Balance confidence, Balance performance and muscle strength are predictors of function in elderly recent fallers

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Fear of falling may be present in up to 50% of the elderly, and leads to activity restriction more often in fallers than in non-fallers. The purpose of this study was to investigate the relationship between balance confidence and risk factors for falls and disability, i.e. balance performance, gait speed and knee extension strength in a group of recent fallers.

Ninety-four home-dwelling woman (70-90 yr) were recruited after a fall accident. Activity-specific balance confidence (ABC), number of falls during the previous year and use of walking-aid were assessed. In 68 subjects, balance-performance (B), normal/maximal gait speed (NGS/MGS) and dynamic knee-extension strength (DKES) were measured.

Average age was 78 yr. 69% had fallen outdoors, 11 % in a bus and 20% indoors. ABC was 11% lower in subjects who had experienced two or more falls compared with those who had experienced one fall in one year and 15% lower in subjects who used a walking-aid compared with those who did not ($p<0,05$) and ($p<0.001$). There was a significant relationship between ABC and B ($p<0.0001$), NGS ($p<0.0001$), MGS ($p<0.0001$), and KES ($p<0.0001$), respectively. Multiple regression analysis revealed that ABC, B and KES were independent predictors explaining 55% of the variation in NGS and 46% in MGS, respectively. ABC was the most important explanatory variable.

These data suggest that balance confidence, balance performance and knee-extension strength may play important roles for function shortly after the fall accident, and that all these areas require targeting in elderly at-risk.