The benefits of wearing a compression sleeve after ACL reconstruction

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PURPOSE
It was the purpose of the present study to examine the possibility of increased muscle coordination after anterior cruciate ligament (ACL) reconstruction through the wearing of a compression sleeve.

METHODS
Thirty-six patients were studied who had undergone unilateral ACL reconstruction at least 12 months previously. All subjects were required to perform a 10-cm standing drop jump from an elevated platform onto a force plate, to land on one leg, and thereafter maintain a one-legged balance for 25 s. This task was repeated three times without and three times with an elastic compression sleeve worn on the reconstructed limb. For analysis, the task was partitioned into a landing phase (150 ms), an adjusting phase (10s), and a balancing phase (10s). The peak impact loadings were measured in each direction (Fx, Fy, and Fz) during landing, while force-time integrals (intFz, intFy, and intFz) and root mean square (RMS) error of these forces were calculated for the adjusting and balancing phases. The path length and RMS of the center of pressure coordinates (Ax and Ay) were obtained for the adjusting and balancing phases combined.

RESULTS
Drop landings with the bandage produced significantly larger (P < 0.001) peak ground reaction forces in the vertical and anteroposterior direction, suggesting increased subject confidence in their knee. Wearing the knee bandage also enabled the patients to reduce all measured parameters in the anteroposterior direction (rmsFx, intFx, rmsAx) during both the adjusting and balancing phases (P < 0.001). A significant reduction in the center of pressure path length further indicated an enhanced steadiness during the one-legged stance.

CONCLUSIONS
It was concluded that a compression sleeve improved the total integration of the balance control system and muscle coordination.
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