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A study of the effect of selected pranayama on breath holding capacity of riffle / pistol shooting players

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Abstract

The objective of this study was to study the effect of selected pranayama on breath holding capacity of Riffle/ pistol shooting players. 30 female players aged 15 to 30 years of ahmedabad Riffle club were selected as subjects for this study. Who were given 8 weeks training of selected pranayama. Statistical analysis has been done by t-test and the significance of the result was seen on 0.05 levels. With pranayama training difference was found between pre-test mean and post-test mean of experimental group. The significant difference was found between subjects performance.

Keywords: pranayama, breath holding capacity, riffle / pistol shooting players

Introduction

Shooting is a sport which requires supreme precision, striking control and close co- ordination between eye, nervous system and the musculoskeletal system. This sport is based mainly on positioning the body and stability of themind.1 Shooter has to aim at the target while breathing; with the natural inspiration and expiration movements of the chest wall, the rifle too move upanddown.2 Due to the movement created by breathing it is impossible to release an accurate shot without holding the breath.

However, as soon as breathing is suspended the body's functions begin to depreciate as oxygen starvation sets in. The eyes ability to function is the first to go followed by the muscles, which begin to contract. The breath hold should not be prolonged, so that the unnatural feeling sets in. If it is too long, the body suffers from oxygen deprivation which will cause a fatiguing sensation with muscle tremors and blurred vision and So there is a physiological urge that I must breathe, I must breath' as the body attempts to protect itself it begins to send out indications to resume breathing. These indications produce involuntary movements of the diaphragm, which interfere with the shooter's attentiveness and chest wall starts to move. All of which are not favorable to firing a meticulous shot. Shooters have to implement breathing control during the shooting process. They have to achieve eye sight alignment while breathing and finish aiming and shooting while holding breath. Shooters do this by inhaling and exhaling naturally and stop at the very point of physiological exhale, starting this respiratory hold, firing the shot and begin to inhale again. Breath hold should not be prolonged. If firing is not done within7 second so faiming then the shooter will relax, and will not take that shot. He will lower the rifle, and start again because if the position is held too long then the shooter may lose the equilibrium and concentration which is needed to take the shot.

Proper breathing is an often overlooked aspect of Rifle shooting's first principles, even though controlled breathing helps store uceun wanted rifle movements and also induce a calming effect. Breathing links physical, mental, and emotional status. The three primary blocks to positive emotional energy flow-anger, sorrow, and fear are each characterized by an imbalance in breathing. Anger often produces weak inhalation with strong and forceful exhalation. Sorrow manifests very weak exhalation coupled with fitful, spasmodic inhalation. Fear causes tension in the body and often causes breathing to be reduced to almost nothing or to stop completely for a few moments. All these emotions are faced by the sports person during competition. Recognizing these breathing patterns allows the sports person to stop and take corrective action using comfortably slow and deep belly breathing.

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This will actually take some control over the emotions, conscious mind and will relax the body. Because we have much more control over our body than the mind, breathing in this way, has profound an effect on our ability to indirectly control and calm emotional and mental activity. Even when positive emotional energy is flowing, the same breathing technique still has mental and physical benefits with calmness of mind and relaxation of the body. So, by using breathing control rifle shooters can learn to recognize and break this Cycleoftension.⁵ This breathing control can be taught in the powerful form of Pranayama.

Studies show that Pranayama decrease the reaction time. It indicates that Pranayama impacts the central nervous system, and decrease in reaction time can be brought into effect by enhancing processing ability and sensory, motor functions. These effects of Pranayama training on the central nervous system could be due to better concentration power and the ability to ignore and/or inhibit extraneous stimuli resulting in less distractibility. Which collectively leads to decreased mental fatigability and an increase in performance quotient.⁸ Hence, there is a need to study the effects of Pranayama on the performance of the shooters, so that if there is any improvement, then an organized breathing exercise protocol can be assimilated into their existing training program and can be used as another powerful tool in the shooter's toolkit.

Selection of Subject

For this study, rifle and pistol shooting players from Khanpur Rifle Clube, Ahmedabad were selected as the subjects. Male and female players of 15 to 30 years were selected.

Selection of Variables

For this study, breath holding capacity was selected as the depended variable.

Design of Study

For this study 30 male and female rifle and pistol shooting players from Khanpur Rifle Clube, Ahmedabad from 15 to 30 years of age were randomly selected. These players were given training of selected pranayama for 8 weeks.

Collection of Data

Data of breath holding capacity were selected before and after the pranayama training program.

Administration of Training Program

The pranayama training program was prepared by the researcher with the help of the experts and the same has been administrated under the supervision of the researcher. This training was given for five days a week for 8 weeks. The training program was administrated as follow:

The training program was administrated as follow:

Sr. No.	Yoga and Pranayama	Round	Count	Time
1.	Prayer	1	-	2 Mins
2.	Omkar	1	5	2 Mins
3.	Kapalbhati (Kriya)	3	150	3 Mins
4.	Nadishodhan	6	10 Seconds Rechak and 10 Seconds Puraka	3 Mins

Statistical Procedure

To compare the means of pre test means and post test mean after the training program of 8 weeks 't' test was used at 0.05

level of significance.

Result of the Study

To compare the means of pre-test means and post-test mean after the training program

Table 1: Table showing means of pre-test and post-test in breath holding test, mean difference and t value

Test	N	M	MD	SD	't'
Pre-test	30	24.46	20.14	22.4	4.96*
Post-test	30	44.60			

Level of significance 0.05 (29) = 1.697

It is evidence from Table – 1 that the pre-test mean in breath holding capacity test is 24.46, post-test mean in breath holding capacity test is 44.60, mean difference of pre-test and post-test mean is 20.14. calculated 't' value is 4.96 which is greater than the tabulated value i.e. 1.697 showing the significance difference between pre-test and post-test mean of breath holding capacity.

Discussion of Findings

Result of the study shows that there is significance difference between pre-test and post-test mean in breath holding capacity test with the positive mean difference which means that there is improvement in breath holding capacity of the subjects. This may be due to the effect of Kapalbhathi by cleaning of respiratory system, which also improves the lung capacity by making it more flexible and stronger.

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