



# Open University Research Sessions 2021 (OURS 2021)

16<sup>th</sup> and 17<sup>th</sup> September 2021



**THE OPEN UNIVERSITY  
OF SRI LANKA**

**Book of Abstracts**  
**Open University Research Sessions 2021**  
**OURS 2021**

**16<sup>th</sup> & 17<sup>th</sup> September 2021**



## THE IMPACT OF 3 MONTHS OF COMBINED EXERCISES ON HUNGER, SATIETY AND FOOD CONSUMPTION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS (T2DM): A RANDOMIZED CONTROLLED STUDY

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Hunger, satiety and food consumption are closely linked with energy homeostasis. Excess intake of energy is associated with poor glycemic control in T2DM. Investigations exploring the modulation of hunger, satiety and food consumption by regular exercises are limited. Thus, this study aims at determining the impact of combined (aerobic and resistant) exercises on hunger, satiety and food consumption in T2DM. This study was a part of a randomized controlled trial spanning over two years. Seventy-two diabetics aged 35-60 years, with a history of T2DM for more than 5 years were randomly assigned into an exercise group and a control group. A combined exercise protocol (brisk walking 30 min/day, 4-5 days/week and resistance exercises 20min/day, 2-3 days/week) for three months was introduced to the exercise group. Both groups maintained a 3-day diet diary. Perceived intensity of hunger and satiety at -30 min, +30 min, +60 min in relation to a standard breakfast meal were measured by Visual Analogue Scale. Food consumption was assessed by Nutrisurvey2007 (EBISpro) software. The data were analyzed by independent sample t-test and paired sample t-test. Significance was set at 0.05 level. Feeling of hunger significantly decreased in the exercise group at -30 min and the feeling of satiety significantly increased at -30, +30 and +60 minutes after 3 months of exercises compared to controls ( $p < 0.05$ ) as well as when compared to their baseline values ( $p < 0.05$ ). In exercise group, the total calorie ( $p = 0.015$ ) and carbohydrate ( $p = 0.013$ ) intake were significantly decreased compared to the control group and to their baseline values ( $p < 0.05$ ). The intake of fat and protein did not show a significant difference with exercises. These findings suggest reduced hunger and increased satiety leading to decreased food consumption in T2DM patients following three months of regular combined exercises.

Keywords: Appetite, Exercise, Type 2 diabetes

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