

CAN HEALTH AND FITNESS PARAMETERS BE IMPROVED IN MASTERS ATHLETES WITH A 10 MONTH TRAINING AND NUTRITION PROGRAM

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Introduction

Seniors have recently begun placing greater emphasis on their health and wellness. Many opportunities exist for general fitness and moderate to highly competitive athletic pursuits. Athletes who compete in the Masters categories include individuals who formerly competed in track & field in their younger years and those new to the sport. Nearly 60% of these participants are age 50 and older (USTFA 2005). Many Masters athletes have both the time and disposable income to pursue track & field competitions from the local to the national and international level. Therefore, there is a need to better understand health and fitness parameters of Masters athletes specifically competing in track and field. Much of the research in this area is on the effects of exercise with age. Few studies to date have examined whether the knowledge of pre-season testing results can alter the performance and post-season results of Masters track & field athletes. It is unknown if providing the athlete with pre-season values can: 1) alter physiological and nutritional factors and 2) improve sport performance.

Objective

The purpose of this study was to determine: 1) the nutritional characteristics of the participants and 2) whether changes made to a Masters athlete (age \geq 40 yrs) training program, based on pre-season physiological and nutritional measurements, would lead to improved sport performance and post-season results.

Setting

Human Performance Laboratory (HPL), U. of C, Alberta.

Participants

A convenience sample of 10 Master athletes participated. There were males (n=6, age 57.8 \pm 8.1 yrs, BMI 24.1 \pm 3.6, waist girth 86.8 \pm 11.4 cm) and females (n=4, age 57.5 \pm 13.4 yrs, BMI 20.6 \pm 1.9, waist girth 69.4 \pm 5.1cm). Athletes competed in track and field events ranging from 60m to full marathons and pentathlons.

Methodology

Body composition measurements were based on the Canadian Physical Activity, Fitness and Lifestyle Approach (CPAFLA) protocol for height, weight, and waist circumference. Eligible participants (n=8) completed bone mineral density and additional body composition analysis determined by Dual Energy X-Ray Absorptiometry. Muscular strength and endurance measurements were also evaluated by the CPAFLA health and fitness protocols for grip strength, push-ups, partial curls, flexibility, back strength, and leg power. Upper body endurance was measured with the YMCA

bench test (see Table 1). Nutritional analysis based on a 3-day dietary record was analyzed with the Food Smart 6.0 software program.

Table 1: Subject Characteristics

Characteristic	Mean (SD)
Grip Strength (kg)	M: 112.3 (22.7) F: 54.8 (11.1)
Push ups (number)	M: 24.0 (8.1) F: 18.0 (9.8)
Sit and Reach (cm)	M: 27.8 (10.6) F: 34.3 (8.3)
Partial Curl Ups (number/min)	M: 24.5 (10) F: 25 (0)
Vertical Jump (W)	M: 4537.6 (1122.8); F: 1697.5 (388.1)
Back extension (sec)	M: 180.0 (41.9) F: 180.0 (19.0)
YMCA bench press (number)	M: 26.5 (12.0) F: 26 (9.8)
% Body fat	M: 17.1 (6.4) F: 21.2 (2.3)

Main Dietary Results

There were no significant differences in daily mean (\pm SD) total calories (kCal) or grams per kilogram of body weight (g/kg) of carbohydrate (CHO), protein or fat. Athletes consumed a daily mean (\pm SD) of 2163 \pm 613 kCal, 3.94 \pm 1.29 g/kg of CHO, 1.45 \pm 0.42 g/kg protein and 1.00 \pm 0.47 g/kg fat. All athletes consumed the dietary reference intakes (DRI) of CHO and protein, but only one male consumed the endurance athlete recommended 6-10g/kg/d of CHO. Vitamin (Vit.) supplementation occurred in 6 athletes. Vit. A and/or B3 were at or above the tolerable upper limit in 9 athletes. All athletes were deficient in at least 2 Vit. or minerals; folate (7 of 10) and potassium (6 of 10) were the most common.

Discussion/Conclusion

Nutritional analysis supports that these athletes require further education to ensure they are consuming appropriate macro- and micronutrients for their general health and training needs. Improving their current intake may improve their sport performance.

References: Available on request.

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