

Nutrition Discussion Forum

Effects of low- and high-volume resistance exercise on postprandial lipaemia

Comments by Burns and Stensel

Zafeiridis *et al.*¹ recently described the effects of resistance exercise on postprandial TAG concentrations. Zafeiridis and colleagues observed a reduction in 6 h total and incremental TAG area under the curve concentrations after resistance exercise protocols expending approximately 0.76 and 1.40 MJ.

We recently completed a study² where we examined the effect of an intermittent resistance exercise protocol with a total estimated energy expenditure of 5.1 MJ on postprandial lipaemia. We found a 12% and 18% reduction in the total and incremental areas under the TAG concentration curves respectively. The calculated effect size for the total area under the TAG concentration curve in this study was low (-0.34) in comparison with that seen by Zafeiridis and colleagues (-0.53 and -0.65 for low volume and high volume resistance exercise respectively) despite the estimated energy expenditure being much higher.

The evidence on this topic is confused further given that the only other refereed published studies disagree. Pettitt and colleagues³ observed a reduction in TAG concentrations after resistance exercise with an estimated energy expenditure of 1.7 MJ and calculated an effect size for this study of -0.78 , much closer to that observed in the study by Zafeiridis and colleagues. However, we⁴ and Shannon and coworkers⁵ have observed no reduction in TAG concentrations after resistance exercise with estimated energy expenditures of 2.3 and 2.58 MJ respectively. Zafeiridis and colleagues argue that the lack of an observed reduction in TAG concentrations in the study by Shannon *et al.* was because the energy deficit caused by exercise was fed back to the participants. Nonetheless, it is known that exercise produces a reduction in postprandial TAG concentrations over and above that brought on by energy deficit alone⁶.

Perhaps, however, of most interest is that the calculated effect size of the low volume resistance exercise bout in the study by Zafeiridis *et al.* (-0.53) is similar to the mean weighted effect calculated previously for aerobic exercise (-0.57)⁷, despite a large proportion of these aerobic exercise studies involving exercise of long duration (up to 90 min). This suggests that resistance exercise may be much more

effective than aerobic exercise in reducing postprandial TAG concentrations. Future studies are needed to elucidate the mechanism behind this reduction.

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