

## Impact of Interdisciplinary Therapy Allied to Online Health Education on Cardiometabolic Parameters and Inflammation Factor Rating in Obese Adolescents

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**Abstract :** The prevalence of overweight and obesity is growing around the world and currently considered a global epidemic. Food and nutrition are essential requirements for promoting health and protecting non-communicable chronic diseases, such as obesity and cardiovascular disease. Specific dietary components may modulate the inflammation and oxidative stress in obese individuals. Few studies have investigated the dietary Inflammation Factor Rating (IFR) in obese adolescents. The IFR was developed to characterize an individual's diet on anti- to pro-inflammatory score. This evaluation contributes to investigate the effects of inflammatory diet in metabolic profile in several individual conditions. Objectives: The present study aims to investigate the effects of a multidisciplinary weight loss therapy on inflammation factor rating and cardiometabolic risk in obese adolescents. Methods: A total of 26 volunteers (14-19 y.o) were recruited and submitted to 20 weeks interdisciplinary therapy allied to health education website- Ciclo do Emagrecimento®, including clinical, nutritional, psychological counseling and exercise training. The body weight was monitored weekly by self-report and photo. The adolescents answered a test to evaluate the knowledge of the topics covered in the videos. A 24h dietary record was applied at the baseline and after 20 weeks to assess the food intake and to calculate IFR. A negative IFR suggests that diet may have inflammatory effects and a positive IFR indicates an anti-inflammatory effect. Statistical analysis was performed using the program STATISTICA version 12.5 for Windows. The adopted significant value was  $\alpha \leq 5\%$ . Data normality was verified with the Kolmogorov Smirnov test. Data were expressed as mean $\pm$ SD values. To analyze the effects of intervention it was applied test t. Pearson's correlations test was performed. Results: After 20 weeks of treatment, body mass index (BMI), body weight, body fat (kg and %), abdominal and waist circumferences decreased significantly. The mean of high-density lipoprotein cholesterol (HDL-c) increased after the therapy. Moreover, it was found an improvement of inflammation factor rating from  $-427,27 \pm 322,47$  to  $-297,15 \pm 240,01$ , suggesting beneficial effects of nutritional counselling. Considering the correlations analysis, it was found that pro-inflammatory diet is associated with increase in the BMI, very low-density lipoprotein cholesterol (VLDL), triglycerides, insulin and insulin resistance index (HOMA-IR); while an anti-inflammatory diet is associated with improvement of HDL-c and insulin sensitivity Check index (QUICKI). Conclusion: The 20-week blended multidisciplinary therapy was effective to reduce body weight, anthropometric circumferences and improve inflammatory markers in obese adolescents. In addition, our results showed that an increase in inflammatory profile diet is associated with cardiometabolic parameters, suggesting the relevance to stimulate anti-inflammatory diet habits as an effective strategy to treat and control of obesity and related comorbidities. Financial Support: FAPESP (2017/07372-1) and CNPq (409943/2016-9)

**Keywords :** cardiometabolic risk, inflammatory diet, multidisciplinary therapy, obesity

**Conference Title :** ICFSN 2018 : International Conference on Food Science and Nutrition

**Conference Location :** Paris, France

**Conference Dates :** August 27-28, 2018