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3 - 6 July 2019, Prague - Czech Republic

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BOOK OF ABSTRACTS

Edited by:

Bunc, V., Tsolakidis, E.

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exercise time ratios ranging from 1.0 (Peak et al. 2014) up to 1.85 (Safarimosavi et al. 2018). In addition to EE, the enjoyment level of different training concepts for different levels of fitness should be considered. Therefore, the aim of this study was to compare 3 HIT protocols (5x4, 15x1, 30x30), threshold training (THR), sprint interval training (SIT) and LIT, with regard to isocaloric exercise time, EPOC and enjoyment.
METHODS: 12 males (6 fit, 6 unfit) completed an incremental test to exhaustion on a cycle ergometer to control the load on the subsequent training sessions. Participants started in randomized order with one of the three HIT sessions, which served as reference method for the subsequent isocaloric sessions (THR, SIT, LIT). The remaining sessions were completed in randomized order. For all training sessions EE during exercise and within the first 15' of the EPOC phase were measured by indirect calorimetry. Repeated measures ANOVA with factors "training" and "fitness level" were applied.
RESULTS: HIT sessions demonstrated equal EE (~525 kcal) and EPOC, and led to higher EPOC compared with SIT ($P<0.01$) and LSD ($P<0.001$) with no difference to THR. Total duration to match the EE of the HIT with the highest EE was 19% longer for SIT ($P<0.05$), 42% longer for LSD ($P<0.01$) with no difference to THR (+3.8%). Enjoyment was greatest for SIT, followed by HIT, and clearly lower values for THR and LSD ($P<0.05$). There was no main effect of "fitness level" in any variables.
CONCLUSION: No matter which HIT protocol used, EE, EPOC and enjoyment were comparable. THR is a time efficient, but not very enjoyable endurance training mode. LIT required ~41% longer exercise time compared to HIT, and had low enjoyment levels. SIT was the most joyful training with approximately 19% longer exercise time needed to be isocaloric to HIT or THR. It should be noted that only the magnitude of EPOC and aerobic EE were considered in this study. Irrespective of fitness level, all exercise modes were feasible. In conclusion, if exercise time does not matter than SIT is recommended as an enjoyable endurance training mode. HIT is most time efficient and moderately enjoyable, while THR and LIT can be placed at the low end of the enjoyment scale.
Peake, J. M., et al., American journal of physiology. Endocrinology and metabolism, 307(7), E539-552.(2014)
Safarimosavi, S., et al., Journal of strength and conditioning research. (2018)

Oral presentations

OP-PM45 Nutrition: Protein and dietary regimens

BODY COMPOSITION AND NUTRIENT INTAKE OF OLYMPIC AND ELITE RHYTHMIC GYMNASTS

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INTRODUCTION: Special consideration is given to the external appearance of rhythmic gymnasts, and this demands particular adherence to their diet and body composition. The purpose of this study was to assess the body composition and nutrient intake of top-level Olympic and elite rhythmic gymnasts.
METHODS: Twenty-one elite rhythmic gymnasts from Bulgaria were divided into three groups: FNT (First National Team, 2016 Olympic bronze medallists, n=5, mean age 24.2), SNT (Second National Team, 2017 World silver medallists, n=8, mean age 17.8), and JT (Junior Team, n=8, mean age 12.6). Body fat and muscle mass were estimated by skinfold methods, VO2max was measured, and ethics approval was granted prior to the tests. The dietary intake was assessed by using a food frequency questionnaire, in addition to questionnaires concerning the nutritional behaviour, as well as weight control management.
RESULTS: The average height-for-age percentile score in the SNT was 83.0, which was significantly higher than the 50th percentile (PR) of the WHO norms. The average BMI of the FNT was at the lower normal limit (18.5 kg/cm2). The average BMI PR for the SNT and JT were significantly lower than the 50th PR of the WHO norms ('thinness', BMI < 15th PR). No significant differences between the measured weight and the target weight were found. The % body fat of the gymnasts was within the norms for athletes. The FNT had significantly higher % muscle mass (44.0%) in comparison with the SNT and JT (40.5% and 37.6%, respectively). The SNT showed the highest VO2max results (52.0 ml/kg/min, $p < 0.05$) vs the FNT (44.0 ml/kg/min) and the JT (38.6 ml/kg/min). The relative energy intake of the gymnasts did not differ significantly from the guidelines for female gymnasts, whilst the energy contribution of proteins was significantly higher in the SNT and JT (17.6% and 19.4%, respectively) than the recommended 15%. However, there was no significant difference between the relative protein intake between the groups (1.7 g/kg/24h vs 1.7 g/kg/24h vs 1.9 g/kg/24h). The energy contribution of fats was above the recommended norms in the FNT, whilst that in the other groups was within the norms. The relative fat, protein and carbohydrate intakes were within the norms. All of the rhythmic gymnasts followed the desired nutritional habits, and 17 of the 21 competitors indicated a high degree of self-control in relation to their nutritional behaviour. The methods most frequently applied by the gymnasts for weight management included a reduction of carbohydrates, fats and salt in their diet, use of sauna facilities, and additional aerobic activities.
CONCLUSION: The BMI and % body fat of all gymnasts were considerably low, but within the reported values for elite gymnasts. Olympic and elite rhythmic gymnasts maintain their target weight, while they are keeping their % body fat and nutrient intake at the lower normal limits.

EFFECTS OF 4-HOUR TIME RESTRICTED FEEDING ON BODY COMPOSITION AND PERFORMANCE

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INTRODUCTION: Overweight and obesity are a serious problem in our society. To counteract this development, there are numerous diets propagating long-term weight loss. This includes intermittent fasting (IF), which has gained popularity in recent years. In addition to losing weight, this diet promises also positive health effects. One subcategory of intermittent fasting is time-restricted feeding, that means fasting every day for 14 to 20 hours, which is, however, rarely investigated. Therefore, the purpose of this pilot study was to investigate the effect of intermittent fasting using the 20/4 model (20 hours fasting, 4 hours eating ad libitum) on energy intake, movement behavior, resting energy expenditure, body composition and performance.
METHODS: In total, 12 women participated in the study. Due to one drop out, data of 11 subjects were included in the analysis (age: 22.0 ±1.9 years, body mass: 68.5 ±8.9kg, BMI: 24.2 ±1.9). The intervention was implemented for 5 weeks with an additional measurement 6 weeks thereafter. Subject were instructed to eat ad libitum between 18:00 and 22:00 oclock, and to fast subsequently for 20h. After 15 h strict fasting, they were allowed to eat 2 to 3 small high-protein snacks. They monitored energy intake before, during and after the intervention for 5 consecutive days. At the same time activity was recorded using an Actigraph (wGT3XBT). Body composition was determined

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