial. Having that inner power can show off in the skeletal output.

Use affirmations to help yourself building up the right mindset. It is the easiest way to enhance your mental toughness by manifesting your goal in powerful words. Nothing wrong to use it all time, but to put yourself in terms of high performance it is not enough.

To be able to act on a permanent high level your brain needs a more reliable mindset. In esoteric terms it is called the law of attraction, or the law of resonance it is explained by thoughts forms energy that is manifested in your aura to perceive the same frequency. Hence, your aura has a magnetically field that is attracting the same wavelength. This phenomenon is leading into the next technique.

For the usage of acting energized it is always coming with competitive sports. To get the most benefits you need to be ready already when you enter the game. So, you can use acting energized by having already the right mindset to compete in how you want it, or better. Your team will have the routine to feel coherence and the crowd will interfere with the vibe positively surround you. To understand deeper our science is already able to measure and prove that thesis.

By using the coherence technique, the meditation is improving, because the inner balance is measured with the help of technology, helping your mind to be in a coherent state. Fully engagement with your practice is needed to experience it more deeply.

To bring in some personal input for many athletes you do not need the technology of emwave. It is a helpful tool to measure or get familiar with the technique to know if you do it right. In the end it is about improving your performance by shifting your mind into coherence. Everyone knows the sensation of compassion and love. It is a natural state that we sometimes do not realize conscious. So, whenever attention, concentration, balance and coordination play a role, coherence also supports you. This can be the case in diving as well as in golf, in sports shooting as well as in basketball. Regular coherence sessions with Inner Balance before your sporting activity or during breaks help you to get your best results.

All of those methods are leading to the same issue. Our modern world people do not have it in their culture to be in stillness for meditation, in other words we are cheating ourselves to reach that mental state by varieties of mediation. We are trying to get closer by mindfulness training to be able to see inside us, the inner processes.

Yoga is the only method that is only build up to reach that state of real mediation before you reach enlightenment state or to speak in technical terms the Samadhi (Nirvana).

Yoga is combining the physical with mental training in a unique way. The athlete prepares himself by letting go of the ego and many harmful thoughts such as frustration, fear and anger. Your muscle tissue is less stiff or tired. Providing strength and endurance benefits, you may feel less stressed and more relaxed after doing some yoga.

Some yoga styles use meditation techniques that help calm the mind. Focusing on your breathing during yoga can do that, too. Yoga has long been known to lower blood pressure and slow the heart rate.

As a recommended practice as an athlete or as a trainer: Separate the mental training from the physical one. Start with a yoga flow to prepare your body for the mental training. Use and research more about all the techniques that are described in that paper. Try to build up your meditation, find out what fits to your needs. The coherence technique has a measurable tool for an affordable price. For many people mindfulness training sounds esoteric, but it is a revolution in your brain in my point of view for athletes and all human beings. Calm your mind can be the ultimate weapon against your challenges so meditate. Dalai Lama put in a statement that “the mind is definitely something that can be transformed, and meditation is a means to transform it.” (Lundin, p148,2001) Or when Naval Ravikant was putting in that “Meditation is intermittent fasting for the mind. Too much sugar leads to a heavy body, and too many distractions lead to a heavy mind. Time spent undistracted and alone, in self-examination, journaling, meditation, resolves the unresolved and takes us from mentally fat to fit.” (Ravikant, 2019)

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