

## The Effect of Body Positioning on Upper-Limb Arterial Occlusion Pressure and the Reliability of the Method during Blood Flow Restriction Training

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**Abstract :** The precise calculation of arterial occlusive pressure (AOP) is a critical step to accurately prescribe individualized pressures during blood flow restriction training (BFRT). AOP is usually measured in a supine position before training; however, previous reports suggested a significant influence in lower limb AOP across different body positions. The aim of the study was to investigate the effect of three different body positions on upper limb AOP and the reliability of the method for its standardization in clinical practice. Forty-two healthy participants (Mean age: 28.1, SD:  $\pm 7.7$ ) underwent measurements of upper limb AOP in supine, seated, and standing positions by three blinded raters. A cuff with a manual pump and a pocket doppler ultrasound were used. A significantly higher upper limb AOP was found in seated compared with supine position ( $p < 0.031$ ) and in supine compared with standing position ( $p < 0.031$ ) by all raters. An excellent intraclass correlation coefficient (0.858- 0.984,  $p < 0.001$ ) was found in all positions. Upper limb AOP is strongly dependent on body position changes. The appropriate measurement position should be selected to accurately calculate AOP before BFRT. The excellent inter-rater reliability and repeatability of the method suggest reliable and consistent results across repeated measurements.

**Keywords :** Kaatsu training, blood flow restriction training, arterial occlusion, reliability

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