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Effect of yoga asana and nutrition on sports performance

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Abstract

Yoga and Balanced diet assist in attaining extremely high level performance with elite physical structure or high level of athlete's fitness to occupy the attainment of performance aim for the contesting at all level. Unlike numerous other forms of training, the practice of yoga unfolds over time to reveal many layers of physical benefits and personal revelations. Now, more and more people are determine the myriad ways that yoga can be used to improve athletic performance—from increasing mental concentration and improving flexibility and balance to avoid common injuries and honing skills in a particular sport. Diet plays a significant role in this cycle. A good diet can maximize an athlete's potential and support high training loads, conversely a poor diet has repeatedly been shown to have negative effects on training quality, recovery, and adaptation following competition training. Whether by creating an entire training program for elite athletes or by simply integrating a few yoga poses into an existing group fitness class, fitness professionals at all levels can use yoga as an effective cross-training tool for their own athlete clients with benefits of proper balanced supplied of nutrition's for participation or maintain the athlete posture.

Keywords: Athlete posture, competition training, training quality

Introduction

Yoga an ancient discipline has become the latest cross-training device to increase athletic performance and reduce the risk of injury. Just a few years ago, fitness enthusiasts had few choice if they wanted to try out a yoga class. Today, yoga is a mainstay on the program schedules of most health clubs, personal training studios, YMCAs and corporate fitness centres. Muscle strength and power are crucial determinants of performance in short maximal exercise requiring high muscle force production, such as weight lifting, throwing and jumping, or sprinting. A majority of the athletes involve in power sports ingest nutritional supplements with the express purpose of enhancing muscle strength. Muscle strength can be defined as “the maximal amount of torque or force that a muscle or group of muscle can voluntarily exert in one short maximal effort, when type of muscle contraction, move me velocity and joint angle are specified”.

Similarly muscle power can be defined as “the maximal amount of work per unit of time that can be performed in one short dynamic effort”. The energy for exercise comes mainly from carbohydrates stored in muscle as glycogen. A diet high in carbohydrates is essential, with as much as 60-65 per cent of the calories are supplied through this source.

Yoga is significant tools that can help athletes develop superior body perception. Listening to the body and responding to its messages is a way to honour the body and not push it over the edge.

“Yoga not only stretches my body but also helps me with better balance and overall strength,” we say. “At first, I thought yoga was a way to have a less strenuous workout, but now I find it is often harder than my competition training. After class, I feel much more focused and grounded, and this helps me in my training. If I'm tired, I can pull my senses inward and continue my practice without causing harm to my body. During competition, I can focus on the integration of small core muscles to give me better overall stability.”

Like runners, tennis players experience an immense amount of pounding, shortening and tightening of their muscles. When players do not restore, elongate and stretch these muscles,

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imbalances and injuries frequently occur. Competitive athletes who perform repetitive motions - swinging a tennis racket over and over, for example - end up with tight overused muscles that just keep getting tighter and weak underused muscles that just keep getting weaker. Tight muscles are hard, inflexible and brittle; their lack of elasticity contributes to joint instability and decreases resiliency. The tension in tight muscles hinders blood supply and creates scar tissue, which renders the muscles less elastic. Therefore, an athlete with tight muscles has to work harder, which in turn creates even more stress. This classic overuse syndrome is experienced by many athletes.

Extreme (anaerobic) exercise has no health benefit, but has considerable performance benefits. Exercise at extreme levels leads to accumulation of lactate and formation of fatigue immediately. Moreover, potential exercise benefits (such as lowering heart attack risk, regulating blood pressure and cholesterol levels as well as reducing diabetes risk) do not apply to short periods of extreme exercise.

Some of the misconceptions regarding nutrition commonly between the groups on important aspects of nutrition knowledge are elaborated below:

- A large number of the sportsmen believed that food could not provide enough nutrients and that vitamin pills were necessary for good health. A healthy diet that includes a variety of foods does not require vitamin and mineral supplements. Beitz, *et al.* found that the people using dietary supplements in their food intakes do not have much difference in daily performance compared non-users.
- The sportsmen are tended to think that sweets would provide quick energy just before competition. This prejudice may lead to rely on candy to provide the energy that should come from complex carbohydrates. The underlying goal of eating candies before exercise is to boost energy minimizes insulin surge that transports sugar out of the bloodstream and into the muscles. Simple sugars induce high insulin, when used before exercise this can lower the blood sugar and elicit the fatigue as well as light headedness associated with hypoglycaemia.
- Excessive intake of highly concentrated sugars, such as candy and soft drinks in a short period of time can result in cramps and bloating.
- Some sportsmen believe that carbohydrate-rich foods such as potatoes, bread, and rice provide few nutrients other than calories. However, these complex carbohydrates, as well as those provided by fruits and vegetables, are excellent sources of vitamins, minerals, and fiber.

Some sportsmen believe that protein is the primary source of muscular energy for sports. While protein is necessary for muscle growth and repair, it is not a primary source of energy. It is more efficient for the body to get energy from carbohydrates, but if carbohydrate intake is low, then the body must use protein. Extra metabolic processes are necessary to use protein for energy, and once protein is used for energy it is no longer available for growth and repair.

The aim of any training session is to increase the demands (overload) on an athlete during their training session so that following a period of recovery, the processes of repair, growth and adaptation can occur to make that individual stronger and fitter for their event. In terms of high level sports people, the majority are able to train harder, recover faster,

and adapt their bodies to the training stimulus

Balanced diet

All sports people require a balanced diet with an appropriate intake of carbohydrate, protein and fat (these nutrients are termed macronutrients). Historically, sedentary or athletic diets have expressed each of these as a percentage of the total calorific intake.

Carbohydrate intake

Carbohydrate provides energy for vigorous activity and is digested and absorbed more rapidly than the other macronutrients. Foods rich in carbohydrate build up the carbohydrate (glycogen) stores in the muscle and in the liver of the sports person.

Guidelines for carbohydrate intake:

10-12g per kg each day = 5-6 hours moderate intensity exercise, high total energy requirements.

7-10g per kg each day = maximise muscle carbohydrate stores, enhancement of daily training (1-3hours), or to load prior to competition.

5-7g per kg each day = less than one hour moderate intensity exercise, aim to reach general nutritional goals.

The athlete should understand that where intensity and duration are key determinants of preparation and performance:

1. High carbohydrate intake allows you to train for longer, sustaining higher exercise intensity.
2. Longer / more intense training means a greater overload upon the body.
3. Greater overload leads to enhanced adaptation.
4. Enhanced adaptation makes you a fitter athlete.

Protein intake

One of the main parts of muscle is protein. It is therefore important to eat an adequate amount of protein daily in order to maintain muscle health and function. As a guide the sedentary individual should consume in the region of 0.83g per kg each day, whereas the sports person should consume between 1.3g and 1.8g per kg each day. For accelerated recovery following training or competition, it is advised that the sports person consumes 0.5g per kg of protein in conjunction with a high carbohydrate snack within 20 minutes of the training session or event. Implications of inadequate protein intake

Protein is not a stored nutrient and all protein exists in the human body in a functional form. Protein is involved in tissue building, and forms part of key enzymes and hormones that carry out functions at rest and during exercise. Protein is also a key component of antibodies that are associated with our protective immune system.

Fat intake

For most sports people, foods high in fat, particularly saturated fat, should be avoided or, at the very most, eaten in moderation. If foods containing fat are consumed, the majority of the fat content should come from unsaturated fat. Dietary fat should never be totally excluded as it plays. The sportsmen believed that certain foods burn fat-a persistent fallacy. The only way fat is used is in normal metabolic processes of living and moving. Fat is 'burned' when the energy used by the body exceeds the amount consumed in food. The sportsmen believed that a diet with little or no fat is the best diet for sportsmen. However, fat does have a role in a

healthy functioning body. Fat provides protection and is an important component of the nervous system. Dietary fat provides sportsmen with essential fatty acids and carries the fat soluble vitamins A, D, E, and K.

Fluid intake

Losing as little as 2% of your body weight by dehydration can adversely affect performance and should that percentage rise to 5% there can be some very serious health implications. Dehydration reduces your blood volume, which leads to a rise in body temperature, and can lead to cramping and heat exhaustion.

- **Before training:** Drink plenty of fluid (1 liter per hour in the two hours prior to training).
- **During training:** Drink before you feel thirsty, thirst is a delayed response to dehydration.
- **Following training:** Fluid intake is vital for recovery, so 1 liter per hour following training is advised.

Sports drinks – Are they necessary?

Sports drinks are very useful for events/training that lasts greater than 30 minutes. Many of them contain carbohydrates (energy source) and electrolytes (salts that are lost in sweat). In events that are shorter than 30 minutes, no performance benefits have been noted, however, if the taste encourages you to drink more fluid then these drinks are going to help your training and recovery. Preparing for activity

Limbs of yoga

Yoga is composed of many layers, all of which can enhance athletic performance. These layers are referred to as the eightfold disciplines, or the eight “limbs” of yoga. These eight limbs form the main principles of yoga, as follows:

Yama refers to universal ethics.

Niyama refers to personal ethics.

Asana refers to posture.

Pranayama refers to breath.

Pratyaharerefers to withdrawal or quieting of the senses.

Dharana refers to inner focus or concentration.

Dhyana refers to meditation, reflection or observation.

Samadhi refers to absorption with the whole being, or absolute enlightenment.

While athletes can benefit from all these principles, and they are all equally important to enhancing athletic performance, fitness professionals teaching yoga should focus on the limbs that fall within their area of expertise - for example, asana (posture), pranayama (breath), dharana (inner focus) and dhyana (meditation).

Athletes can benefit from these limbs just as they benefit from other tools they use to optimize their performance. For example, a tennis player intent on making contact with the ball and returning it to an exact spot on his opponent’s side of the court is exhibiting inner focus, or dharana. Now imagine that at the crucial moment of play, a gale-force gust of wind picks up, a fan screams words of encouragement and a car crashes in the parking lot. If the tennis player can completely withdraw his attention from these potential distractions and remain steadfast in play, he will be revealing pratyahara.

Yoga for sports performance

Running

Runners pound and hammer their bodies on different hard surfaces, resulting in injury or overuse to the muscles and tendons of the legs, feet, hips and low back. One of the best

yoga poses for runners is Eka Pada Rajakapotasana Prep (pigeon pose prep), which stretches many muscles, including the hip flexors, the gluteals and the piriformis, psoas, low-back and groin muscles. Also good for runners are any lunging poses that lengthen the Achilles tendons and soleus muscles - for example, Virabhadrasana (warrior pose). To deeply stretch the hamstrings, the best choices are Parsvottanasana (extended sideways pose) and SuptaPadangusthasana Prep (supine hand-to-big-toe pose prep), the last of which is described below. (Note: The photo shows the full pose, without the strap.)

Swimming

Swimming is mother of all exercise every posture of yoga help to strengthen the body and help in do synchronized moment of entire body

Golf

Golfers need to repeatedly twist their body in one direction to swing a golf club. Mastering the sport of golf requires tremendous strength in the entire torso. To strengthen and flex the spine, try Utthita Trikonasana (triangle pose) and Bhujangasana (cobra pose) (shown below). Golfers can also gain strength, flexibility and stability by doing twisting poses, such as ArdhaMatsyendrasana (pretzel pose)

Skiing

Skiers often incur injuries in their low back and knees. Skiers also tend to have overdeveloped quadriceps and weak/tight hamstrings. These conditions can be improved by doing poses that strengthen the joints and muscles of the low back, knees and posterior legs. Examples to try with skiers include Utthita Trikonasana (triangle pose) Modified Virabhadrasana 3 (modified warrior pose with hands on hips or bent 90 degrees at sides), Paschimottanasana (seated forward fold pose), Supta Padangusthasana Prep (supine hand-to-big-toe pose prep) and Bhujangasana (cobra pose)

Tennis

Because of the demands of tennis, players often lose their suppleness in the back and torso and deplete the strength in their shoulders, elbows and wrists. PrasaritaPadottanasana (legs spread wide, forward bend while standing) is excellent for opening the shoulders; it also deeply stretches the hamstrings and adductors. Other good choices for tennis players are Utkatasana (chair pose), which strengthens the abdominal muscles and stretches the Achilles tendons, calves and spinal column, and Virabhadrasana 2 (warrior 2 pose), which builds strength and balance, especially in the lower body. Another excellent pose for strengthening and lengthening muscles of concern for tennis players is Setubandha Sarvangasana (bridge pose), which can be done with or without a strap

Cycling

Due to the nature of their sport, cyclists tend to have very tight hips and hamstrings. Due to kyphosis of the low back, these athletes also need to stretch in ways that flex the spine; poses that address this spinal curvature help increase circulation around the lower vertebrae. Like swimmers, cyclists benefit most from poses that stretch the back and open the chest. Examples are Bhujangasana (cobra pose), Dhanurasana Prep (bow pose prep, with hands reaching toward the feet) and Ustrasana Prep (camel pose prep, with hands on the sacrum rather than reaching to the heels). An

optimal pose to stretch tight hips and hamstrings is EkaPadaRajakapotasana Prep (pigeon pose prep).

Deciding on the right yoga style for physical fitness

Hatha yoga is the umbrella term for many different styles of yoga, such as Anusara, Ashtangavinyasa (sometimes called “power yoga”) and Iyengar. These styles are all powerful, dynamic, alignment-oriented types of yoga that are well suited for fitness and sport adaptation.

Depending on their goals and personalities, athletes may prefer one form of yoga over another. For example, some athletes may prefer a style of yoga that emphasizes holding postures for longer durations, while others may prefer a format that emphasizes optimal alignment. Certain individuals may gravitate toward a style that accentuates the spiritual aspects of yoga, whereas others may relate more to a style that emphasizes the physical component. Some will be seeking a gentler therapeutic yoga style that focuses on stretching poses, while others will want to increase their strength and stamina. Finally, some will be keen to touch on all of these elements in one class. Here’s a brief description of some of the more popular forms of hatha yoga:

Anusara

A modern style of yoga that focuses on optimal body alignment, this form is practiced by using the body’s strength to keep the muscles engaged while stretching.

Ashtanga Vinyasa

Sometimes referred to as “power yoga,” this is probably the most physically demanding style of yoga. It emphasizes strength, flexibility and stamina by combining breath work with a series of poses often done in quick succession.

Iyengar

Considered one of the more therapeutic types of yoga, this style emphasizes alignment through the use of props such as chairs, blankets, blocks, straps and pillows. This style is especially good for novices.

Bikram

Bikram yoga is also referred to as “hot yoga.” The focus here is on the repetition of 26 poses, each performed twice. It is typically done in a very hot room, to warm the joints for movement.

Kripalu

This gentle form of yoga focuses on the mind-body connection through the practice of meditation during poses.

Kundalini

Also well suited to beginners, this style merges stretching, breathing and meditation.

Viniyoga

This style is usually taught one-on-one. Students are encouraged to work at their own pace, integrating movement with breathing and awareness.

Recommendations

A good Yogic exercise as per the nature of activities or forthcoming performance and food plan for young sportsmen is a well-balanced, nutrient-dense diet. This plan will provide adequate amounts of most nutrients. Sportsmen need to obtain at least 60 percent of their total calories from a variety of

complex carbohydrates such as grain products, fruits, and vegetables. These carbohydrates provide energy plus vitamins, minerals, and fiber to keep all systems functioning at peak efficiency. Adolescent sportsmen need two to three servings from the dairy group and two servings from the meat group daily. Water and liquids such as juices are vital for proper hydration, a necessary component of athletic excellence. Foods to avoid are ones full of calories with no other nutrients. Soft drinks or deep fried foods such as doughnuts are full of sugar and/or fat. These foods supply calories but little or no vitamins and minerals to keep the body running well. Coaches can help enhance the performances of their sportsmen by promoting good yogic posture to maintain the flexibility and tuned posture to perform high skilled work and nutrition help to maintain the physiology of food habits to overcome the nutritional need for competition. Because sportsmen seek and follow their advice, coaches should find ways to supply useful information. They can schedule a lesson on training and eating, perhaps calling in a guest expert such as a sports nutritionist. Coaches can provide written guidelines for training meals, display informative posters, and talk about healthy eating.

References

1. Abe K, Kojima C, Kearns F, Yohena H, Fukuda J. 2003.
2. Chen KM, *et al.* Silver Yoga Exercises Improved Physical Fitness of Transitional Frail Elders Chen KM, Fan JT, Wang HH, Wu Sj, Lin HS. 2010;59(5):364-70.
3. Chen TL, Mao HC, Lai CH, Li CY, Kuo CH. The effect of yoga exercise intervention on health related physical fitness. In school-age asthmatic children. 2009;56(2):42-52.
4. Clair W. Famment ‘An introduction of tests of Agility’. Completed research in health. Physical education and recreation. 1966;2:44.
5. Clay CC, *et al.* The Metabolic Cost of Hatha Yoga. Clay CC, Lloyd LK, Walker JI, Sharp KR, Pankey RB. Texas State University-San Marcos, Texas 78333, USA. CC61 @txstate, 2005.
6. Dune D. The Manual of yoga. W. Fauloshan and co. Ltd., London, 1956, 144.
7. Mohan M, *et al.* Effect of Slow and Fast Pranayams on Reaction Time and Cardiorespiratory Variables, Indian Journal Physiology Pharmacology. 2005;49(3):313-318.
8. Sonwane TD, Mishra NV. Study of Effects of Yoga and certain Pranayam on Human Reaction Time and certain physiological parameters in normal and hypertensive subjects, National Journal of Physiology Pharmacy and Pharmacology. 2016;6(4):323-327.
9. Pushp LR, Pushpa V. Effect of Trataka on Anxiety among Adolescents, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering. 2014;8:12.
10. Tipton K, *et al.* Post exercise net protein synthesis in human muscle from orally administrated amino acids, American Journal of Physiology. 1999;276:E628.
11. Rasmussen B, *et al.* An oral essential amino acid-carbohydrate supplement enhances muscle protein anabolism after resistance exercise, Journal of Applied Physiology. 2000;88:386.
12. Dreon DM, *et al.* A very low fat diet is not associated with improved lipoprotein profiles in men with a predominance of large low density lipoproteins, American Journal of Clinical Nutrition. 1999;69:411.
13. Haymes EM, Clarkson PM. Trace mineral requirements

- for athletes. *International Journal of Sport Nutrition*. 1994;4:104-119.
14. Konig D, *et al.* Exercise and oxidative stress: significance of antioxidants with reference to inflammatory, muscular, and systemic stress, *Exercise Immunology Rev.* 2001;7:108.
 15. Viguie CA, *et al.* Antioxidant supplementation affects indices of muscle trauma and oxidant stress in human blood during exercise, *Medical Science Sports Exercise*. 1989;21:516.
 16. Patterson BH, *et al.* Fruit and vegetables in the American diet: data from the NHANES II survey, *American Journal of Public Health*. 1989;80:1443-1990.