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Acute Dehydrative Effect of Steam Bath on High Muscle Mass Athletes

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ABSTRACT

The purpose of the study was to investigate the acute effect of steam bath on total body weight of heavy muscle mass athletes. Total twelve male players who participated in all India University in weight lifting (2), power lifting(4) and body building (6) from Lakshmibai National Institute of Physical Education (LNIPE), Gwalior were taken as subject for the purpose of the study. The chronological average age of subjects was 22 years. There was only one group i.e., experimental for conducting the study. The pre test-Post test experimental design was used to collect the data. The quantitative measurement of each subject was taken with the help of standard equipment, before and after the treatment period of eighteen minutes in steam bath. The Experimental group was administered with steam room at the temperature of 56 degree Celsius for 18 minutes continuously for single session during winters. The criterion variable was assessment of total body weight through body water loss in steam room by using standard equipment before and after experiment. Dependent 't' test was computed to find out the significant difference of total body water loss in subjects. Significant effect was found in total body weight of high muscle mass players.

KEYWORDS : Body water, Muscle mass, Steam bath.

Introduction:-

Steam heat puts the body into an artificial fever state. Fever is part of the body's natural healing process. Athletes relaxing in a steam room are a great way to unwind and relieve stress after workout. The heat lets muscles to relax, and the cloud of steam provides the perfect soothing atmosphere for calming mind. Heat has been known to be effective against joint and muscular pain. It causes your blood vessels to expand, which increases blood circulation. As a result, more oxygen and nutrients can reach damaged parts of body. This has the double effect of temporarily reducing or stopping pain and increasing your body's healing rate. Especially for athletes steam gives benefits associated with steam baths include: Relief from the pain and stiffness of arthritis, tight muscles and other muscular-skeletal conditions, revives tired and strained muscles after physical exertion and profuse sweating enhances the detoxifying capacity of the skin by opening pores and flushing impurities from the body.

Steam bath makes feel rejuvenated and have increased energy levels and helps many get a more restful sleep and increasing the suppleness of the muscles and creating a deep sense of relaxation in body and mind. When taking a sauna, skin temperature rises to 40°C (104°F) and internal body temperature rises to about 38°C (100.4°F). Exposure to the high heat creates an artificial fever state. Fever is part of the body's natural healing process. Fever stimulates the immune system resulting in increased production of disease fighting white blood cells, antibodies and interferon (an anti viral protein with cancer fighting capability).

The sweat glands can secrete upto 30 grams of sweat per minute, or almost one pint per 15 minutes, so dehydration is a very real possibility. Fatigue and other indications of dehydration can occur with as little as 1 to 2% loss in body weight. When used with a good diet and exercise program, a Steam can help burn more calories. But it has also proven helpful for detoxification, having positive effects on liver and circulation problems. These last two are especially useful after a serious body workout. In this case, a steam bath works in two ways; it eases the pain and speeds up the healing of hurt tissues and muscles. The heat enlarges your blood vessels which in turn boost your blood circulation, because of this oxygen and nutrients can get to the injured body parts more easily.

Methodology:

Total twelve male players who participated in all India University in weight lifting, power lifting and body building from Lakshmibai National Institute of Physical Education, Gwalior were taken as subject for the purpose of the study. The procedure for selection of the subjects was based on purpose sampling technique. The chronological average age of the subjects was 22 year. In order to test the hypothesis of the study the criterion variables selected for the study was assessment of total body weight loss through body water in high muscle mass athletes of weight lifters (2), power lifters (4) and body builders (6) by using standard equipment called Tanata body composition analyzer (BC-420 MA). Total body weight and body water was recorded with the help of Body Composition Analyzer in state of rest. The subject was asked to drink two glass of plain water and lie down for 20 minutes with the arms extended in sides (Shavasan). Then the researcher took their body weight and total body water with the help of body composition analyzer. After measuring their total body weight and body water by Tanata body composition analyzer (BC-420 MA), then the subject was exposed to steam room which was started 15 minutes before and was set at the temperature of 56 degree celsius for 18 minutes with minimum clothes which cover sexual organ. Immediately after the completion of steam bath all subjects were asked to take rest for ten minutes in lie down position. Then the researcher again recorded their body weight and total body water as a post test by same body composition analyzer in same condition. The collected data was analyzed by using t test. Statistical significance was set at 0.05 level of significance.

Results and Discussion: In order to study the acute dehydrative effect of steam bath on high muscle mass athletes, the't' test applied at 0.05 level of significance. The findings of the study are presented in table I.

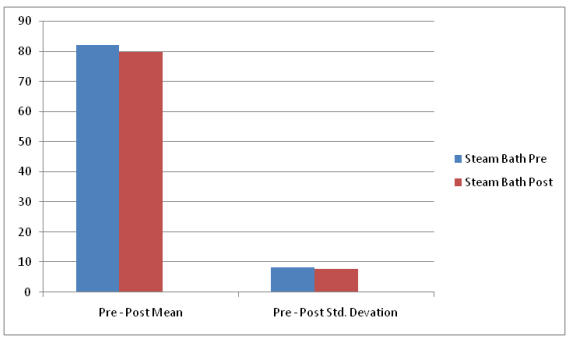
Table No I: comparison of pre-test and post test means of total body weight through body water

VARIABLE	MEAN		STANDARD DEVIATION		T-RATIO
	Pre Mean	Post Mean	Pre Std. Deviation	Post Std. Deviation	
TOTAL BODY WEIGHT	82.126	79.945	8.40317	7.76529	11.14*

*** Significant at 0.05 level significance 't' (0.05) (11) = 2.201**

Table-I show that there is significant difference between pre-test & post tests of steam bath of high muscle mass athletes as calculated value t-ratio 11.136 is greater than tabulated t-value 2.201. Thus it can be said that there was effect of one session of steam bath of high muscle mass athletes of weight lifting, power lifting and body building at 0.05 level of significant with 11 degree of freedom.

Graph: I
Comparison of mean and standard deviation of steam bath on total body weight of high muscle mass athletes.



Finding:
The main finding of the present study was assessment of acute dehydrative effect of steam bath, total body weight through body water loss in steam bath. Result in table-I show that there is significant difference between pre- post tests of steam bath of high muscle mass athletes as calculated value t-ratio 11.136 is greater than tabulated t-value 2.201. Thus it can be said there was effect of one session of steam bath of high muscle mass athletes of weight lifting, power lifting and body building.

This may be due to blood vessels become more flexible and there is increased circulation to the extremities. During a steam bath, blood flow to the skin increases to as high as 50-70% of cardiac output (compared to the standard 5-10%). This brings nutrients to subcutaneous and surface tissue resulting in glowing healthy skin. It is more dependent on muscle mass because there are more than eighty percent water in muscle mass which is more in weight lifter, body builder and Power lifters and the reason that steam bath increases the body temperature system of body (body temperature system) increase more sweating to maintain body temperature to their normal condition.

Steam bath of more than fifteen minutes can significantly lose the total body water in case of male high muscle athlete of weight lifter, power lifters and body builders. Therefore, proposed hypothesis states that steam bath has been accepted to make significant effect on total body weight through body water.

Conclusion:
The following things were observed during research:
1. Steam bath significantly reduces the total body weight in high muscle mass male athletes.
2. Steam bath significantly reduces body water in case of high muscle mass male athletes.
3. The athletes having high muscle mass and high body weight reduces more body weight and body water compared to other high muscle mass athlete having low weight categories.
4. The athletes having high lean mass as well as high body weight reduces more body weight through body water.
5. The total body water losses in percentage were 1.9% to 3.49% and in kilograms were between 1.01 to 3.08.

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