

Detection of Risk of Falls and Physical Frailty in Portuguese Institutionalized Elderly using the Functional Reach Test: An Exploratory Study

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ABSTRACT

BACKGROUND: Falls are a major source of morbidity and mortality among elderly^[1]. Duncan, Weiner, Chandler, and Studenski^[2] developed a test based on the ability to reach ahead as far as possible, in static bipedal posture. A functional reach less than 17.78 cm is considered a valid marker of physical frailty^[3], and, over 70 years of age a reach less than 25.4 cm is a criterion for risk of recurrent falls^[4].

OBJECTIVE: The objective of the present study was to verify the capacity of reach in institutionalized elderly. **METHODS:** Thirty institutionalized elderly (80.4 ± 8.82 years old, height- 154.6 ± 8.9 cm, 18 females) made 3 successive trials in the Functional Reach Test. Informed consent was obtained. There was no significant difference between genders. **RESULTS:** No association was found with age and height. Elderly significantly decreased reach capacity from trial 1 till trial 3 ($\chi_r^2 = 10.605$, $p < .01$, $\chi_w^2 = .18$), with linear regression ($y = -15.306x + 149.03$, $r^2 = .9345$), and with significant differences between trials 1 and 2 ($Z = 2.649$, $p < .01$, $r = .48$, $rrb = .44$) and between trials 1 and 3 ($Z = 3.837$, $p < .001$, $r = .70$, $rrb = .52$). The mean value obtained for this elderly sample (12.23 ± 6.61 cm, $M = 98.5$, CI [10.14, 14.79]) was significantly lower than the criterion for risk of recurrent falls ($t(29) = 8.031$, $p < .001$, mean difference = 9.69, CI [7.60, 12.27]), and that for physical frailty reference ($t(29) = 8.663$, $p < .001$, mean difference = 10.45, CI [8.38, 13.31]). **CONCLUSIONS:** Based on Functional Reach Test' criteria values, these elderlies have physical frailty and are at risk of recurrent falls, losing functional capacity to reach ahead, if a motor task requires successive reaches in the peripersonal space. Movement stimulation programs are needed in institutionalized elderly, so to prevent and to retard falls. The Functional Reach Test is a non-intrusive, inexpensive, easy to apply, and with results with immediate interpretation, that can be widely used to detect potential elderly fallers that must be followed, involved in movement stimulation programs, and for which additional modification of environmental hazards must be made^[5].

Keywords: *functional reach, elderly, risk of falls, physical frailty*

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