Abstract

As a coach and athlete one must learn how to teach the body to handle lactic acid. It is imperative, if you want success in today’s highly competitive field of athletics to train your muscles, body and mind to accomplish gains in performance even in the presence of lactic acid. Coaches and athletes should design training programs with this being a primary focus.

Exercise physiologist of many countries are trying to evolve an effective programme of training which may lead to utmost increase in the lactic acid tolerance capacity which can lead to enhancement of performance by pushing back the fatigue.

As lactic acid has detrimental effects on exercise performance, it is important to consider the factors which effect its removal from the blood stream. The rate at which lactic acid leaves the muscle and enters the blood stream is determined by the rate at which blood flows through the tissues. Lactic acid may then be taken up by the heart or other skeletal muscles and converted back into pyruvic acid and further metabolized in order to generate energy in the form of ATP. Some of the lactic acid not consumed in this manner is, in the period immediately after exercise, converted back into glycogen by the liver.

For the purpose of this study sixty boys in the age group of 16 to 22 years were selected from Aligarh Muslim University Aligarh. The sample was divided into four equal groups of 15 each. First group was control group, second group was subjected to intensive interval
training programme, third group was given extensive interval training programme and fourth group was given fast continuous training group. The time duration of the three training programmes was of three months.

After the exhaustive bouts of exercises in which maximum lactic acid accumulation could have been possible the three groups underwent different relaxation programmes of 15 minutes each. First group followed aerobic exercise programme. Second group followed yogic programme. Third group was subjected to abrupt rest.

A pre-experimental estimation of lactic acid tolerance capacity was made of all the subjects. After a maximal bout of 400mt running the blood sample were collected and tested for lactic acid estimation by the Accutrend Lactate Analyzer.

After the completion of three months training programmes again estimation of lactic acid tolerance capacity was made of all the subjects through blood samples collected immediately after 400mt bout of maximal running.

After exhaustive bouts of training three groups underwent three relaxation programmes and immediately after these three Relaxation Programmes again Lactic Acid estimation of all the subject through blood samples collected was made.

Blood Lactic acid was measured in mmol/l by Accutrend lactate portable lactate Analyzer.

Criterion Measure of Lactic Acid Tolerance capacity lactic acid removal rate were passed through analysis of covariance (ANCOVA) for
assessing the significant difference in the lactic acid estimation among groups of the study. Where significant differences were observed LSD test was used for comparing the means of four groups. t- test was also used to assess the significant difference in the pre and post experimental lactic acid estimation of each group.

**Lactic acid tolerance capacity:**

Statistical findings had revealed significant difference in the pre and post test estimation of lactic acid tolerance capacity means of the three experimental groups with insignificant difference in pre and post test means of control group. However significant difference was seen in the post experimental means of the four experimental groups. All the three experimental groups' means were significantly greater in their lactic acid tolerance capacity than the control group means with insignificant difference in lactic acid tolerance capacity among them, after the compilation of three months training programme.

Lactic acid tolerance capacity in the control group was same in pre and post test. But in the Intensive Interval group the lactic acid tolerance capacity was increased by 12.95%. After three month training programme. The lactic acid tolerance capacity in the extensive Interval group was increased by 10.61% after the three months training programme and in the fast continuous group lactic acid tolerance capacity was increased by 11.75% after the training programme of three months.

Thus we conclude that significant enhancement in Lactic acid tolerance capacity had taken place due to participation of the students in
three different training programmes and also the three training programmes were almost equally effective in enhancing the lactic acid tolerance capacity.

**Removal:**

The LSD analysis had lead us to conclude that aerobic exercises are best in significantly removing the lactic acid from the blood than yogic relaxation techniques and abrupt rest. However abrupt rest followed by exhaustive exercise is least effective in bringing dawn the blood lactic acid levels towards normal than the aerobic exercise and yogic group. Lactic acid levels were brought down by 13.96% levels immediately preceding the exercises after 15 minutes of resting period. They were brought down by 25.36% through aerobic exercise programme from preceding exhaustive exercise levels and were brought down by 24.19% through yogic relaxation programme of 15 minutes preceding exhaustive exercise levels.
RECOMMENDATION

Based on the findings of the study, the following recommendations are made:

1. This study should be repeated on subjects of varying age and fitness levels

2. Similar study should be carried out on subjects with different levels of participations in sports.

3. A similar study of this nature should be carried out on female athletes of varying age and levels of participations.

4. A study on lactic acid threshold should also be conducted.

5. The findings of this study should be used by the sports trainees and coaches in designing their training programme.