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A STUDY OF YOGA AND EXERCISE OPTIMIZATION OF SHOT PUT PERFORMANCE IN SCHOOL LEVEL ATHLETES

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Introduction

Shot put is a sport in athletics wherein a spherical weight is put or thrown from the level of shoulder to a maximum possible distance. In ancient times, a stone was put instead of heavy spherical weight. Different types of similar sports events date back approximately 2000 years. The first similar documented sport events which resembles modern day shot put occurred during the Middle Ages, where in the soldiers used to compete using cannon balls. Shot put events were recorded and documented back in Scotland in early 19th Century and were included in the British Amateur Championships which started in 1866. Even though, the weights in the earlier events ranged from 3.64 kg to 10.8 kg i.e. 8-24 pounds, a standard regulation weight 7.26 kg i.e. 16 pound shot was used for males during the 1st Olympic Games of 1896 and other international competitions. The sport of shot put was included in the women's Olympic games in the year of 1948. The weight used for women competitors in the Olympic games is 4 kg i.e. 8.8 pounds. However, lighter weights are used for women at veteran competitions.

Generally, the weight used as shot is made up of brass or solid iron, although any metal harder than brass can be used. The shot or iron ball is put from a 2.135 meter diameter circle in a 40^0 sector when measured from the centre of circle. In the front, the circle has a 10 cm i.e. 4 inches high stop board, which when stepped upon by the competitor, makes the throw invalid. The competitor holds the shot near the chin and with one hand, and should not drop behind or below the competitor's shoulder level during the entire shot.

Consistent improvements in the technique of shot put throw have resulted in the breaking of previous records. The IAAF (International Association of Athletics Federations) recognized the 1st world record in shot put as 9.44 meters i.e. 31 feet. This record has been made by J. M. Mann of U.S. in 1876. As per the conventional method, the athlete used to face right angle to the direction of put in the beginning. A new style of starting the throw was developed by an American named Parry O'Brien in 1950s. According to this style, the face of the athlete should be backward in the beginning. As a result of this position, the shot brought around 180^0,which earlier used to be 90^0. He also observed that the longer the shot is pushed, the farther it travelled. In 1956, Mann's record was doubled by O'Brien with a record put of 19.06 meters i.e. 62.5 feet, and due to this success, this style was universally adopted. Later on, Randy Matson, an American pushed this record to more than 21 meters (68 feet); further this record was extended to more than 23 meters (75 feet) as most of the athletes used a technique wherein the putter spins for more than 360^0 with the shot.

Introduction to Yoga

Yoga shastra unmistakably recognizes the interdependence of body and mind. It prescribes exercises both for the body and the mind, so that the two might develop themselves in a spirit of co-operation to such a balanced psycho-physiological condition that they should cease to enslave the human soul. Yogins are convinced that thus freed from the thralldom of body and mind, the soul realizes its boundless existence of infinite bliss.

In order to practice the higher and more deeply subtle stages of yoga it is essential that one should first restore health to its optimum. Yoga is not about bulging muscles or a Samson type of body. In fact, it is seen that even fitness freaks are susceptible to infection, disease and mental problems. Yoga takes a comprehensive view of health, defined as the absence of disease, the ability to resist infection, flexibility of the body, mental peace, and the maintenance of the psychic or pranic body in order to function effectively.

All this is achieved primarily by the practice of asanas and pranayama, which make up the integral part of the several systems of yoga originating from the Tantras. However, it does not take much to define ill health. Without delving too deeply into technical or medical terms and statistical details easily available on the internet, a dose of self inquiry could be enlightening. Where there is discomfort, pain, disability, emotional instability or a lack of vigour and vitality pulsating through the body all adding up to a state of ill health-there is a problem that needs to be solved as quickly as possible. As the old axiom says: A stitch in time saves nine.

Unfortunately, most of us tend to neglect the initial signals of illness, or the alarm bells that tell us that something is wrong. Sheer procrastination in trying to determine the cause of prevalent symptoms rules many of us. But when lighting strikes and causes distress, we al scramble to find doctors, hospitals or drugstores. Such symptoms that strike suddenly create trauma, worry and anxiety and , finally, stress, which results in a host of associated conditions.

Generally, all disease is a manifestation of a violation of principles of living and the laws governing the body. This violation may be either physical or mental and occurs largely due to ignorance. Four timely aspects are paramount to combat any disease:

1. The right diagnosis
2. The right therapy to remove the symptoms
3. The right therapy or healing system to eliminate the cause
4. Avoidance of all violations responsible for the recurrence or fortifying of the undesirable condition.

Problem and its Relevance

Shot put is a sport which demands high strength and stamina (Terzis *et al*. 2003). Muscular strength is the most important parameters which determine the strength of a muscle group. Muscular strength is utmost important parameter for successful shot put performance in case of both trained as well as untrained athletes. In fact, muscular strength and shot put performance are directly proportional to each other, more so in the case of trained athletes. This might be due to the fact that trained shot put athletes can utilize their muscles more efficiently as compared to the untrained shot put athletes. Although, there are well-known specialized exercises for training shot put athletes, unfortunately some specific exercises with or without weights have received little recognition. In fact, flexibility and musculoskeletal alignment can enhance physical performance and calm the mind along with improving parasympathetic activity which results in quick and easy recovery of athletes. During stressful situations, the body goes through the experience which is same as that of intense training. In this context, Yoga practice appears to train the mind and body in order to reduce the sympathetic drive, thereby resulting in the enhancement of quality and duration of recovery process. Yoga can improve an athlete’s performance by preventing injury and also by enhancing their physical and mental health.

Pranayama, a part of yoga practice, is also helpful in improving cardio respiratory functions, which plays an important role in enhancing a shot putters performance. Cardiopulmonary fitness is the ability of heart and lungs to bring the oxygen and metabolites to the muscles with the help of blood vessels whenever needed (Rogers *et al.,* 1990). Therefore, several records and victories registered in competitive sports are due to optimum cardio respiratory fitness. Cardiopulmonary fitness is evaluated by measuring the oxygen consumption rate of a person (Asadmanesh 1997). In fact, oxygen consumption is one of the determining factors of resistance performance (Chaterjee *et al.,* 2005). VO_2 max is the highest amount of Oxygen consumed by a person at the time of maximal exercise. A lot of sport science experts have recommended VO_2 max to be used for evaluation of aerobic fitness and for prediction of athlete's success in resistance exercises. Maximum oxygen consumption and cardio respiratory fitness are the most credible and important parameters of physical fitness and endurance capacity (Zahrayee 1996; Haghravan 1993).

Research reports indicate that practice of yoga are helpful to improve muscular endurance (Ray, Hegde, *and* Selvamurthy, 1986), hand-grip strength (Madanmohan *et al*., 1992), flexibility (Gharote, Ganguly,*1979),* and maximal oxygen uptake (VO_{2max}) (Bala Subramanian, *and* Pansare, 1991). In addition, decreases in percent body fat (Bera *and* Rajapurkar 1993) and increases in forced vital capacity (FVC) and forced expiratory volume in 1 second ($FEV_{1.0}$) (Bhole, Karambelkar and Gharote 1970; Joshi, Joshi and Gokhale 1992; Makwana, Khirwadkar and Gupta 1988) have also been observed. Further, Tran *et al*., (2001) reported improvement in knee flexion endurance ankle flexibility, shoulder elevation, trunk extension, and trunk flexion.

Although numerous studies could show effect of yoga practices on sports performance, however, little is known about the shot put event in relation to yoga. Hence, the investigator has undertaken this study entitled, "***Yoga and exercise training for optimization of shot put performance in school level athletes***".

1.6 Objectives of the study

To identify and assess the selected fitness variables as required for optimizing shot put performance.

To prepare specific 'yoga plus exercise' and 'exercise' training schedules considering the enhancement of the selected morphological, anthropometric and fitness variables and shot put performance among athletes.

To conduct a controlled experiment for evaluating the efficacy of selected 'yoga plus exercise' and 'exercise' training schedules on the selected variables so as to exhibit top performance in Shot put.

1.7 Hypotheses

On the basis of literature available, so far, it is hypothesized that:

H_1: 'Yoga plus exercise' training may be superior to 'exercise' training in improving **morphological and anthropometric** variables required for the shot putters.

H_2: 'Yoga plus exercise' training may be superior to 'exercise' training in improving variables of **physical fitness** required for the shot putters.

H_3: The selected 'yoga plus exercise training' would be additionally beneficial than 'exercise training' for enhancing shot put performance of the athletes.

1.8 Delimitation of the Study

- The present investigation will be delimited to the school level male athletes aged 14 to 16 years.
- Major variables considering morphological, physical fitness and shot put performance will be delimited for measurements.

1.9 Scope of the Study

The study has very wide scope because it has been designed in such a way so that it will help other research scholars, sport scientist, and scientists of physical education to conduct similar studies on different athletic events in future. Moreover, similar studies may also be conducted considering different sex and level of performance in different sport events.

1.10 Significance of the Study

- The study may help the athletes understand their level of fitness and performance in shot put, which is required to be improved for exhibiting an excellent performance.
- Since yoga has an Indian base, our Indian athletes may very well accept it easily and coaches will implement yoga as an added strategy for showing improvement in selected components of physical fitness as well as improvement in shot put performance.
- The newly designed training schedule of yoga and exercise, as a result of this study, may be beneficial for the Indian track and field athletes participating in national and international competitions.

References

Ahrenhold, Franz. P. (1977).A comparison of the use of nautilus equipment and Olympic barbells in the development of muscular strength. (M. S. in Physical Education), The Pennsylvania State University, University Park: Pennsylvania.

Alexander, M. J., Lindner, K. J., & Whalen, M.T. (1996).Structural and biomechanical factors differentiating between male and female shot put athletes.Journal of Human Movement Studies, 30, 103–146.

Asadmanesh, A. (1997). Surveying validity of Shuttle run test and step test in measuring cardiorespiratory fitness of students.M. A. Final theses.Tehran University.

Balasubramanian, B.,&Pansare, M. S.(1991). Effect of yoga on aerobic and anaerobic power of muscles.Indian J Physiol Pharmacol, 35(4), 281–282.

Bednarski, K. N. (1987). Foot morphology of women athletes. (M. S. in Exercise Science), Northeastern University: Boston, Massachusetts.

Bera, T. K.,&Rajapurkar, M. V. (1993). Body composition, cardiovascular endurance, and anaerobic power of yogic practitioner.Indian J Physiol Pharmacol., 37(3), 225–228.

Bevier, W. C., Wiswell, R. A., Pyka, G., Kozak, K. C., Newhall, K. M., &Marcus R. (1989). Relationship of body composition, muscle strength, and aerobic capacity to bone mineral density in older men and women.J Bone Miner Res., 4(3), 421-432.

Bhole, M. V., Karambelkar, P. V., &Gharote, M. L.(1970). Effect of yoga practices on vital capacity (a preliminary communication).Indian J Chest Dis., 12(1), 32–35