ABSTRACT

OBJECTIVE: It was hypothesized that a protocol balance between pressurization and partial pressure relief would be a better support pattern, because it would balance pressurization to induce hyperemia and relief to optimize vascular recovery.

METHODS: Twenty healthy adult subjects (age 21-50, 11 male, 9 female, mean age 33 ± 3.5 years), height (66.7 ± 3.1 inches), weight (227.5 ± 90.2 pounds) were probed for baseline data: skin thickness, skin surface area, and skin temperature. Informed consent was obtained from all subjects, and the study was approved by the local institutional review board.

RESULTS: The main finding was that full pressure-relief cycle (i.e. 4-Cycle) had a significantly higher average skin blood perfusion (SBF) than partial pressure relief (P < 0.01). Full pressure relief cycles caused the largest increase in SBF, while partial pressure relief cycles caused a smaller increase in SBF. The results are presented in Table 1.

CONCLUSIONS: It was hypothesized that a protocol balance between pressurization and partial pressure relief would be a better support pattern, because it would balance pressurization to induce hyperemia and relief to optimize vascular recovery.

EXAMPLE RESPONSES

SET-UP AND PROTOCOL

Protocol A Sequence Example Responses

Maximum SBF Hyperemia With Full Pressure Relief

Protocol B Example

SBF Response Expanded

Main Results

CONCLUSIONS

This investigation of the effects of various cyclical alternating pressurization patterns on the blood perfusion responses to graded loading of human heels assessed by laser-Doppler imaging. The full pressure relief cycles caused the largest increase in SBF, while partial pressure relief cycles caused a smaller increase in SBF. The results are presented in Table 1.

REFERENCES