

# Physical Activity, Yoga and their Psychological Effects

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## Introduction

In 2006 I participated in a seminar in Slovenia led by a well-known Indian master<sup>3</sup>. Among others, he demonstrated the exercise which slows down the aging of the brain. After I returned home, I searched medical literature, and to my surprise found out that physical activity is beneficial for the brain in more than one way (Nespor a Csémy, 2006). Ever since, many new and practically important findings appeared.

## Psychological effects of physical activity

### Cognitive functions such as memory, attention and concentration

The positive effect of physical activity on cognitive functions has been confirmed by many authors. It includes all age categories – this effect was observed in adolescents (Subramanian et al., 2015) as well as in people over 70 (Bouaziz et al., 2017). One of the possible mechanisms is that physical activity stimulates the secretion of BDNF (brain-derived neurotrophic factor, Heijnen et al., 2016). BDNF prolongs the survival of existing neurons and promotes the growth of new nerve cells and synapses.

### Amelioration of depressive symptomatology

The positive effect of physical activity in depression takes place even in the more serious forms of depression (Bewernick et al., 2017). Sun et al., (2016) applied walking in combination with a relaxation technique in the patients with breast cancer. It was found that physical activity ameliorated depression and decreased the risk of suicidal behaviour. Coping with depression prevents the impairment of cognitive functions later in life (Mathersul and Rosenbaum, 2016) and premature death. Siqueira et al. (2016) came to similar conclusions and these authors found that physical activity enhanced the effect of antidepressants.

### Reducing anxiety

An extensive international study by Stubbs et al. (2017) found that an adequate physical activity was related to the lower mortality rate. According to these authors, physical activity improved social interaction.

### Physical activity and anger

Even moderate physical activity, such as walking, influences emotional state (Sakuragi and Sugiyama, 2006, Yuenyongchaiwat, 2016). Anger and excessive physical activity increase the risk of the heart attack (Smyth et al., 2016) and it can be presumed that the combination of these two factors will make the risk even higher. The study by Pels et al., (2016) was related to anger. These authors found that non-aggressive physical activity, it was rowing in their experiment, reduced anger, but practicing martial arts had no such effect.

<sup>3</sup> Paramahansa Niranjanananda Saraswati: Workshop Yoga - Awakening of Inner Potential, Ankaran, Sloveni4a 25.5. - 27.5. 2006.

## Improved health

Physical activity is a prevention of cardiovascular diseases and other diseases affecting central nervous system.

## Physical activity and relaxation

Relaxation take place spontaneously after previous physical activity and physical activity makes easier to practice a relaxation technique. Probably that is why a longer relaxation is usually used at the end yogic sessions.

## Physical activity and craving

Physical activity helps to overcome craving for addictive substances and improves the quality of life of addicted people (Giménez-Meseguer et al., 2015, Tritter et al., 2015). Cravings for food can be ameliorated even by the imagination of a favorite physical activity (Knäuper et al., 2011).

## Healthy self-confidence

Adequate amount of physical activity strengthens self-confidence. Among other reasons, it helps to perceive the body and its capabilities more positively (Zamani et al., 2016).

## Social aspects of physical activity

Hiking or exercising in groups enable to meet new friends. However, social factors might cause also problems. We found that teenage football players consume more alcohol compared to their peers (Nespor and Csémy, 2016).

## Professional sports

Professional sports often represent a risk rather than a protective factor. Competitive environment, stress and excessive efforts do not benefit neither physical nor mental health. We met quite often patients who considered a professional sport as their main priority. They had to end their sport career suddenly because of an injury or lack of results. Their value system collapsed and they developed mental problems and addictions.

## Psychological effects of yoga

Most yoga practitioners in the West practice yogic physical exercises. Some of these practices require a reasonable physical effort and there are many dynamic yogic exercises (e.g. Sun Salutation). The above mentioned positive effects of physical activities can be achieved by yoga as well.

## Cognitive functions

Gothe et al. (2017) found that yogic exercises improved cognitive functions of older people. Goethe et al. (2016) presume that one of the reasons why yoga protects the cognitive functions is that it lowers stress. Butzer et al. (2016) described the positive effects of yoga on concentration and awareness of young musicians. These persons also experienced lower stage fright. The positive effect of yoga on executive functions<sup>4</sup> was observed in adolescents who underwent a three months yoga training (Purohit and Pradhan. 2016).

<sup>4</sup> Executive functions include attentional control, inhibitory control, working memory, cognitive flexibility, reasoning, problem solving, planning, etc.

## Relieving depression and anxiety symptomatology

Both physical activity and yoga ameliorate depression (Chu et al. 2017). Helgadóttir et al. (2016) found that yoga and aerobics are about equally effective on easing the symptoms of depression. Sharma et al. (2017) found that yogic breathing was useful in depressed persons who were resistant to pharmacotherapy. Morgan et al. (2016) described positive effects of yoga in generalized anxiety disorder.

## Relaxation

Yoga enhances self-awareness and it makes easier to relax (Gaiswinkler and Unterrainer, 2016). Relaxation has many benefits, and even more so in combination with physical activity. Bhargav et al. (2016) found that the cognitive functions of persons with multiple sclerosis were improved by yogic relaxation. Yogic relaxation was useful in anxiety, depression (Rani et al., 2012) and menstrual irregularities (Rani et al., 2011).

## Pain relief

One of the common indications of relaxation techniques is to relieve pain of various origin (Nespor, 1998) and yoga is effective in pain management as well (e.g. Kan et al., 2016, Gonçalves et al., 2017).

## Yoga and the prevention or treatment of addictive diseases

- Stress contributes to the development of an addictive diseases and complicates their treatment. Addictive diseases increase the risk of stressful life events which cause even greater stress. A typical symptom of all addictive diseases is craving which is accompanied by stress. That is why stress relief improves self-control and makes coping with cravings easier.
- Yoga and meditation promote a healthier lifestyle and can be used as prevention of addictive diseases (Berent et al. 2014, Haaga et al., 2011, Penman et al., 2012).
- Yoga and meditation techniques enhance self-awareness (Lyons and Cantrell, 2016, Davis et al., 2013). Self-control is closely related to self-awareness because a person can recognize craving and other risky mental states, such as exhaustion or strong emotions, at an early stage and overcome them faster.
- Yoga develops spirituality (Woodside a Culos-Reed, 2016) and spirituality is useful both in the prevention and treatment of addictions (Nespor, 2013).
- When treating addiction, yoga can be combined with other methods (Grow et al., 2014, Alfonso et al., 2011) to strengthen their effect.
- Reddy et al. (2014) found that consumption of alcohol and drugs in women with posttraumatic stress disorder has decreased after yoga practices. Some author even report to use yoga in to treat withdrawal (Zhuang et al., 2013).
- Shahab et al. (2013) found that people addicted to nicotine crave less after simple yogic breathing practices. Movement is often synchronized with breathing in yoga. Abdominal breathing is typical for relaxation and has a calming effect and is used both in yoga and qigong. When working with patients, we emphasize the importance of abdominal breathing in everyday life. It helps to calm down and overcome craving even during normal everyday activities in a discreet way.

## Education

It is possible to integrate simple yogic exercises into an educational system. Ferreira-Vorkapic et al. (2015) found that the students who practiced yoga were less tense and anxious and their self-confidence and memory had improved. Sethi et al. (2013) reported similar results.

## Other effects

- In comparison with weight training, yoga made women more confident and happy with their body. They felt more secure when interacting with other people (Gammage et al., 2016).
- Donnelly et al. (2016) found that the quality of life of adults who suffered a brain injury improved after eight weeks of yoga training.
- Gaiswinkler and Unterrainer (2016) found that people who consistently practiced yoga had a better spiritual life and self-awareness and less symptoms of depression. Yoga can also be useful for older people with sleep disorders (Halpern et al., 2014).

## Social aspects of yoga

Properly chosen yogic exercises are suitable even for people who are lonely, old or ill. It may enrich their social support network and resilience. Motivation for doing yoga is often related to health and most yoga practitioners live in a healthier way than the general population. It has a positive impact on group members.

## Psychological risks of yoga and some contraindications

People with psychotic illnesses should not practice lengthy meditation or relaxation practices. Some people fall asleep during long relaxation techniques which is problematic in epilepsy. People with epilepsy should also avoid some yogic breathing practices. Certain yoga exercises have specific contraindications, for example the postures where the head is below the heart level are contraindicated in glaucoma. The risks related to yoga are considerably lower than in most sports. Even so caution is advisable, especially in the people over 65.

## Some practices similar to yoga

- Qigong has a lot in common with yoga. It also emphasizes self-awareness and breathing is harmonised with movements. There are also many qigong relaxation and meditation techniques.
- Physiotherapeutic exercises are also practiced slowly and with awareness. Some of them originate from yoga or are similar to it, for example the Cobra position in the McKenzie exercises.
- M. Kataria created so called "Laughter Yoga". It is not a traditional yoga, but from our experience we know that laughter and humour can make a yoga class or psychotherapy more pleasant (Nespor, 2015). Besides that, laughter is a form of stress prevention and it offers many other benefits as well. Yim (2016) found that laughter influences the biochemical changes which are typical for stress and it affects serotonin, dopamine and endorphin metabolism in the brain. Cha a Hong (2015) explains that laughter eases depressive symptomatology by affecting serotonin metabolism. It can also ameliorate pain. Dunbar et al. (2012) presume that increased secretion of endorphins secretion during laughter facilitates social bonds in everyday social life. We reviewed the benefits of laughter elsewhere (Nespor, 2016).

## Conclusion

Adequate physical activity and yoga considerably improve mental state and productivity. The positive effects of yoga on mental health are caused by many factors. Besides physical activity it is also overall and partial relaxation, mindfulness, breath regulation and spirituality. Health professionals should recommend adequate, systematic and regular physical activity and yoga to their patients whenever appropriate.

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*Received 05 Jan. 2017; Revised 08 Jan. 2017-10 Feb. 2017; Accepted 05 March 2017*