

THE PHYSIOLOGICAL EFFECTS OF ATHLETIC TRAINING (RUNNING), A 30 WEEKS PROGRAMME IN INACTIVE MIDDLE AGED MEN ON HEART RATE, BODY FAT, BODY WEIGHT, VO₂.MAX:

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ABSTRACT:

This study is to report physiological effects of a 30 weeks (1500 meter race) training program on a group of inactive middle aged men. These were assessed before (T1), after 15 weeks (T2) and 30 weeks (T3) training. Body composition changed ($P < 0.001$) by a decrease in body weight, skin fold total thickness and fat content (79.9 ± 10.1 kg, 56.0 ± 11.8 mm, 22.7 ± 3.7 % to 77.0 ± 11.7 kg, 48.1 ± 11.1 mm, 20.0 ± 4.0 % to 75.4 ± 11.1 kg, 48.1 ± 11.1 mm, 17.4 ± 7.4 %). From T1 to T2 Aerobic capacity (VO₂. max) increased ($P < 0.001$) from 33.8 ± 14.0 to 37.7 ± 10.7 ml/kg/min and a significance reduction in heart rate in submaximal bicycle and treadmill heart rate (H.R). From T2 to T3 no significant change in VO₂ max. (37.7 ± 10.7 to 38.4 ± 10.4 ml/kg/min) or bicycle submaximal HR. although treadmill submaximal heart rate was significantly ($P < 0.001$) reduced. These results show that during athletic training (1500 meter race) the metabolic costs of training are such that greater losses of fat can occur in a sort period of time, but the increase in VO₂ max are not greater than previously reported.

INTRODUCTION

Endurance Aerobic exercise training programs have been investigated many times in the past and reduction in body fat, weight and increased cardiovascular fitness have been reported (Pollock 1973). The program was of 3 sessions per week each session of 30 minutes of duration.

2. METHODS:

2.1 Subjects: 61 healthy male aged between 35-50 inactive.

2.2 Training program testing.

The subjects were assessed before (T1), after 15 weeks (T2) and after 30 weeks (T3) of training. No training was given on the day before testing. Exercise capacity tested by a bicycle test with continuous increment every 3 minutes by 25 watts and was started with 75 watts until exhaustion by maximum performance in all tests. Treadmill submaximal exercise multilevel program and exercise capacity assessed on separate day. At T1 and T2 three exercise levels were performed by subjects. 3 MPH level, 4 MPH level, and 4MPH 5 percent gradient. At T3 a 4th load of 4 mph 10 percent gradient added, each session lasted for 6 minutes. During both tests the following measurement were made. Expired air samples measured by Douglas Bag, Oxygen and Carbon

Dioxide percentage measured by Gas analyzer. Heart rate continuously assessed by electrocardiogram. Nude body weight assessed by beam balance. Body fat determine by skin fold caliper and densiometer. Under water body weight used to determine density as described by Durnin and Womersley. (1975).

2.3 Data Analysis.

Mean value for 39 subjects, 4 subjects being on basis of farmer physical activity pattern, 4 due to medical screening, and 14 (23 percent) dropped out due to lack encouragement or skeletal and muscle injuries. T test was used. A P-value equal to or less than 0.05 was considered significant.

3. RESULT.

As shown in table No. 1, body composition was changed significantly (all $P < 0.001$) decrease in body weight, sum of skin folds and body density and a significant ($P < 0.001$) increase in body density.

TABLE NO.1

Values of Body composition before (T1) after 15 weeks (T2) and 30 weeks (T3) training.

	T1	T2	T3
Weight (Kgs)	79.9xxx	77.2xxx	75.4
Sum of skin fold thickness	56.0xxx	48.1xxx	41.4
Body density (gm/ml)	1.017xxx	1.053xxx	1.058
Fat content (%)	22.7xxx	20.0xxx	17.7---