

Nutrition Knowledge, Energy Balance and Hydration Status of National Level Athletes in Sri Lanka

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Abstract

Performance of sports men and women depends on a number of factors such as physical qualities, proper training and optimum nutrition; the latter is complemented by proper hydration. The adequate nutrition for athletes is needed to maintain energy supply to the working muscles, to support tissue adaptation, to grow and repair tissues and to promote immune functions. Moreover, their knowledge, attitudes, and behaviour towards nutritional issues also play a pivotal role in the maintenance of their sport performances as well as their overall health and wellness. The aims of present study were (a) to determine the energy balance and nutritional status, (b) to assess the hydration status and fluid intake pattern, (c) to determine the level of nutrition knowledge, attitudes and practices on food habits and (d) to assess the nutrient intake through diet and dietary supplements of national level athletes in Sri Lanka.

The study was designed as a cross sectional study and a total of 180 athletes involving in different sports were included as study participants. Interviewer administered pre-tested questionnaire was used to get general information of participants. A 24-hour dietary recall on a week day was used to calculate energy intake and interviewer administered international physical activity questionnaire (IPAQ) was instrumented to calculate energy expenditure. Three non-consecutive 24 hour dietary recalls were used to gather information on nutrient and dietary supplement intake. Height, weight, skin fold thickness, waist and hip circumferences were measured using standard protocols to determine nutritional status of athletes. Percentage of body water was measured using body analyzer scale. A pre-tested qualitative fluid frequency questionnaire and a 24-hour fluid recall were used to collect information on fluid intake. One spontaneously voided urine sample was collected from each participant and specific gravity and urine colour were measured in triplicate to measure hydration status. A pre-tested knowledge, attitudes and practices (KAPs) questionnaire was used to estimate the level of KAPs on food habits of athletes.

Athletes engaging in badminton, boxing, weight lifting, taekwondo, karate, marathon, volleyball, netball, football and track and field were the participants in the study.

Results showed that 87% of athletes had negative energy balance. The highest mean negative energy balance of 2167 kcal/day (SD 1001) was observed in male weight lifters and the lowest mean negative energy balance of 156 kcal/d (SD 938) was observed in taekwondo male players. Mean energy intakes per kg of body weight of male and female athletes were 37.7 (SD 17.6) and 31.4 kcal/kg/d (SD 11.2), respectively which was lower than the recommendation. Mean total fluid and water intake of athletes were 4.1L (SD 2.0) and 3.3L (SD1.8) per day, respectively. Athletes consumed different types of fluid before, during and after the sport event. Majority of athletes (55.7%) were minimally dehydrated, whereas 15.7% of athletes appeared significantly hypo-hydrated. It was revealed that 28.6% athletes were well hydrated while none of athletes was seriously dehydrated. About 18% of athletes consumed sport drinks more than three times per day. KAP survey showed that nearly a half of the respondents (44%) had good level of knowledge whereas only 61% of subjects had excellent level ($\geq 80\%$) attitudes regarding food habits. Only one-fourth (24%) of athletes demonstrated excellent level ($\geq 80\%$) nutrition practices. Nearly 67% of athletes showed their awareness on importance of pre event meal. Further 57% of subjects answered correctly as use of carbohydrate as primary fuel. Sixty seven percent of athletes told examples for carbohydrate contained food. Majority (74%) had knowledge about calcium metabolism. More than half of the athletes (54%) knew the fact that of mineral loss with sweat.

In conclusion, minority of athletes participate at national level events have appropriate body composition according to the respective sport but, majority of them had negative energy balance. Further the present study identified good level of attitudes, but there were gaps in nutrition knowledge, and practices on dietary habits among athletes. Fluid intake pattern of athletes needs to be improved.

Keywords: Dietary recall; KAP; Height; IPAQ; Weight; Urine

This study was supported by Wayamba University of Sri Lanka (SRHDC/RP/04/15/21). Refer page 120 of the appendix for further details.