

1. Abstract

Background: Physical activity plays an important role in type 2 diabetes mellitus (T2DM) prevention and treatment. The hypothesis tested whether a serious mobile exergame (MOBIGAME) designed according to the needs of people suffering from T2DM and those at risk to develop it could have an impact on blood glucose parameters in adults with T2DM.

Method: Sixteen participants with T2DM were randomized into an intervention and a control group. Over a period of 24 weeks, the intervention group used the MOBIGAME, and thus benefited from a large range of exercises that improve endurance, balance, strength, flexibility, and from daily physical activity as well as healthy lifestyle promotion. The control group benefited from one lifestyle counseling session that promoted physical activity, an information booklet on the benefits of regular physical activity and recommended exercises comparable to those of the MOBIGAME, and 24 weekly exercise logs. HbA1c, C-peptide, insulin, and blood glucose levels were recorded and HOMA-IR was calculated at the baseline and at the end of the intervention.

Results: Fifteen participants completed the 24-week study. Patients in the intervention group significantly improved HbA1c (from 7.1 ± 0.3 % to 6.1 ± 0.3 % (1.0 ± 0.4 %; $p = 0.022$) while no significant reduction (from 7.5 ± 0.3 to 7.0 ± 0.3 % (0.557 ± 0.48 %; $p = 0.256$) was found in the control group. Changes in C-peptide, insulin and blood glucose levels as well as in HOMA-IR were not significant.

Discussion: The MOBIGAME appears to have a positive impact on blood glucose control in adults with T2DM, but further analysis is necessary.