

Effect of functional bracing on knee injury in skiers with anterior cruciate ligament reconstruction: a prospective cohort study.

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Source

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Abstract

BACKGROUND:

The role of knee bracing in anterior cruciate ligament reconstructions is controversial.

HYPOTHESIS:

Functional bracing will have an effect on subsequent knee injury in skiers with anterior cruciate ligament reconstruction.

STUDY DESIGN:

Cohort study; Level of evidence, 3.

METHODS:

From 1991 to 1997, 11606 skiers at a major destination ski resort underwent preseason knee screening. The anterior cruciate ligament-reconstructed group consisted of 820 skiers who had had an anterior cruciate ligament reconstruction 2 years or more earlier. Of these, 257 skiers selected the use of functional knee brace during skiing. The dependent variable was subsequent knee injury, identified via workers' compensation records. Covariates included age, gender, ski occupation, Lachman grade, pivot-shift grade, KT-1000 arthrometer manual maximum displacement, and use of a functional brace. Univariate and multivariate risk factors for subsequent knee injury were determined.

RESULTS:

In this study, 257 skier-employees with anterior cruciate ligament reconstruction wore braces and 563 skier-employees with anterior cruciate ligament reconstruction did not. Braced skiers had significantly higher preseason rates of grade II or higher Lachman and pivot-shift tests (braced, 29% and 22%, respectively; nonbraced, 11% and 10%, respectively; $P < .05$). Sixty-one subsequent knee injuries were identified, 51 (8.9 injuries/100 knees/ski season) in the nonbraced group and 10 (4.0 injuries/100 knees/ski season) in the braced group ($P = .009$). Nonbraced skiers were 2.74 times more likely to suffer subsequent injury than were braced skiers (odds ratio, 2.74 [confidence interval, 1.2-4.9]). Logistic regression modeling identified nonbracing as a significant independent multivariate risk factor

for subsequent knee injury in the high-demand skiers with anterior cruciate ligament reconstruction.

CONCLUSION:

Because of the increased risk of subsequent knee injury in nonbraced skiers, the authors recommend functional bracing for skiers with anterior cruciate ligament reconstruction. Whether the protective effect of functional bracing can be extrapolated to other high-demand patients is yet to be determined.