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Letter to the Editor

Response to comment on: Thomson et al. Muscle strength gains during resistance exercise training are attenuated with soy compared with dairy or usual protein intake in older adults: A randomized controlled trial. Clinical Nutrition 35:27–33, 2016

Mr Sean Wilson wrote a Letter to the Editor regarding the abovementioned article. In his letter Mr Wilson highlighted what he considered to be two problems with our interpretation of the data presented in this article. We address these two problems below.

The first problem identified by Mr Wilson was in relation to our statement that increased soy protein intake attenuated gains in muscle strength during resistance training in older adults compared with increased intake of dairy protein or usual protein intake. Mr Wilson pointed out that the only statistically significant differences in strength between the dietary treatments were for leg press 8RM and total 8RM, with the total 8RM being driven mainly by the difference in leg press 8RM, and that our conclusions should therefore be limited to changes in strength in the legs, although he suggested it is difficult to see how gains in strength might differ between upper and lower body.

Mr Wilson is correct in that the most substantial difference in 8RM between the high soy protein group and the others did occur for the leg press exercise. This is perhaps not unexpected given that the lower body contains more muscle mass than the upper body [1] and four out of the six exercises that comprised the training program involved lower body exercises which would have resulted in a large training load on the muscles used for the leg press. We chose to focus the training on increasing leg strength in this study because loss of leg strength is associated with an increased risk of falls in older adults [2,3], in particular loss of leg press strength [3]. Thus, the training program employed in our study provided a larger training stimulus for the larger muscle mass in the legs. It is therefore not surprising that the largest difference in training adaptations occurred in a multi-joint exercise employing the majority of lower limb muscles that were exposed to the highest training load.

As suggested by Mr Wilson the overall increase in 8RM was driven primarily by the increase in leg press 8RM. Analysis of the overall percentage increase in total 8RM with the leg press 8RM data removed indicated no significant difference in the increase in strength between treatment groups ($P = 0.29$, Fig. 1). However, on average there was a lesser increase with soy protein compared with the dairy or usual protein treatments, but we were underpowered to show this as being statistically significant.

Thus, while the difference in 8RM in our study was primarily driven by the difference in leg press 8 RM, we propose that this was due to the training program focussing primarily on the large muscles of the legs that were prime movers for the leg press exercise, rather than to any differential effect of soy on different muscle groups.

The second issue raised by Mr Wilson was that the attenuation of increase in leg press 8RM might have been due to the soy group being stronger at baseline, which may have reduced the ability to achieve further increases in leg press strength in this group. Mr Wilson further proposed that if our participants had trained in small groups that contained participants randomised to different treatments then those randomised to the dairy and usual protein treatments might have had an added incentive to push harder in an attempt to bridge the gap to the “stronger” leg press soy group. However, as was stated in the manuscript in Section 2.6 (Statistical methods), we controlled for baseline strength measures in our

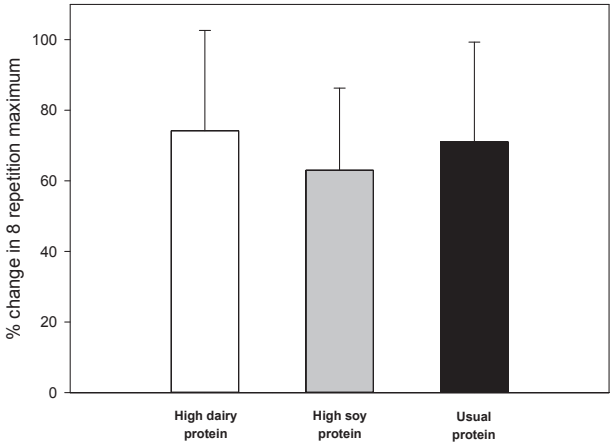

Fig. 1. Percentage change in 8 repetition maximum (sum of changes in 8 repetition maxima for all exercises except leg press) following 12 weeks of resistance training while consuming a high dairy protein diet, a high soy protein diet or a usual protein diet.

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0261-5614/

analyses. Thus, the observed increases in strength were independent of baseline strength. In addition, our participants did not train in small groups, they trained individually, which would have avoided any cross-contamination between treatments.

Therefore, we believe that our interpretation of the findings of our study is correct and increased soy protein intake attenuates gains in muscle strength during resistance training in older adults compared with an increased intake of dairy protein or usual protein intake.

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