

## YOGA ASANAS: INDICATIONS AND CONTRAINDICATIONS FOR USING IN PREVENTION AND TREATMENT OF POSTURAL DEFORMITIES

Tijana PURENOVIĆ – IVANOVIĆ

### **Abstract:**

*Modern civilisation, thanks to technology development, provides very comfortable and easy living – life without huge physical efforts, i.e. sedentary life. The consequences are numerous, and the biggest problem is our health that suffers the most. One of many health problems, which can be seen by naked eye, is poor or irregular body posture. Irregular body posture can transfer to more complex stage – fixed postural deformity, but only if one doesn't react on time. Today we can speak about high incidence of postural abnormalities. Based on the concept that postural abnormalities cause pain and injury, postural education and correction have been used as treatment approaches for alleviating pain. Poor posture can be treated in many ways, and one of it is Yoga. That's why the aim of this research is determinate - which Yoga exercises can be used for prevention and treatment of the postural abnormalities.*

### **Keywords:**

*Sedentary life style, irregular body posture, pain, yoga education*

## INTRODUCTION

The health-related benefits of physical activity have been researched and proven on a number of occasions over the past thirty years. Despite this large quantity of evidence, much of society remains sedentary. Research needs to focus on children and adolescents because many lifestyle habits are established in the younger years (Rehor, Kornatovska, 2013). Postural education and assessments are a part of physical therapy education and clinical practice. The importance of normal upright posture has been proposed since the early 1900s when it was described as a state of balance requiring minimal

muscular effort to maintain. Attempts were made to define ideal posture by alignment of significant landmarks such as the acromial process or the malleolus or by general body positions such as an upright position with non-exaggerated back curves, but there was little standardization of methods of measuring posture.

Nowadays proper posture is still believed to be a state of musculoskeletal balance that involves a minimal amount of stress or strain to the body. A standard for normal alignment as described by Kendall and McCreary (according to Griegel-Morris et al., 1992) is frequently used by physical therapists. The points of reference consisting of the lobe of the ear, the

seventh cervical vertebra, the acromial process, the greater trochanter, just anterior to midline of the knee, and slightly anterior to the lateral malleolus form a theoretical line around which the body is balanced in perfect skeletal alignment, yielding equal weight distribution and maximum joint stability.

There are varieties of postural abnormalities of different parts of the body. The most common one are postural abnormalities of spinal cord (lordosis bad body posture and lordosis, kyphotic bad body posture and kyphosis, scoliotic bad body posture and scoliosis, dorsum planum), chest (pectus carinatum – chicken breast, pectus excavatum – shoemaker breast), knee (genu varum – “X” legs, genu valgum – “O” legs) and foot (pes planus - flatfoot). Mostly, it’s about asymmetry in sagittal or frontal plane, or there’s an absence of alignment.

### **Yoga as a useful system for reduce of the muscular imbalance**

The word of yoga originates from Sanskrit and means „to join, to unite“(Maheshwarananda, 2000). Yoga is an ancient discipline of body, mind, and spirit that has been Westernized and practiced for its health benefits (Raub, 2002). Hatha Yoga is a comprehensive, holistic mind-body practice incorporating both cognitive (meditation, concentration) and somatic (physical postures - Asanas, breathing exercises - Pranayamas) components (Khalsa & Cope, 2006). Hatha Yoga, through holding static physical postures (Asanas), uses stretching and improves muscular strength and flexibility (Tran et al., 2001; according to Raub (2002) so that it would likely be beneficial

for some musculoskeletal problems (Garfinkel and Schumacher, 2000; according to Raub, 2002; Luskin et al., 2000: according to Raub, 2002).

Yoga asanas are certain special pattern of postures that stabilize the mind and body. Their aim is to establish proper rhythm in the neuromuscular tonic impulses and to improve the general tone of the muscles. Asanas, as a preventive medicine can be used for avoiding the causation of postural deformities like cervical spondylos, lordosis, etc. Also, Asanas can be used for release of physical stress resulted from day-today negative emotions of behavioural pattern. This will help to avoid psychosomatic or psychological disorders like hypertension, gastric acidity, depression neurosis etc. The regular correct practice of asana also helps to prevent constipation, arthritis, asthma, diabetes, obesity etc. (Shankar, 2005).

Hatha Yoga is a useful system for patients with muscular imbalance. The yoga exercises systematically train the muscles of the whole body, alternating stretches with holding postures, relaxation and movements. This program can improve muscular balance and joint health – two parts of locomotor system very important for good body posture. Poor posture and bad habits in movement place undue of pressure on the spine. The resulting muscular tension is a frequent cause of back pain. Yoga Asanas generally involves some part of the spine in the exercise. Stretching and strengthening the muscles should be combined, because strong and flexible muscles form an important protection for the spine and joints. That’s why regular yoga practice

reduces the symptoms of spine problems after just a few weeks. Practice of the Yoga Asanas provides the necessary range of movement to maintain proper health of muscles, ligaments, cartilage and joint capsules, which is essential for their function (Maheshwarananda, 2000). Yoga exercises are in fact psychosomatic exercises, meaning that they influence the body, mind, breath and consciousness, and they are good because all exercises are mostly isometric muscle contractions, and this type of contraction is good cause the results can be seen very fast – it's very effective type of exercise. Another good thing about Yoga asanas is the breathing – deep and slowly, and in the right moment.

## PROBLEM AND AIM

The problem of this research is indications and contraindications for using yoga asanas as method for prevention and treatment of postural abnormalities. The subject of this research is the use of Yoga as method of corrective treatment.

The research was carried out with the aim of determining which yoga asanas can be beneficial, and which can be harmful to persons with postural abnormalities.

## METHODS

The basic method was “Content analysis of literature” provided on the issue of as method of corrective treatment. Content analysis is a widely used qualitative research technique. Rather than being a single method, current applications of content analysis show three distinct approaches: conventional, directed, or summative. All three approaches were

used to interpret meaning from the content of scientific studies adhere to the problem indications and contraindications for using of the yoga asanas in prevention and treatment of postural abnormalities.

## RESEARCH REVIEW

The research review will cover literature and scientific researches that have been investigating problems and area in which we're interested.

**Savic et al. (1990)** were investigating the Hatha Yoga's effects on the posture of 15 ten year-old children and also its effects on the psychophysical condition of 15 grown-ups. As symptoms, during the first examination, 12 of the 15 children had head protrusion, 14 had shortened back extensors, and all 15 had bent shoulders, relaxation of the frontal abdominal wall and shortened flexors of both the calf and thigh. The condition of all the children was remarkably better after six months of practice, some of the symptoms having completely disappeared (head protrusion, asymmetry of the shoulders, mammilla and hips, shortening of the pectoralis and back extensors), 9 children still had slight to medium relaxation of the frontal abdominal wall, 8 children still had bent shoulders, and 1 child still had shortened calf and thigh extensors. The adults were in a weak or very weak psychophysical condition, they tired easily, they complained of sleep disturbances, fluctuation of emotional state and irritability. After 3 months of practice, the vital capacity of 8 of the adults tested (53.3%) had increased by 435 ml. The time duration of apnoea had lengthened for all of the practicing adults, but with a truly

large variation among them (a median of 14%). The deep waist-bend length of all the practicing adults had lengthened by an average of 9.5 cm and the average length increase for the 3-minute running test was 42 m. All those who practiced, had experienced an alleviation of psychic.

**Greendale et al. (2002)** in their pilot study were evaluating Yoga effects on women with hyper kyphosis. The sample of examinees consisted of 21 women with physician-diagnosed hyper kyphosis, 75 years of age. Hyper kyphosis – a kyphosis angle 40°—the 95th percentile value for young adults, may be associated with physical and emotional limitations and may have multiple precipitants. Authors think that Yoga could be an optimal intervention for hyper kyphosis in that it may improve physical and emotional functioning as well as combat some of the underlying muscular and biomechanical causes. They conducted a single-arm, non-masked intervention trial to assess the effects on anthropometric and physical function of yoga among women with hyper kyphosis. This pilot study suggests that the use of yoga among women with hyper kyphosis is safe and acceptable and may produce better posture. The mechanisms by which postural improvements occurred among research participants may have included increased strength and flexibility (attested to by improvements in physical function measures) and heightened attention to alignment (as reflected in women's diary entries).

**Raub (2002)** in his literature review was investigating psychophysiological effects of Hatha Yoga on musculoskeletal and cardiopulmonary function. This research covered literature published from

1985 to 2002, i.e. approximately 120 published records. Author has notice that over the last 10 years, a growing number of research studies have shown that the practice of Hatha Yoga can improve strength and flexibility, and may help control such physiological variables as blood pressure, respiration and heart rate, and metabolic rate to improve overall exercise capacity. This review is a summary of medically substantiated information about the health benefits of yoga for healthy people and for people compromised by musculoskeletal and cardiopulmonary disease.

**Khalsa, Cope (2006)**, based on previous research that suggest that yoga and meditation practices are effective in stress management, alleviating anxiety and musculoskeletal problems and improving mood and cognitive and physical performance, have decided to investigate effects of yoga and meditation techniques on musicians' stress, performance anxiety and performance-related musculoskeletal conditions (performance - related musculoskeletal disorders are highly prevalent in musicians, with surveys reporting up to 87%). Therefore, musicians enrolled in a prestigious 2-month summer fellowship program were invited to participate in a regular yoga and meditation program at a yoga centre during the course of the program. The 10 participants in the yoga program, 21 to 30 years of age, completed baseline and end-program questionnaires evaluating performance-related musculoskeletal conditions, performance anxiety, and mood and flow experience. Fellows not participating in the yoga program were recruited to serve as controls and completed the same

assessments (N=8). The yoga participants showed some improvements relative to control subjects on most measures, with the relative improvement in performance anxiety being the greatest. The results from this preliminary study suggest that yoga and meditation may be beneficial as a routine practice to reduce performance anxiety in musicians. Results do indicate that the approaches used in the yoga intervention were well-accepted by professional musicians and that they are likely to have benefit for both improving performance characteristics and alleviating problems faced by professional musicians.

## RESULTS AND DISCUSSION

The help of the body is fundamental importance in life. For the preservation and restoration of physical health and health in general, yoga offers physical exercises, i.e. Asanas. "Asana" is the Sanskrit word for a physical posture. Expressed in general terms Asana denotes a specific position which can be held in a relaxed and comfortable manner for a long period of time. Many Asanas were derived from the natural movements and positions of animals and carry the names of animals (e.g. "cat", "deer", "tiger", "cobra", etc.). Asanas have a far-reaching effect upon body and mind. The animals instinctively used these movements and positions because of their natural benefits. These effects are attained through the practice of the Asanas. Asanas are beneficial for the muscles, joints, cardiovascular system, nervous system and lymphatic system, as well as the mind, psyche and Chakras (energy centres). Asanas are psychosomatic exercises, which strengthen and balance the entire nervous

system and harmonise and stabilise the practitioner's state of mind (Maheshwarananda, 2000).

Asanas are practising slowly to enable mental focus and conscious understanding of the movement. Physical and mental relaxation represents important prerequisite for the correct performance of all Yoga exercises and it's only in this way that the effects of the Asanas completely unfold. The breath plays an important role in the Asanas. The good coordination of breath and movement is very important for effective and harmonious practice. Use of the breath greatly enhances muscle relaxation by concentrating on tense areas of the body and consciously relaxing those parts with each exhalation. Correct breathing is fundamental for the body's optimum metabolic function. Slower and deeper breaths improve circulation, nerve function and one's whole physical condition (Maheshwarananda, 2000).

Health benefits from the regular practice of Asanas are many: flexibility of the spine is increased, the joints become more mobile, the muscles are relaxed, toned and receive a plentiful supply of blood, organ and glandular activity is stimulated and regulated, the lymphatic system and metabolism are stimulated, the immune system is strengthened, circulation and blood pressure are normalised and stabilized, the nervous system is calmed and strengthened, the skin becomes clear and fresh (Maheshwarananda, 2000). However, this only refers to healthy persons. When we are speaking about persons with postural abnormalities, Yoga Asanas can be beneficial, or totally opposite – harmful to them.

By analysing Yoga Asanas, based on knowledge of corrective gymnastic, we came to the next research results. The recommendation for persons who have problem with lordosis bad body posture (LLD) is to bent their knees when they are in dorsal decubitus, for example, when they are performing **Anandasana** – Relaxation, **Rolling sideways with legs bent** is Asana which is benefit for persons with LLD. One with scoliotic bad body posture should avoid **Shoulder Raising** in standing position, or at least should perform this exercise carefully, i.e. persons with scoliosis dexter should perform this exercise only by raising the left shoulder, and opposite. **Shoulder Circling** in standing and sitting position, is very good for the treatment and prevention of kyphotic bad body posture (KLD), if circling is backwards (circling movements forward are contraindicated for persons with KLD). **PAVANA MUKTASANA** – **Knee to Head** in sitting position with legs straight, is good for treatment and prevention of LLD, contraindicated for KLD, and one with SLD of lumbar part of spine should take good care (depending of it is scoliosis dexter or sinister). **Half Butterfly** in sitting position with legs straight, is good for treatment of “X” legs and contraindicated for “O” legs, because this position provokes the extension of already extended lig. collaterale tibiale. **MARJARI - The Cat** in starting position VAJRASANA, is contraindicated for postural disorders of spine in sagittal plane (i.e. LLD and KLD), but it is very good for persons with dorsum planum. **KHATU PRANAM - Greetings to Khatu** and **SURYAYA NAMAHA** – **Salute to the Sun** is also good for treatment of dorsum

planum, but they aren't recommendable to persons with LLD and SLD in lumbal part of the spinal cord, or at least they should perform it with caution. All meditation postures are contraindicated for persons with “O” legs, but they are good in treatment of “X” legs. Asymmetric exercises that include upper limbs, e.g. **Stretching the body** in dorsal decubitus are good for SLD, but only if are used correctly. **Raising the head** in dorsal decubitus is exercise that should be avoided by persons with KLD, because this Asana increases the angle of thoracic part of spinal cord. **Extension of the spine** in starting position VAJRASANA, is good for KLD and bad for LLD, because this exercise increases the angle of lumbal part of spinal cord. **PAVANA MUKTASANA** – **Knee to body** in dorsal decubitus and standing position, is good for treatment of SLD in lumbal part of the spinal cord, but if it is performed correctly, i.e. it depends is it scoliosis dexter or sinister. **Flexion of the spine** in the position of VAJRASANA, is contraindicated for KLD. **Grinding** and **The Boat** in sitting position with legs straight, are also contraindicated for KLD, and on the other side they are good for LLD, because they activate abdominal muscles which strength is very important for good body posture. **Expansion of the chest** in standing position, is not good for pectus carrinatum (this Asana extends m. pectoralis major et minor), but it's good for KLD (it strengthens m. rhomboideus). **Side bending of the upper body** in standing and sitting position, and **Twisting exercise** in sitting position, are good for SLD in thoracal part of the spine, but only if they are performed correctly, i.e. one with scoliosis dexter should perform bendings at

right side and by that will stretch the left side of upper body, and opposite. **Butterfly** in sitting position with legs straight is good for spinal posture and “X” legs, but bad for “O” legs. **Foot and Toe exercises** in sitting position with legs straight, and **Walking on toes and heels**, are asanas that are good for prevention and treatment of flatfoot, i.e. pes planus, because this movement strengthens region planta pedis. **Horizontal arm movement** in standing position, is exercise that strengthens chest muscles and that’s why is good for treatment of pectus carinatum. **PAVANA MUKTASANA – Both knees to head** in dorsal decubitus, is good for LLD, and contraindicated for KLD. **Relaxation** in ventral decubitus (**lying on the abdomen**) is not recommendable to persons with LLD and KLD, because the earth gravitation is moving lumbal part of the spine and shoulders down and stretches m. rhomboideus – the muscle responsible for good posture of thoracic part of the spine. **Stretching** in ventral decubitus (**lying on the abdomen**) with hands above head is good for spine and muscles that support it. The asana in which we are **bringing the arms behind the back** in the ventral decubitus, aren’t good for KLD and LLD. **Raising the head with legs bent** and **Raising the head and legs** in ventral decubitus is good exercise for KLD, and bad for LLD. **Relaxation in Tiger pose** is good to use in treatment of SLD, but it is necessary to use it correctly – persons with scoliosis dexter, for example, must only stretch the right side of the body, and opposite - persons with scoliosis sinister must only stretch the left side of their body. **Rowing** in sitting position with legs straight is good for postural disorders of

spinal cord in sagittal plane (i.e. LLD and KLD). **Forward bend** of upper body **while sitting** with legs straight, is good exercise for LLD, and bad for KLD. Variation of this exercise with **one leg bent** should avoid persons with SLD. **MANDUKI ASANA – The Frog** in standing position, is example of exercise that could only be beneficial to spinal posture and it is also good for treatment of “X” legs, but bad for “O” legs.

**MERU AKARANASANA – Stretching the spine and inner thigh and MERU VAKRASANA – Simple twist**, in sitting position with legs straight, and then with turning the body to one side, left or right, are asanas that could be good for treatment of SLD in the lumbal part of the spine, but only if they are done correctly, i.e. persons with scoliosis dexter must only stretch the right side of the body, and opposite - persons with scoliosis sinister must only stretch the left side of their body. **BHUNAMANASANA – Greeting the Earth**, is exercise which should be avoided by persons with SLD, especially with SLD in lumbal part of the spine. **ASHVA SANCHALANASANA – Horse riding exercise** in sitting position with legs straight, is good for prevention and treatment of LLD, because it strengthens abdominal and back muscles. **MERU PRISHTHASANA – Rotating the upper body** in standing position, is exercise which should be avoided by persons with SLD, especially with SLD in lumbal part of the spine (the rotation in horizontal plane is causing the torsion of the spine and that is the main problem with scoliosis). **CHATUSHPADASANA – Four legged exercise, KATICHAKRASANA – The Well** and **DVIKONASANA – Double**

**triangle**, all three in standing position, and **SUMERU ASANA – Mount Everest pose** in VAJRASANA position, are good exercises for whole body, especially for spinal cord, and it can be used either by persons with good or bad body posture. **SETU ASANA – The Bridge**, is asana that should be carefully used by persons with weak abdominal muscles, because it could lead to LLD.

**VYAGHRASANA – The Tiger** in starting position of VAJRASANA, is exercise that should be avoided by persons with LLD and SLD in lumbal spine. **SKANDHARASANA – Shoulder pose** in dorsal decubitus, should be avoided by persons with LLD and KLD, and **VIPARITAKARANI MUDRA – Half shoulder stand (“Renewal of Energy”)** in dorsal decubitus, should be avoided by persons with KLD. **USHTRASANA – The Camel** in position of VAJRASANA, should be avoided by persons with LLD, and also by persons with SLD, cause of asymmetry in frontal plane. **TRIKONASANA – The Triangle**, with variations in standing position with legs apart, and **EKAPADA UTTHANASANA – One-Legged pose** in standing position, have an accent to the asymmetry in frontal plane, which is not good for persons with SLD. **HANSASANA – the Swan**, it’s also not good for SLD, and for LLD.

**TRIYAK BHUJANGASANA – Twisting Cobra** in ventral decubitus, is asana that is very good for treatment of KLD in thoracic part of the spine, but bad for LLD and SLD. **SANTULANASANA – Balancing pose** in sitting position with legs straight, is good for LLD because it’s strengthens abdominal muscles.

**BHUJANGASANA – The Cobra** in ventral decubitus is recommendable for treatment of KLD, but contraindicated for LLD. **SARVANGASANA – Shoulder stand** in dorsal decubitus, and **HALASANA – The Plough** in dorsal decubitus, are contraindicated for KLD. **DHANURASANA – the Bow** in ventral decubitus is contraindicated for persons with LLD. **ARDHA MATSYENDRASANA – Seated twist** in sitting position, is contraindicated for some types of scoliosis, i.e. persons with scoliosis dexter must only stretch the right side of the body, and opposite - persons with scoliosis sinister must only stretch the left side of their body.

**YOGA MUDRA – Forward bend sitting on heels**, is not good for persons with KLD, because in this position angulus inferior scapula are distant, and m. rhomboideus is stretched. **NOKA SANCHALANASANA – Rowing** in sitting position with legs straight, is good for treatment of LLD. **CHAKRASANA – The Wheel** in dorsal decubitus is contraindicated for LLD, but good for KLD.

**EKAPADA YOGA MUDRA – One legged yoga mudra** in sitting position with legs straight, and **ARDHA UTTHANA KATI ASANA – Twist in Knee stand**, aren’t recommendable to persons with SLD in lumbal part of the spine. Body position during the time of Pranayama is not recommended for the persons with varroosis legs, but they are very good for the correction of “valgosis” legs.

## CONCLUSIONS

In the end we can summarize this research by saying and concluding which



asanas are indicated, i.e. contraindicated for postural abnormalities. First of all, for LLD beneficial asanas are: Rolling sideways with legs bent, PAVANA MUKTASANA – Knee to Head, Both knees to head, Grinding, The Boat, Half Butterfly, Butterfly, Walking on toes and heels, Stretching the body, Rowing, Forward bend while sitting, MANDUKI ASANA – The Frog, ASHVA SANCHALANASANA – Horse riding exercise, CHATUSHPADASANA – Four legged exercise, KATICHAKRASANA – The Well, DVIKONASANA – Double triangle, SUMERU ASANA – Mount Everest pose, SANTULANASANA – Balancing pose, YOGA MUDRA – Forward bend sitting on heels, NOKA SANCHALANASANA – Rowing and EKAPADA YOGA MUDRA – One legged yoga mudra. For the prevention and treatment of **KLD** we can recommend next asanas: Shoulder Circling backward, Half Butterfly, KHATU PRANAM - Greetings to Khatu, SURYAYA NAMAHA – Salute to the Sun, Stretching the body, Extension of the spine, Expansion of the chest, Butterfly, Walking on toes and heels, Raising the head with legs bent, Raising the head and legs, Rowing, MANDUKI ASANA – The Frog, CHATUSHPADASANA – Four legged exercise, KATICHAKRASANA – The Well, DVIKONASANA – Double triangle, SUMERU ASANA – Mount Everest pose, SETU ASANA – The Bridge, TRIYAK BHUJANGASANA – Twisting Cobra, BHUJANGASANA – The Cobra and CHAKRASANA – The Wheel. Asanas that are indicated for SLD, are at the same time contraindicated for this postural abnormality, depending on the type of

scoliosis: Shoulder Raising, PAVANA MUKTASANA – Knee to Head, Knee to body, KHATU PRANAM - Greetings to Khatu, SURYAYA NAMAHA – Salute to the Sun, Stretching the body, Side bending of the upper body, Twisting exercise, Butterfly, Relaxation in Tiger pose, MANDUKI ASANA – The Frog, MERU AKARANASANA – Stretching the spine and inner thigh, MERU VAKRASANA – Simple twist, CHATUSHPADASANA – Four legged exercise, KATICHAKRASANA – The Well, DVIKONASANA – Double triangle, SUMERU ASANA – Mount Everest pose, SETU ASANA – The Bridge and ARDHA MATSYENDRASANA – Seated twist.

Generally, every asana that strengthens abdominal musculature is good for prevention and treatment of lordosis bad body posture; every asana that strengthens muscles of thoracic part of the spinal cord is good for prevention and treatment of kyphotic bad body posture. One can also notice that every asana that is good for prevention and treatment of kyphotic bad body posture is contraindicated for lordosis bad body posture. It is noticeable, that persons with postural abnormality of spinal cord in frontal plane, i.e. scoliotic bad body posture, must practice carefully those asanas with asymmetry in frontal plane.

Persons with **dorsum planum** must practice asanas that are contraindicated for LLD and KLD, and the best examples are MARJARI - The Cat, KHATU PRANAM - Greetings to Khatu, SURYAYA NAMAHA – Salute to the Sun, Relaxation lying on the abdomen, bringing the arms behind the back and SKANDHARASANA- Shoulder pose. For

treatment of **pectus carrinatum** Yoga offers Horizontal arm movement; for treatment of „X“ legs it's good to practice Half Butterfly, Butterfly, MANDUKI ASANA – The Frog and all Pranayama. Yoga asanas are good for prevention and treatment of **flatfoot**, especially Foot and Toe exercises and Walking on toes and heels.

On the other side, some asanas are contraindicated for some postural abnormalities. For example, persons with **LLD** should avoid: Anandasana with straight legs, MARJARI - The Cat, some positions of KHATU PRANAM - Greetings to Khatu and SURYAYA NAMAHA – Salute to the Sun, Extension of the spine, Relaxation lying on the abdomen, bringing the arms behind the back, Raising the head with legs bent and Raising the head and legs, SETU ASANA – The Bridge, VYAGHRASANA – The Tiger, SKANDHARASANA- Shoulder pose, USHTRASANA – The Camel, HANSASANA – the Swan, TRIYAK BHUJANGASANA – Twisting Cobra, BHUJANGASANA – The Cobra, DHANURASANA – The Bow and CHAKRASANA – The Wheel. Persons with **KLD** must avoid next asanas: PAVANA MUKTASANA – Knee to Head, Both knees to head, MARJARI - The Cat, Raising the head, Flexion of the spine, Grinding, The Boat, Relaxation lying on the abdomen, bringing the arms behind the back, Forward bend while sitting, SKANDHARASANA- Shoulder pose, VIPARITAKARANI MUDRA – Half shoulder stand, SARVANGASANA – Shoulder stand, HALASANA – The Plough and YOGA MUDRA – Forward bend sitting on heels.

Thanks to Yoga the body becomes flexible, the muscles strengthened and through this the joints become stronger. Those are three most important things for good body posture, and that's why this type of exercise can be used in prevention and treatment of postural abnormalities. However, the health effects on body, mind, psyche, emotions are side effects of yoga and help us towards the spiritual goals of yoga - union first of physical and mental, then union at more subtle level. Yoga, when correctly practiced, has a tremendous, natural corrective influence on us at all levels.

## REFERENCES

- Collins, C. (1998). Yoga: intuition, preventive medicine and treatment. Available on: <http://www.blackwell-synergy.com>
- Greendale, G. A., McDivitt, A., Carpenter, A., Seeger, L. & Huang, M. (2002). Yoga for women with hyperkyphosis: results of a pilot study. Available on: <http://www.ajph.org/cgi/content/full/92/10/1611>
- Griegel-Morris, P., Larson, K., Mueller-Klaus, K. & Oatis, C.A. (1992). Incidence of common postural abnormalities in the cervical, shoulder, and thoracic regions and their association with pain in two age groups of healthy subjects. Available on: <http://www.ptjournal.org/cgi/reprint/72/6/425>
- Khalsa, S.B.S. & Cope, S. (2006). Effects of a Yoga lifestyle intervention on performance-related characteristics of musicians: a preliminary study.

Available on:

[http://www.medscimonit.com/pub/vol\\_12/no\\_8/8987.pdf](http://www.medscimonit.com/pub/vol_12/no_8/8987.pdf)

Maheshwarananda, P.S. (2000). The system "Yoga in Daily life". Vienna: European University Press.

Raub, J.A. (2002). Psychophysiologic effects of Hatha Yoga on musculoskeletal and cardiopulmonary function: a literature review. Available on: <http://web.ebscohost.com/ehost/pdf>

Rehor, P. R., Kornatovska, Z. (2013) Measuring of health - related benefits of physical activity in high school students. Acta Salus Vitae, 2013, 1 (2). 151 - 160.

Savic, K., Pfau, D., Skoric, S., Pfau, J., Spasojevic, N. (1990). The effect of Hatha Yoga on poor posture in children and the psychophysiologic condition in adults. Available on: <http://ncbi.nlm.nih.gov/entrez/query.fcgi>

Shankar, G. (2005). Yoga psychotherapy around the world. Available on: <http://iranpa.org/pdf/024.pdf>

## CONTACTS

Ass. Prof. Tijana Purenović-Ivanović  
University of Niš,  
Faculty of Sport and Physical education  
Serbia  
E-mail: [tijana\\_purenovic@yahoo.co.uk](mailto:tijana_purenovic@yahoo.co.uk)