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The effect of whole body vibration on lower extremity skin blood flow in normal subjects.

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Abstract

BACKGROUND: Circulation plays a vital role in tissue healing. Increases in muscle flexibility and strength, secretion of hormones important in the regeneration and repair process, blood flow, and strength of bone tissues has been attributed to whole body vibration (WBV) combined with exercise. The purpose of the study was to determine the effects of short-duration, high-intensity, isometric weight bearing exercise (vibration exercise [VE]) and vibration only on skin blood flow (SBF).

MATERIAL/METHODS: Forty-five subjects 18-43 years of age were randomly divided into three groups: Group 1 - VE, Group 2 - exercise only, and Group 3 - vibration only. SBF was measured using a laser Doppler imager at three time intervals: 1) initial base line, 2) immediately following intervention, and 3) 10-minutes following intervention.

RESULTS: There was no significant difference between the three groups' SBF prior to intervention. Immediately following the intervention a difference among groups was found. Post hoc testing revealed that Group 3 subjects' mean SBF was significantly increased at both post-intervention time intervals.

CONCLUSION: The study findings suggest that short duration vibration alone significantly increases SBF; doubling mean SBF for a minimum of 10 minutes following intervention. The emerging therapeutic modality of WBV as a passive intervention appears to increase SBF in individuals with healthy microcirculation.

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