

膝囲への衣服圧が下肢のむくみに及ぼす影響

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Effect of Local Pressure to the Knee on Swelling of Lower Extremities

by

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ABSTRACT

The purpose of this study was to examine the effects of several levels of pressure applied to the knee during standing and low intensity exercise on lower leg swelling volume and sensation. In experiment A, eight healthy women standing upright had cuff pressure applied to their knees at 10, 20, 30, and 40 mmHg or without cuff for 20 minutes. The swelling volume and sensation were measured at the beginning and the end of the standing session. In experiment B, nine healthy women in a standing position had cuff pressure applied to their knees at 20 and 40 mmHg or without cuff during 20 minutes of step exercise. The cuff was removed immediately after that and the women remained standing for 20 minutes. As a result, leg and foot volume at the end of the standing session were significantly greater after 40 mmHg pressure compared with the other conditions in both experiments A and B. In experiments A, the

swelling sensation was not significantly different between conditions. In experiment B, the swelling sensation at the end of the standing session under 40 mmHg pressure was significantly lower compared with 20 mmHg ($P<0.05$), but not compared with the no cuff condition. The lower leg and foot volume and swelling sensation under the no cuff condition tended to increase at the end compared with baseline in both experiments A and B. These results suggested that a pressure of less than 40 mmHg on the knees during standing and step exercise can help prevent lower leg and foot swelling.

要 旨

下肢むくみ対策用アパレル製品の膝囲への圧力設計のための基礎とすることを目的とし、健康な成人女性を対象に立位時および軽運動時の膝囲への圧迫強度が下肢のむくみ量およびむくみ感へ及ぼす影響について明らかにするため、2種の実験を実施した。実験Aでは、20分間の立位時において膝囲圧迫10, 20, 30, 40mmHg及びカフなしの5条件を比較し、実験Bでは、20, 40mmHgの膝囲圧迫及びカフなしの3条件で20分間の軽運動を行い、圧迫開放後の立位20分間を比較した。その結果、立位時の足部容積はカフなし、40mmHgと比較して10, 20, 30mmHgで、軽運動時の下腿・足部容積はカフなしと比較して20mmHgで減少傾向が示され、40mmHgと比較して20mmHgで有意に減少した ($p<0.05$)。立位時のむくみ感は、足部容積と同様に、カフなし及び40mmHgで増加傾向が示された。立位時および軽運動時の膝囲への圧迫は、40mmHg未満の強度とし、膝囲への適度な圧迫は、下腿・足部容積の増加を抑制させることが示唆された。