

*ABSTRACT*

**Padded vs. unpadded spine board for cervical spine immobilization.**

**Walton R, DeSalvo JF, Ernst AA, Shahane A.**

Department of Medicine, Louisiana State University, New Orleans, USA.

**OBJECTIVES:** To determine whether padding the long spine board improves patient comfort, affects cervical spine (c-spine) immobilization, or increases sacral transcutaneous O<sub>2</sub> tension.

**METHODS:** A prospective randomized, controlled crossover study of healthy volunteers was conducted over a two-week period. Participants included 30 volunteers with no previous history of c-spine injury or disease. The subjects were randomized to either padded or unpadded long spine board immobilization with serial measurements of discomfort (using a visual analog scale) and transcutaneous tissue O<sub>2</sub> tension obtained at zero and 30 minutes. Measurements of ability to flex, extend, rotate, and laterally bend the c-spine were made using a goniometer. The subjects then returned a minimum of three days later to complete the opposite half of the study (padded vs. unpadded boards).

**RESULTS:** Subject discomfort was significantly reduced in the padded group compared with the unpadded group ( $p=0.024$ ). There was no significant difference in flexion ( $p=0.410$ ), extension ( $p=0.231$ ), rotation ( $p=0.891$ ), or lateral bending ( $p=0.230$ ) for the two groups. There was no significant difference in the actual drop in sacral transcutaneous O<sub>2</sub> tension from time zero to 30 minutes for the padded and the unpadded groups (mean drop 14.8% +/- 17.5% vs. 12.2% +/- 16.8%, respectively;  $p=0.906$ ).

**CONCLUSION:** Adding closed-cell foam padding to a long spine board significantly improves comfort without compromising c-spine immobilization. Sacral tissue oxygenation does not appear affected by such padding for healthy volunteers.

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