



LATERAL REACHING FROM FIXED LADDERS

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Introduction

The incidence rate of injuries among ladder users is very high, and though reaching laterally from a ladder is a common activity, it hasn't been studied thoroughly. Some studies have explored lateral reaching on stepladders (Clift and Navarro, 2002; Juptner, 1976) where the ladder may become unstable, however they do not address fixed ladders or the forces applied to on the ladder, subjects were instructed to reach to their left and touch a target that was one full arm span away from the centerline of the ladder. Subjects then returned back to the ladder after a short pause.

Methods

Two lateral reaching exercises (holding the left rail or holding the rung) were performed on two fixed ladder orientations (oriented vertically or pitched 10 degrees forward from vertical). There were three repetitions of each treatment. Orthogonal forces on the rungs or rail were recorded over the duration of the reach/return exercises. For

Results

Ladder Angle	Holding the Rung (kg)	Holding the Rail (kg)
Vertical	21.5 ± 6.8	23.7 ± 7.2
10° Forward Tilt	19.6 ± 6.8	22.7 ± 6.4

