Reply to

"Replicability of exercise programs following bariatric surgery"
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Reply to: “Replicability of exercise programs following bariatric surgery”

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Reply to: “Replicability of exercise programs following bariatric surgery”

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To the Editor,

We highly appreciate the comments of Soriano-Maldonado et al. $^{(3)}$ on our article “Effects of gastric bypass surgery followed by supervised physical training on inflammation and endothelial function: A randomized controlled trial” recently published in Atherosclerosis$^{(1)}$. The paper is one of, so far, five articles related to the study. The primary variable of the study was predefined as the effect of supervised physical training on weight loss following Roux-en-Y gastric bypass (RYGB). We found that the intervention group had a higher weight loss compared to the control group, as calculated by intention to treat statistics $^{(2)}$. The present article describes secondary variables related to inflammation and endothelial function. We observed significant and sustained favorable changes after RYGB, while we found no additional effects of the supervised physical training$^{(1)}$. 
Some intriguing and relevant questions are raised in the Letter to the Editor (3). Adherence to the exercise program was relatively low, as only approximately 60% of the patients participated in more than 50% of the physical training sessions. It is, however, of utmost importance to take into account the decreasing muscle strength after RYGB and the extremely poor aerobic capacity in our study population at the time of initiation of the supervised physical training intervention (4). Accordingly, we were realistic when designing the exercise program and defining the success criteria, although the patients did not receive supervised physical training in an amount that corresponded to the Danish recommended levels. Physical activity in addition to the supervised physical training was encouraged and registered. No increase in the participants’ very low activity level was observed after RYGB alone. The supervised physical training intervention tended to increase the participants daily physical activity, but did not increase the low proportion of participants (7.7 %) who were moderate to vigorous physically active corresponding to the Danish recommended levels (5). Thus, although we did anticipate a higher adherence rate, the actual adherence rate was not surprising. However, it is important to keep in mind that the physical training effort was in fact sufficient to provide a clinically relevant and statistically significant effect on body weight as we achieved superiority on our primary variable. As discussed in the article, some confounding factors should be taken into account. These include the discontinuation of antidiabetic, lipid lowering and antihypertensive medications after the operation and, probably most importantly, the very strong effect of RYGB, which makes it difficult to detect more modest effects of the supervised physical training intervention. As suggested, we performed post-hoc analyses of the subgroup (n = 9 (28 %)) who participated in >70% of the training sessions, which gave similar results.

Soriano-Maldonado and co-authors request a more precise description of the exercise program. Due to the limited space in the Journal, we only briefly described the intervention program, which is, however, described in detail in a cited paper (2). The participants did not perform warm-up or cool-down, and the 10 min of resistance training for the upper extremities consisted of lateral
raises, lateral pull-downs and chest press. It is our opinion that the description of the exercise program is sufficient to allow replication, although we acknowledge that it could have been even more detailed.

**Conflict of interest**

The authors declared they do not have anything to disclose regarding conflict of interest with respect to this manuscript.
This said, we agree with Alberto Soriano-Maldonado and co-authors that much is left to be clarified regarding physical activity in people with severe obesity including people who have undergone bariatric surgery. We encourage other research groups to take up the challenge to design an effective exercise program with significant effects on this complex group of patients.
References:


