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ANALYSIS OF BODY MASS INDEX AND FLUID REPLACEMENT ON MANUAL SUGAR CANE CUTTING

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ABSTRACT

Manual sugar cane cutting is considered a heavy physical labor that requires high energy expenditure, due to the constant recruitment of large muscle groups and performance of work tasks under sun exposure. This exposure overloads the cardiorespiratory and musculoskeletal systems and can determine alterations on body composition. Thus the aim of the present study was to investigate nutritional status and the hydration level among 1.021 sugar cane cutters along a typical workday. The study included 897 men and 124 women (mean age: 31 years ± 11.7; min.18-max.62) from nineteen sugarcane mills in the countryside of São Paulo. Nutritional status was indirectly assessed through the body mass index (BMI); the level of dehydration was assessed by the percentage of water loss per body weight during a workday. The workers commence work at about 6am with a 15 minutes section of physical exerciser and continue until noon. There are two breaks of 15 minutes at 9am and at 2pm. After a hot meal eaten in the field, they return to work at about 1pm and finish the work at about 3:30pm. Body weight was assessed in the workplace, at 6am, before the workday and at the end of it, at 4pm. The staff was weighed wearing only shorts. A digital balance (Welmy - W200) and a stadiometer (Sanny) were used to evaluate workers height and body weight. Results were descriptively analyzed. Most employees (66%) were classified. in the normal weight range, according to standards of the World Health Organization; 30% on overweight, 3% on obesity class and only 1% as underweight. The average BMI was 23(±3.05; min17.7-max31.4). Regarding dehydration level, it was identified that the average water loss was 1.9% (5.9% max, mín.0); 30% of sugar cane cutters did not show weight loss after a workday; 43% loss up to 2% of body weight and 23% loss up to 4%. Considering the parameter proposed by the Brazilian Society of Sports Medicine, most of the workers were classified in safe categories regarding to health risks. However losses greater than 4-6% increase the likelihood of cramps, fainting and heat shock. Thus, we conclude that despite the high energy expenditure during sugar cane cutting, it seems to be a balance between caloric intake and expenditure. The work tasks do not seem to have contributed to the reduction of body weight

in order to result in a state of malnutrition, since the hydration of the staff was suitable for 96% of the workers, but there is need to intensify awareness among employee regarding prevention strategies in the enterprise as the use of electrolyte replacers, improved hydration and health care campaigns.