Effect of ice hockey helmet fit on cervical spine motion during an emergency log roll procedure.

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Abstract

OBJECTIVE:
To investigate cervical spine motion during a log roll technique in ice hockey players under different helmet fit conditions.

DESIGN:
Prospective counterbalanced design.

SETTING:
University research laboratory.

PARTICIPANTS:
Eighteen club ice hockey players were recruited to participate in this study.

ASSESSMENT OF RISK FACTORS:
A standard emergency log roll was performed 3 times under each of 3 different helmet fit conditions: properly fit, improperly (competition) fit, and helmet-removed.

MAIN OUTCOME MEASUREMENTS:
Frontal, sagittal, and transverse plane cervical spine motion were used as outcome measures.

RESULTS:
Significantly less sagittal and transverse plane motion occurred during the helmet-removed condition. No differences in frontal plane motion among the 3 conditions were observed.

CONCLUSIONS:
Presence of helmet (whether properly fit or not) resulted in increased of sagittal and transverse plane movement. This suggests that when an ice hockey helmet is stabilized, the head within it is not. We recommend the helmet and face shield be removed before performing an emergency prone log roll.