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APPLICATION OF THE "SYSTEM YOGA IN DAILY LIFE ©" TO PROMOTE PERFORMANCE, HEALTH AND RESILIENCE IN ATHLETES

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Abstract

The article is focused on the applications of yoga techniques according to the scientific master system, authored by Paramhans Swami Maheshwarananda, offering health and harmony of Body, Mind and Soul, and which is globally popular. The "System Yoga in Daily Life ©" is based on the traditional Indian concept of Yoga Vedanta and develops the human health potential systematically from simple exercise units to the most demanding training techniques. The system is unique that it contains methodically developed yoga techniques for athletes. Yoga is useful both for elite athletes and hobby athletes. Especially the hobby athletes often train without a professional supervision of trainers, what may cause health problems due to unreasonable, often sudden training or competition loads. The presented applications of the "System Yoga in Daily Life ©" concern four areas: "Compensatory physical exercises", "Breath exercises", "Mental training" and "Diet" of athletes with modifications according to age and sports level.

Keywords

Sport and yoga; "System Yoga in Daily Life ©"; Elite sport; Hobby sport; Examples of yoga applications.

1. INTRODUCTION

Athletes face difficult situations to improve their performance. They are exposed to physical and mental stress and physical demands during the continual every day trainings and competition processes. Therefore a regular and systematic regeneration has significant importance for the health and resilience promotion of athletes. By the term resilience we understand a process of psychological reintegration based on the ability to strengthen the skills to manage stressful events in life of athletes. Resilience promotion may contribute to athletes' psychological well-being and reduce psychological distress (De Melo & Noce, 2020; Henriksen, Schinke, Moesch, McCann, Parham, Larsen, & Terry, 2020).

Yoga represents a traditional, more than five thousand year old, highly sophisticated regeneration system, leading to the development of a person's physical and psychological potential and to the promotion of health and an increase in the quality of life in general. It is therefore understandable that the application of yoga in the culture of sports, both in terms of supporting sports performance and performance development, and in terms of supporting health and compensating the physical and mental stress of the athlete, represents a significant and actual focus of contemporary research.

Sharma (2015) declares that a specific sport can lead to muscle imbalances and over time, this process causes an imbalance in the joints, leading to overuse injuries. Yoga helps muscles, tendons and ligaments move through a full range of motion, cultivating balance and core strength, which is a huge benefit for athletes in their chosen sports. Sharma (2015) states that attention to the breath during yoga can be considered one of the most important benefits for athletes, because connecting the mind and body in yoga is essential to helping athletes develop mental acuity and focus. Yoga helps to relax not only tense muscles, but also an anxious and overloaded mind.

The "System Yoga in Daily Life ©" is based on the traditional Indian concept of Yoga Vedanta and develops the human health potential systematically from simple exercise units to the most demanding training techniques. It represents a scientific, globally popular, system of yoga techniques, authored by Paramhans

Swami Maheshwarananda, offering health and harmony of Body, Mind and Soul. The education and training program “System Yoga in Daily Life ©” was created and formed on the basis of the yoga tradition passed the line of yoga masters and on the basis of the experience with the mentality and the physical features of a man "from the West." In young age Paramhans Swami Maheshwarananda came to Europe from India in 1972 and founded the Austro-Indian society for Yoga and Vedanta in Vienna. From that time till nowadays is the “System Yoga in Daily Life ©” spread globally throughout the world because implemented very methodically and sophistically all components of human health, including philosophical and spiritual aspects of health. From that time yoga education and training were developed systematically according the best Indian yoga tradition and quickly gained high interest across the country inspiring in the form of lectures and yoga workshops. Paramhans Swami Maheshwarananda gave a high attention to the negative consequences of the sedentary hypokinetic style, which intervened significantly in recent years even in the child population. Therefore the “System Yoga in Daily Life ©” was created by him so, that anyone could gradually begin to practice yoga (Krejčí, Hornof, 2016).

After 1990 Paramhans Swami Maheshwarananda focused particularly on education and training of certified instructors for the “System Yoga in Daily Life ©” in Czech Republic. Since the autumn of 1990 to 1994 he held personally the complex of intensive seminars for yoga instructors under his direct guidance (Krejčí, Hornof, 2016; Oriňáková, 2019).

Yoga can be useful both for elite athletes and so-called hobby athletes, men and women, who often train without the professional supervision of trainers and can cause health problems by unreasonable overloading, especially the so-called impact training and competition load. Injuries that occur both in performance sports, hobby sportsmen and recreational sports, and which are a major problem causing significant economic losses to the state health system, can be largely prevented by compensatory yoga techniques (WHO, 2018; Boullosa, Esteve-Lanao, Casado, Peyré-Tartaruga, Gomes da Rosa & Del Coso, 2020).

In a bibliometric analysis of yoga research in the years 2007-2014, the authors Büssing, Michalsen, Khalsa, Telles, Sherman (2012), relevant publications document the positive effect of yogic breathing on depression, as well as on the reduction of fatigue and anxiety both in healthy people and in patients with cancer, multiple sclerosis, diabetes, chronic pancreatitis, fibromyalgia and asthma. The authors further state that in the analyzed studies, significant positive changes were presented in the level of fitness parameters, in walking, balance, body flexibility, and increased muscle strength and weight loss. The given bibliometric analysis also includes studies of the application of yoga for the treatment of back pain, rheumatic arthritis, headache and migraine - in all these studies positive effects of yoga interventions were reported. When it comes to chronic back pain, studies show that yoga was more effective than standard interventions, including usual care or conventional therapeutic exercises.

Research studies of Dostálek, Lepičovská (1982), Motajová (1997), Krejčí & Jandová, (2021) prove the positive psychosomatic effect of yoga on homeostasis and human health and in the field of preventive medicine. The results of the studies (Harada, Wada, Tsuji, Krejci, Kawada, Noji, Nakade, Takeuchi (2016); Mandelbaum, Harada, Takeuchi, Tsuji, Krejčí, 2017) show possibilities for the adoption of self-regulation techniques in the training process of young athletes, e.g. relaxation techniques, free regulation of breathing in athletes in the context of circadian interventions.

2 AIM

The aim of the presented paper is to determinate applications of yoga techniques according to the “System Yoga in Daily Life ©” into health promotion and resilience promotion in athletes.

3 METHODS

For the presented study we used methods of analysis, synthesis, induction and deduction as well as causal and operational thinking. A synthesis of evidence and a critical and

reproducible summary of the results of available publications on the subject were performed as well.

The study is based on the three-stage research process:

- Observation, description of established terms used, sometimes currently created and defined, followed by documentary description.
- Grouping observations into categories with determined attributes and summarized into a theoretical concept explaining how a certain set of attributes in a subsystem leads to certain resulting phenomena.
- The final resultant to the prediction of phenomena that may occur in different situations.

4 RESULTS AND DISCUSSION

However, the systematic integration of yoga techniques into sports training was already introduced in the Czech Republic in 1980 by the Indian yoga teacher Paramhans Swami Maheshwarananda, whose cycle of lectures in Brno at the invitation of the Association of Sports Associations was well received and the recording of the lectures was repeatedly published (Liberdová, Doležalová, 1990).

Paramhans Swami Maheshwarananda (2005) developed yoga techniques for the purposes of sports and coaching practice, which are interpreted in the given study in the following four areas:

- Mental training based on yoga techniques in performance and elite sports
- Breathing exercises – breath regulation
- Compensatory physical exercises – sets of exercises compensating for the unilateral load of sports specialization and at the same time balancing the vegetative nervous system
- Diet

4.1 Mental techniques

Yoga is based on intuitively and empirically known relationships and regularities between the physical and psychological areas. Above all, yoga emphasizes the importance of the mental climate in which we want to achieve success. Physical strength has its limits. According to yoga, mental strength ultimately determines physical performance more than just trained physical strength. For this reason, control of the mind, especially of ideas, thoughts and decisions, is important. E.g. you need to say to yourself "I will do it, I can do it, I can do it" instead of "I will try". There are already certain doubts about it, the idea that I will fail. If a person wants to be really successful, it is necessary to train the mind in such a way that the goal can be achieved. A negative idea, negative thinking weakens a person. This is also important for life outside of sports. A positive approach to activity strengthens the will, develops the ability to concentrate and prepares the ground for success. What attitude to take towards rivals? According to yoga, by having a negative attitude towards the rival, the athlete creates a negative mental atmosphere, which ultimately leads to his own weakening. The athlete should be filled with the certainty of his own quality, the certainty that he will win fairly and wish success to The consensus that yoga breathing exercises improve the mental health of high-performance athletes is confirmed by the following authors of research studies (Krejčí, Psotta, Hill, Kajzar, Jandová, Hošek, 2020; Henriksen, Schinke, Moesch, McCann, Parham, Larsen, & Terry, 2020; Kauts & Sharma, 2012; Kamei, Toriumi, Kimura, Kimura 2001).

4.1.1 Concentration and mobilization of energy

Being able to focus is very important for success in sports, but also difficult. In yoga, the so-called "dharana" is important, i.e. the art of concentrating on one thing only, without thoughts drifting elsewhere (on possible failure, on fatigue, on illness, etc.), which leads to a weakening of performance.

Furthermore, there is one more situation during a sports competition, namely physical weakening in the form of exhaustion. Here, yoga provides two kinds of techniques to mobilize energy. These are relaxation techniques and breathing techniques. At the same time, it should be noted that in yoga the issue of

relaxation and breathing is much broader than just the problem of energy mobilization.

In the case of energy mobilization, this is the ability to "be able to relax during activity". When the mind is tense, the body is also tense. Sports performance can be completely crippled by high tension. Energy mobilization is created by the combination of relaxation and concentration. This apparent "extra energy" will arise in a situation where the mind is relaxed, focused on the goal, and the athlete also physically feels tension-free. Then a state occurs, as if a source of energy has erupted in the body, a volcano of energy. This must be practiced in yoga training, then in the athlete's regular training, and then used in competition.

In line with this, Kauts & Sharma (2012) report the study findings that the yoga module intervention improves concentration and short-term memory scores, which can have a positive effect on any performance.

4.1.2 The importance of relaxation before performance and post-relaxation activation

Yoga has a number of techniques that practice relaxation for a good performance, but also relaxation that helps regeneration after performance. For athletes, this means a different relaxation technique before the competition and a different one after the competition. Relaxation before competition (or before training) should be aimed so that athletes are relaxed, but at the same time activate internal energy for performance.

Here is an example of such relaxation before exercise according to the Yoga system in daily life:

- Lie on your back.
- Gradually relax the whole body.
- Become aware of the relaxation of the body from the feet to the head.
- Cancel body tension.
- Relax your breathing and thereby relax yourself inside.
- Relax mentally.
- Let the thoughts come and go, i.e. do not allow any thought to come back and remain in the mind. Send it away and feel the release of your body and breath.
- Similarly, send away your emotions.
- When you relax like this and have no lingering thoughts and emotions, you feel the relaxation deepen. Relax more and more, deeper and deeper.
- Now feel how you are breathing. Do not change the depth or rhythm of your breath.
- Just be aware that you are breathing in and breathing out. Your breath flows completely freely, naturally.
- Now feel the breath in the center of the chest. Feel the breath flow. You feel the waves of your breath moving through your entire body.
- Now imagine how your vitality increases with your breath. With each inhale, you are charged with new energy, and with each exhalation, this energy continues to flow through the body until it permeates the entire body.
- Feel this new vitality in the feet, in the toes, in the insteps, in the ankles.
- Feel a new vitality from the area of the ankles rising to the area of the knees. Feel the rising vitality in the knee area, perhaps as a feeling of warmth or other expression of energy.
- This energy spreads further – to the thighs to the hips. You feel energy throughout your legs.
- In the same way, feel this energy with your breath in your palms and fingers.
- Feel how it moves up to the elbow area, to the shoulders, and over the shoulders to the neck, to the nape of the neck.
- Perceive this energy with your breath in your torso – you feel it in your back muscles.
- Feel it in your abs.
- The whole body becomes charged with energy, vitality, it is more alive.
- Feel the same revival now in the area of the face and neck, in the area of the whole head... When you inhale, you feel the warmth of this vitality...

- You are still in relaxation, but at the same time you are getting into a state of alert consciousness and watching your thoughts. You feel very fresh.
- Visualize what you want to achieve as already accomplished.
- See what you want to achieve as a living reality.
- Imagine yourself in motion. You do this move with the vitality that you just charged up that you gained. This energy helps you perfect your movements and gives you the strength to endure.
- Feel everything absolutely concretely. You are successful, everything is going well, everything has been done.
- You win. You won.

Post-relaxation activation: You deepen your breath, preparing to return to the waking state. You begin to gently move your fingers and toes. You feel how the acquired vitality manifests itself in the movements of the fingers. Breathe consciously, move your legs and arms. Stretch yourself. Inhale and stretch your whole body. Roll your body to the right, to the left, more and more movement... Now rub your palms until they are warm, put them on your face and warm your eyes. Slowly open your eyes under your palms, move your palms away and sit down. Relaxation is over.

This was an example of the possible relaxation that can be induced in the right condition for activity, for performance. It takes about 15 minutes. You can purchase an instructional recording and play it back. This is a type of relaxation that belongs to the "yoganidra" technique in yoga. It can be combined with self-suggestive formulas (called "sankalpa" in yoga), which has been very successful in sports practice. The technique can be performed individually or in a group (Maheshwarananda, 2007).

In accordance with the above declared text, the authors Pandi-Perumal, Spence, Srivastava, Kanchibhotla, Kumar, Sharma, Gupta, Batmanabane (2022) of two neuroimaging studies have shown that yoganidra produces changes in endogenous dopamine release and cerebral blood flow, a further confirmation that its effects on the CNS are objectively measurable. They state that the calm inner stillness induced by yoganidra is claimed by practitioners to be an effective stress management tool as well as a means for attaining greater receptivity to personal resolutions. These resolutions can range from the goal of achieving self-transformation, enhancing creativity, or improving one's learning ability. Additionally, yoga nidra is claimed to promote beneficial changes in physiological and mental health.

The second type of relaxation is relaxation used after sports performance. With its help, they regenerate the muscles and the entire organism of the athlete. This is also a “yoganidra” technique, but after reaching a state of deep relaxation, specific ideas of regeneration of physical and mental forces are given. If this second type of relaxation is used after training or after a competition, muscle pains, muscle spasms, and strain do not occur. Even for this relaxation, 15-20 minutes is enough. It should be done after every training (Maheshwarananda, 2007).

4.2 Breathing exercises

Breathing exercises represent another option in yoga to get energy when we need it. One of the reasons why we feel a lack of energy is poor management of oxygen, insufficient supply of oxygen to the tissues. Most people have bad breath. Correct breathing technique ensures an automatic supply of energy. For this reason, even proper breathing should take place automatically. Natural mechanisms related to breathing (e.g. holding the breath during inhalation when lifting a load) are processed in yoga in an extensive system of breathing exercises (so-called "pranayama"). Pranayama training can be used in order to obtain the correct breathing automatisms even for long-lasting stress, e.g. in peak performances. However, it is necessary to include them in the long-term training process.

4.2.1 Three types of breath and full yoga breath

According to yoga, we recognize three types of breathing, each of which can predominate or, on the contrary, decrease in the athlete's breathing. These are the following types of breath:

- Lower, diaphragmatic breathing
- Medium, chest breathing
- Upper, subclavian breathing

For proper breathing, it is necessary to harmonize all three types, with the most important being able to properly use lower, diaphragmatic breathing. Krejčí (2021) states that proper breathing also enables proper muscle relaxation. Muscle tone is largely influenced by breath.

In case of nervousness, shallow upper, subclavian breathing prevails. To get rid of nervousness, to calm down, the following exercises according to the Yoga system can be used in daily life: Take a deep breath, hold your breath for a while and slowly exhale and hold your breath again. Breathe like this until you feel calm.

In sports, mastering the so-called full yoga breath is a basic prerequisite. It is breathing in which all three types of breath are applied. Only when the correct way of breathing becomes completely automatic can other special breathing techniques of pranayama be practiced. Practicing full yoga breathing takes time. Some yoga positions that affect the respiratory components in a specific way help during training, see in detail (Yoga in Daily Life, 2023).

4.2.2 Pranayama

In the presented text, only brief essential information can be given. Pranayma includes three breathing phases: inhalation, exhalation, breath retention. Different variations of pranayama arise from modifications of these phases. Pranayama technique "bhastrika" can be recommended for athletes. It is very useful for refreshing the athlete and for his mental relaxation. The literal translation of the term "bhastrika" is blacksmith's bellows. We perform rapid inhalations and exhalations at a rate of two breaths per second. Even though the pace is fast, “bhastrika” should be done in a relaxed manner. Here is a description of the exercise “*Bhastrika” according to the “System Yoga in Daily Life ©”* (Yoga in Daily Life, 2022):

Relaxed, upright sitting position, hands on knees. Then we will place the middle finger and the index finger of the right hand in the middle between the eyebrow and the thumb, and we will alternately use the ring finger to close the left or right nostril. Close the left nostril with the ring finger and inhale and exhale twenty times through the right nostril in a regular rhythm of two breaths per second. Then we do a slow inhalation and exhalation. We switch fingers, close the right nostril with the thumb and take twenty inhalations and exhalations through the left nostril. This is followed by a slow inhalation and exhalation again. Then we place the right hand on the thigh and take twenty inhalations and exhalations through both nostrils at the same pace and manner. Then we inhale, hold our breath briefly and slowly exhale. This is the initial exercise, one cycle. We gradually increase the number of breaths until finally we perform three times fifty inhalations and exhalations in one cycle. Up to three cycles can be performed sequentially.

The state of mind is also important when practicing pranayama. It is best to be in a positive frame of mind. Then you will breathe well.

Similarly to declared benefits the authors Bhavanani, Madanmohan, Udupa (2003) report in their study that bhastrika pranayama may stimulate reaction time positively determinate sensory-motor performance. It has been reported that yoga training improves human performance including central neural processing.

4.3 Compensatory somatic yoga exercises

Compensatory body yoga exercises should balance the one-sided body load that occurs during sports discipline training. In this compensatory training, yoga positions are applied in a certain sequence (Maheshwarananda, 2005). Movement in yoga compensatory exercise should always be conscious, in harmony with the breath, with a relaxed mind. In a yoga position, we should stay as still as possible, relaxed, with pleasant feelings, with attention to feeling the breath in the body. Maheshwarananda (2005) recommends simultaneously perceiving the pulls and pressures and the overall effect of the position on the body. This concentration should be completely relaxed and alert. It is characteristic of yoga compensatory exercises (asanas) that they affect not only the body area (muscles,

joints, organs, glands), but also train the development of psychological qualities, such as concentration, alertness, relaxation in activity.

For athletes, we mainly consider the physical effects of asanas.

Many athletes have stiff joints and their body cannot always move as they would like (e.g. stiff back muscles). It is necessary to realize that fast movements shorten the muscle in a short time, but it takes longer to relax and stretch it. That is why stretching exercises, which stretch the muscles in the right way, are so important for athletes in addition to relaxation. Guszkowska, (2007) declared that the stretching is very effectively induced by yoga sets. Thus, yoga includes much wider effects in the body area than just stretching. These are compensatory yoga exercises that stretch the muscles both by direct stretching and twisting in a given position. It acts on superficial and deep muscle layers, especially in the spine area. In addition, the endurance in the asanas stimulates the functions of the internal organs and balances the activity of the vegetative nervous system, see the exercises listed, for example, in the publication “Yoga for a healthy back” (Maheshwarananda, 2021). The “System Yoga in Daily Life ©” also includes dynamic sets that can be performed with an aerobic effect.

Yoga set Bari Khatu Pranam

The stiffness of certain joints and muscle areas in sports is mainly due to the fact that fast movement is typical for sports. This fast movement should therefore be compensated by a slow, relaxed, controlled movement in harmony with the breath. The Bari Khatu Pranam represented a compensatory yoga set, developed by Paramhans Swami Maheshwarananda, which gradually stretches all major muscle groups, stretches shortened muscles, warms up the body and regenerates its vitality. It is a set of 27 positions that flow smoothly into each other. The assembly can be practiced dynamically, but slowly with great attention to harmony with breathing. This achieves conscious control of the movement with sufficient time for blood exchange in the muscles. The set can also be practiced with endurance (staying in each position for several breathing cycles). This will allow the athlete to exercise more slowly than usual, with full concentration. It is advisable to carry out the assembly especially after sports training. It will help to "charge" the muscles with energy. The entire set exercise is described by Repko (2022) and illustrated in the diagram (Figure 1).

Figure 1 Overview of following 27 postures of the “Bari Khatu Pranam" yoga set (Yoga in Daily Life, 2019)

Use of yoga exercises according to the "System Yoga in Daily Life ©" have been repeatedly investigated with highly positive results on the performance and rehabilitation of athletes and employees by the authors Kornatovska, Rehor, (2021), Bednár, Kňazovická, Melichová (2020); Oriňáková (2019), Krejci & Kornatovska (2017).

4.4 DIET

In general, yoga places great emphasis on diet and relies on the knowledge of Ayurveda, according to which diet is important for all areas of life. The "System Yoga in Daily Life ©" also recommends a regulated diet for athletes not only during the competition period, but also during training preparation.

Diet for athletes should be easily digestible, always fresh, freshly prepared. The method of preparation is very important, because improper cooking can spoil the food. Paramhans Swami Maheshwarananda (2005, 2007) advises not to eat anything that contains chemical additives and does not recommend athletes to eat canned food. The diet should also contain enough uncooked, raw ingredients, especially more fruit, more leafy vegetables, or more juice from raw root vegetables. The diet should also contain cereals, possibly sprouted, milk and milk products, nuts, honey and legumes.

The stated facts are in accordance with analysis of diet in young elite athletes, where it is stated that factors that may influence the overall health of elite athletes, such as stress behavior, self-esteem, nutrition, and sleep have been less in focus, especially among adolescent elite athletes. Exploring such health variables could deepen our knowledge regarding overall health, injury occurrence, and athletic performance (Von Rosen, Frohm, Kottorp, Fridén, Heijne, 2017).

5 CONCLUSIONS

In conclusion, it should be summarized that the application of yoga according to the "System Yoga in Daily Life ©" can be effectively used in the training process and in competitive situations of athletes. Here it is possible to understand the whole life of a person as a certain "race" that matters to us. And what matters most? Back to training. It is internal training, training of internal attitudes and correct life values. Thus, yoga can be understood as a tool leading to happiness and harmony in life.

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