



Letter to the Editor

Reshape of the arterial wall as a slow reacting vascular structure?



To the Editor

The study of Thijssen et al. [1] offers the tremendous possibility of a fast reduction of femoral and even carotid wall thickness by endurance exercise without any significant changes in blood pressure and heart rate over time. In contrast, at least in elderly subjects only a marginal effect of endurance exercise on carotid wall thickness could be shown although the duration of training was six years [2]. Thus, the results of Thijssen et al. [1] partly reshape the image of the carotid wall as a slowly reacting arterial structure. This is even more astonishing since the changes occurred to a similar amount in the femoral artery, thus an artery with a strong exercise-induced hyperperfusion during endurance exercise of the lower extremities, and in the carotid artery, an artery with a low increase of perfusion (up to 1.3-fold) [3].

However, in this relatively small study with $N = 9$ and $N = 5$ participants in the intervention and control group, respectively, Thijssen et al. [1] provide only rare information regarding the study design and characterization of potential confounders of the observed changes. It is not clear whether it is a randomized controlled study or a group allocation by the choice of the participants. This is important because the aim of the study seems to assess the effects over time of the intervention (8 weeks endurance training) on (1) artery wall thickness, (2) diameter and (3) wall:lumen (W:L)-ratio. The authors analysed the two groups separately and did not compare end points over time between study participants in the intervention and control group. For each group, they distinguish between common carotid and femoral artery. More plausible seems to be an analysis with 2 times 3 end points. Wouldn't it be more convincing to do a baseline adjusted comparison for both groups (intervention and control) over time and with regard to the different end points? Further, it would be helpful if

authors provide a physiological mechanism standing behind these remarkable results, and give a more detailed characterization of participant's risk factor profile (serum cholesterol, triglyceride, glucose, inflammatory markers) at baseline and follow-up. This might help to exclude structural changes because of changes in risk factors. I guess the discrepancy between blood pressure values of table and text is a result of transposition of numbers.

After clarification of the named shortcomings the value of the study of Thijssen et al. [1] would even increase.

References

- [1] Thijssen DH, Dawson EA, van den Munckhof IC, Birk GK, Timothy Cable N, Green DJ. Local and systemic effects of leg cycling training on arterial wall thickness in healthy humans. *Atherosclerosis* 2013;229:282–6.
- [2] Rauramaa R, Halonen P, Vaisanen SB, et al. Effects of aerobic physical exercise on inflammation and atherosclerosis in men: the DNASCO Study: a six-year randomized, controlled trial. *Annals of internal medicine* 2004;140:1007–14.
- [3] Hellstrom G, Fischer-Colbrie W, Wahlgren NG, Jogestrand T. Carotid artery blood flow and middle cerebral artery blood flow velocity during physical exercise. *J Appl Physiol* 1985;1996(81):413–8.

Arno Schmidt-Trucksäss*

*Sports and Exercise Medicine, Institute Exercise and Health Sciences,
University of Basel, Birsstr. 320B, St. Jakobs-Turm, 4052 Basel,
Switzerland*

*Tel.: +41 613778740; fax: +41 613778742.

E-mail address: arno.schmidt-trucksass@unibas.ch.

17 October 2013

Available online 15 November 2013