

Sex Differences in the Superficial Femoral Artery Occlusion Pressure

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ABSTRACT

The measurement of arterial occlusion pressure (AOP) prior to the use of blood flow restriction during exercise is recommended. Not all previous studies that have included both male and female participants have reported sex differences in AOP. **PURPOSE:** The purpose of this study was to compare the superficial femoral artery AOP of the dominant and non-dominant legs between males and females. **METHODS:** Ultrasound (GE LOGIQ) was used to detect blood flow through the superficial femoral artery of both legs in a random order in 20 males and 20 females. Circumference of the upper thigh, leg volume, and skinfold thickness were measured in both legs. Blood pressure was continuously monitored using a CNAP device. An inflatable cuff was placed around the upper thigh. The cuff was inflated to 50 mmHg and then inflated continuously (10 mmHg/10 s) until arterial blood flow and pulse waves were no longer detectable by the ultrasound. The AOP was then measured in the opposite leg. The AOP data were analyzed with a mixed model analysis of variance while maintaining a family-wise p -value of 0.05. **RESULTS:** The AOP of the dominant leg in males (209.4 ± 29.4 mmHg) and females (212.3 ± 8.3 mmHg) were not significantly different ($p=0.844$). Likewise, the AOP of the non-dominant leg in males (206.8 ± 32.5 mmHg) was not significantly different ($p=0.804$) than the AOP in the non-dominant legs of females (203.5 ± 50.9 mmHg). When combining the data for the dominant and non-dominant legs, the average AOP for males (208.1 ± 30.6 mmHg) and females (207.9 ± 53.1 mmHg) were not significantly different ($p=0.986$). Thigh circumference was the only variable that significantly ($p=0.027$) contributed to AOP. On the average the thigh circumference in the dominant and non-dominant legs of males (59.6 ± 5.5 ; 59.2 ± 5.2 cm) was greater than that for females (56.0 ± 2.9 ; 55.6 ± 3.2 cm), respectively. There were no sex differences in thigh skinfold thickness or thigh volume between males and females in either the dominant or non-dominant legs. **CONCLUSION:** There were no significant differences in AOP of the superficial femoral artery of the dominant and non-dominant legs between males females despite males having larger legs. Factors other than limb circumference likely have a role in determining AOP.