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Objectives Most research on falls among older persons focuses on health-related factors that affect the ability to maintain balance. The objective of the study is to determine the association between physical activity and occurrence of falls among community-dwelling older persons.

Methods The distribution of falls and person-hours of physical activity in the home over 24 h was compared. The falls data (n=501) were extracted from a pooled dataset of three follow-up studies conducted between 1994 and 2005 (n=3587). The 1995 Dutch National Time-Budget Survey provided hour-by-hour information on activities performed by older individuals (n=459) in the home; this sample was representative for the Netherlands. The association between the 24-h distribution of falls and physical activity and the risk of falling (the ratio between the distribution of falls and physical activity) were determined. Participants were community dwelling older persons aged 65 years and older.

Results More physical activity was positively associated with more falls (Spearman correlation=0.89, $p<0.000$). The risk of falling at night (1:00 to 6:00) was almost eight times higher compared to 7:00 to 12:00.

Conclusions Physical activity is strongly associated with the number of falls in the home, measured over 24 h. Older persons may be at increased risk of falling if they are encouraged to become more physically active, or if they often get out of bed at night. Thus in addition to health-related factors, also changes in level of physical activity should be taken into account when estimating a persons risk of falling.

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THE 24-H DISTRIBUTION OF FALLS AND PERSON-HOURS OF PHYSICAL ACTIVITY IN THE HOME ARE STRONGLY ASSOCIATED AMONG COMMUNITY DWELLING OLDER PERSONS

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