

# Role of physical activity in preventing mental health problems

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Mental health problems are a major concern to employers, employees and occupational health professionals in the Netherlands. Employees developing these problems often have to take long-term leave from work, which may lead to disability. About a third of the total disability inflow is due to psychological disorders. Results of research carried out over a three-year period suggest that strenuous leisure-time physical activity positively counteracts the development of mental health problems, poor general health and long-term absenteeism due to mental health disorders. Workers with sedentary jobs appear to benefit most from strenuous leisure-time physical activity.

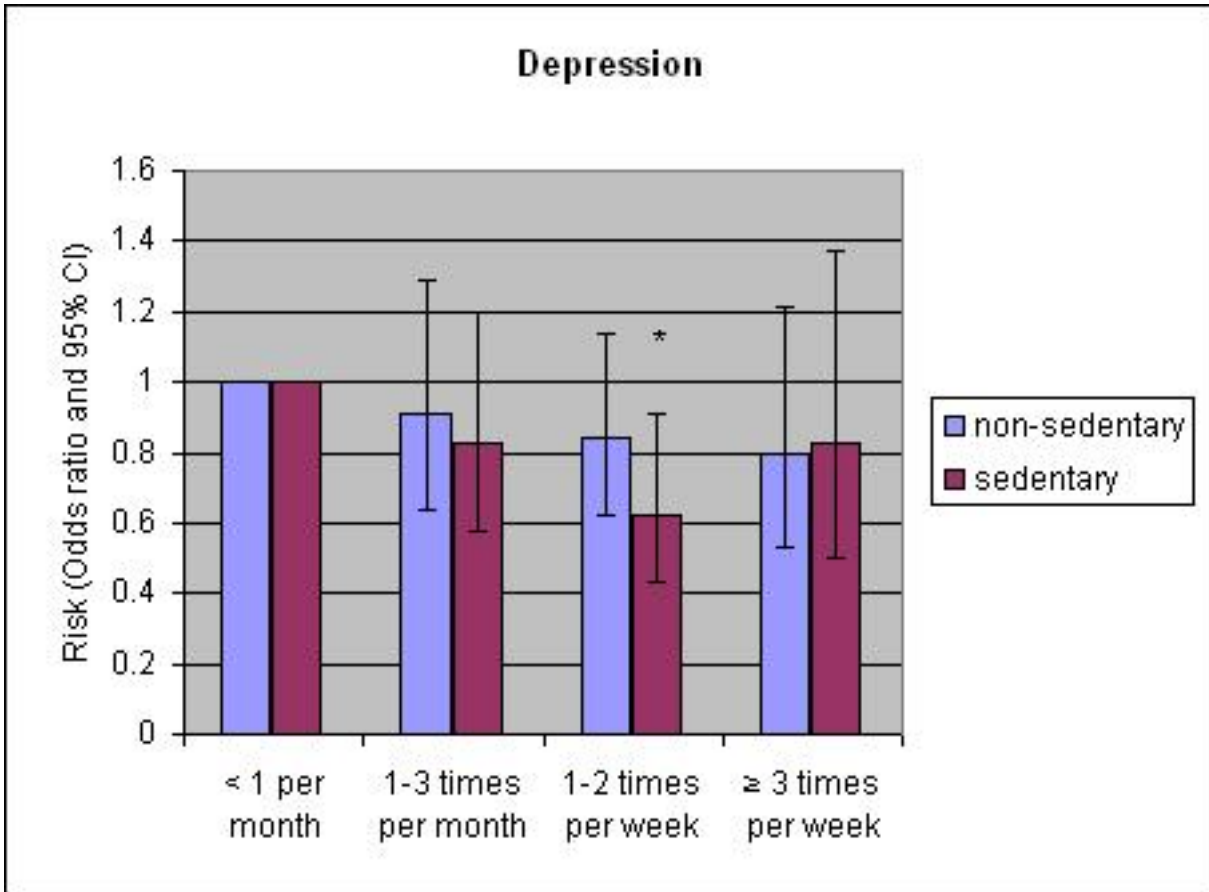
Mental health disorders are the main cause of inflow into the disability benefit system in the Netherlands, at 30%. The annual costs are estimated to be about 1% of gross national product (GNP). Moreover, musculoskeletal disorders account for a further 20% or more of the disability inflow.

A study shows that physical activity has proven to be an effective intervention for those who have severe mental health disorders, but it is not yet known whether physical activity can prevent mental health problems. The study carried out over a three-year period aimed to examine to what extent physical activity prevents mental health problems among a relatively healthy group of employees. See below for a detailed description of the study methodology.

## Leisure-time physical activity and health

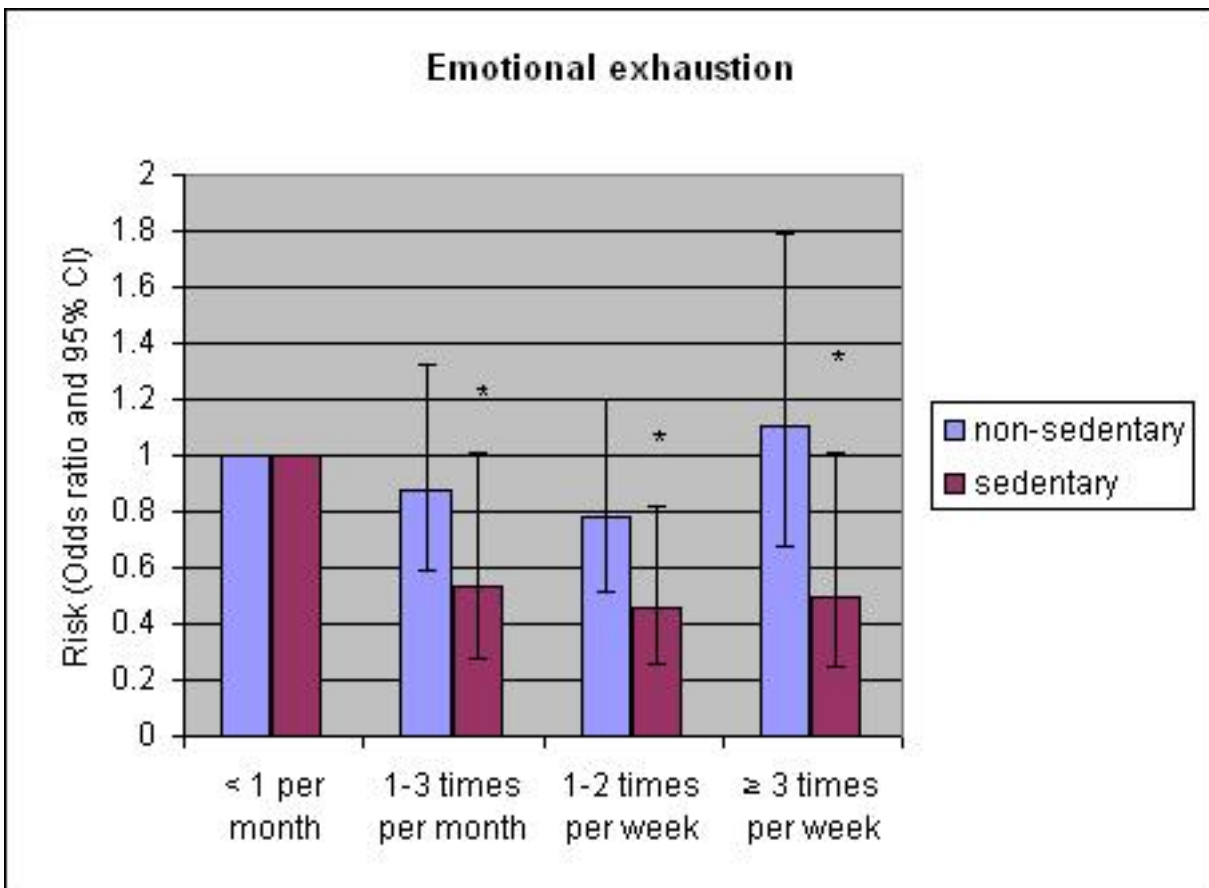
Generalised estimating equation (GEE) analyses were performed to investigate the longitudinal relationship between strenuous leisure-time physical activity and the development of psychological complaints in the future, using a time-lag model of one year. It appeared to be the case only for workers with a sedentary job that strenuous leisure-time physical activity was significantly associated with a reduced risk of future depression and emotional exhaustion (Figures 1 and 2).

Figure 1: Results from the GEE analyses with time-lag between the frequency of strenuous leisure-time physical activity and future depression (dichotomous)



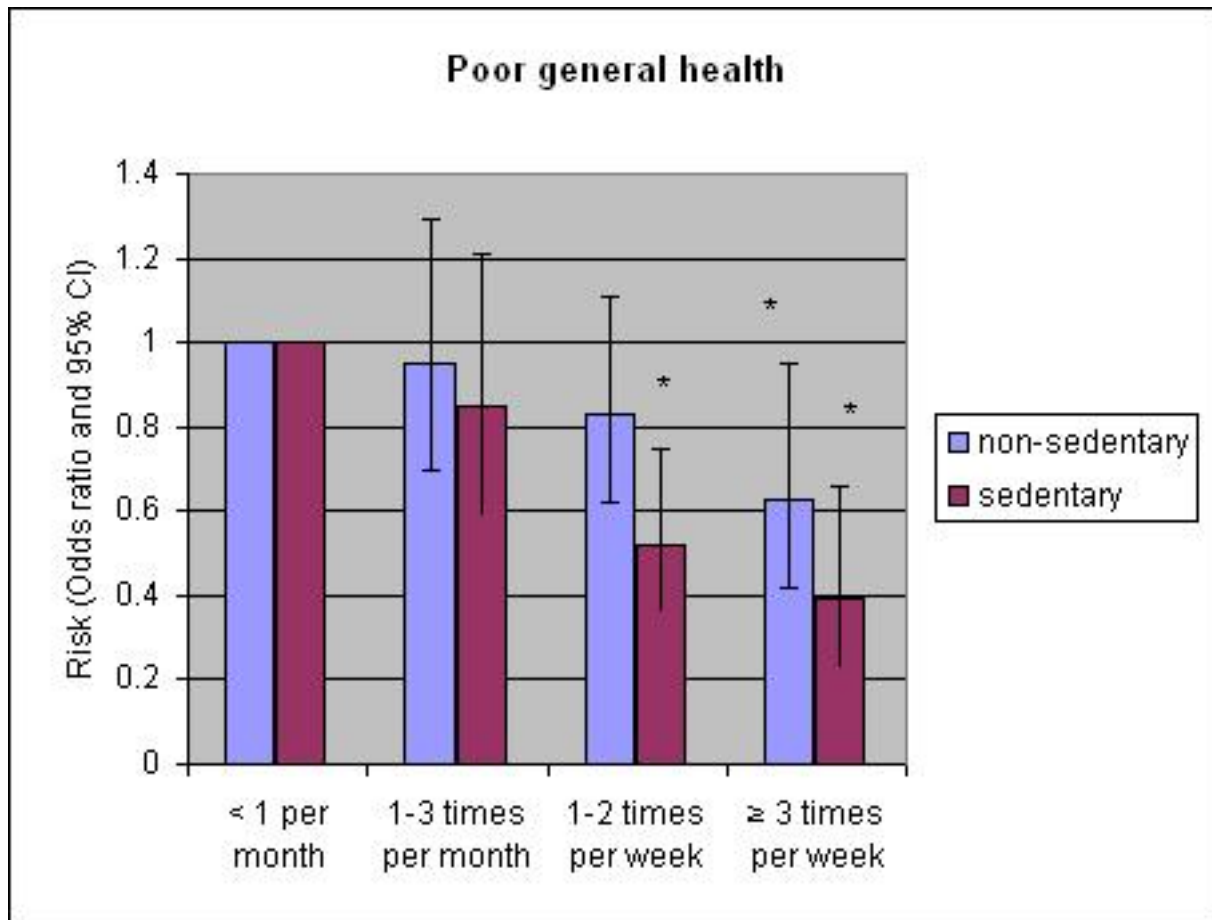
Note:  $p < 0.05$ . Odds ratios are adjusted for sex. CI = confidence interval.

Figure 2: Results from the GEE analyses with time-lag between the frequency of strenuous leisure-time physical activity and future emotional exhaustion (dichotomous)



Note:  $p < 0.05$ . Odds ratios are adjusted for sex. CI = confidence interval.

Figure 3: Results from the GEE analyses with time-lag between the frequency of strenuous leisure-time physical activity and future poor general health (dichotomous)



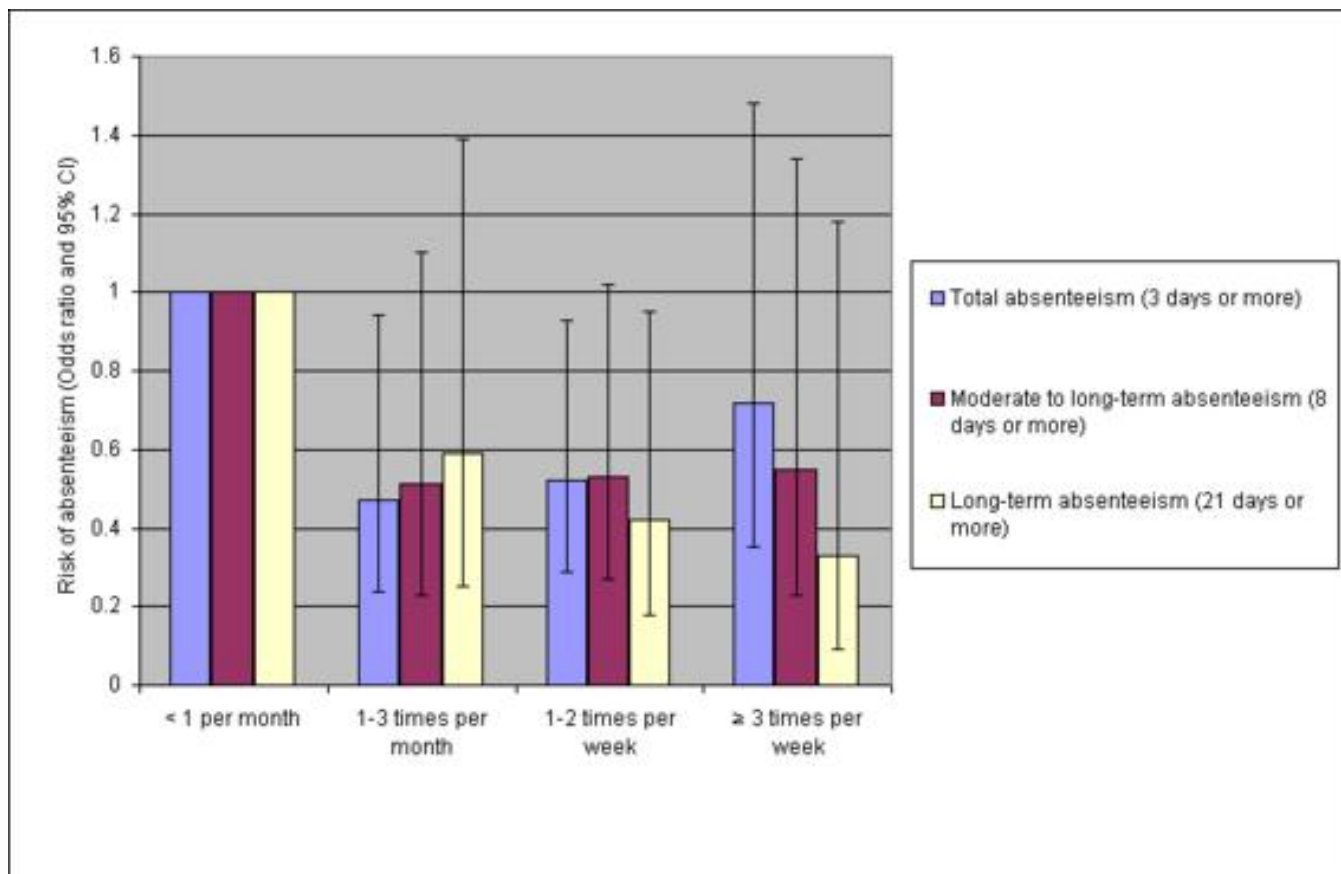
Note:  $p < 0.05$ . Odds ratios are adjusted for sex. CI = confidence interval.

Figures 1, 2 and 3 indicate that the strongest findings are found for emotional exhaustion. For the prevention of both emotional exhaustion and depression, exercising once or twice a week appears to be optimal. For improved overall general health, it is best to exercise strenuously at least once or twice a week. Although the odds ratios seem stronger for sedentary workers, the effects were also found for non-sedentary workers.

### Leisure-time physical activity and psychological complaints

Logistic regression analyses were used to study the relationship between strenuous leisure-time physical activity at the start of the study and the development of psychological complaints in the following three years. Figure 4 shows that workers who engaged in strenuous physical activity one to three times a month or once or twice a week at the start of the study were at lower risk of total sickness absence due to psychological complaints in the following three years than workers who did not engage in strenuous physical activity (< once a month). When only moderate to long-term sickness absence was taken into account, a reduced risk was found for all workers who engaged in strenuous activity: in other words, the higher the frequency of strenuous leisure-time physical activity, the lower the risk of long-term sickness absence due to psychological complaints.

Figure 4: Strenuous leisure-time physical activity at the start of the study and risk of subsequent sickness absence



Note:  $p < 0.05$ . Odds ratios are adjusted for sex. CI = confidence interval.

From this study, it can be concluded that psychological complaints at work may be alleviated by strenuous leisure-time physical activity, particularly for workers who have a sedentary job. Strenuous leisure-time physical activity appears to be effective in preventing mental health problems and sickness absence, but it may be interesting to see whether these findings could be generalised to increasing physical activity within sedentary workplaces. The data even suggest that introducing physical exercise options at the workplace may help to reduce work-related psychological complaints.

## About the study

The sample consisted of individuals examined in the Study of Musculoskeletal disorders, Absenteeism, Stress and Health (SMASH), and came from 34 companies located throughout the Netherlands. The SMASH study was a longitudinal investigation over a three-year period. Some 1,789 out of 2,064 employees completed a questionnaire, representing a response rate of 87%. Of these workers, a total of 1,747 were eligible for the study.

Negative indicators for psychological health included: depression, measured by a questionnaire using the international standard Centre for Epidemiologic Studies Depression Scale (CES-D); and emotional exhaustion, measured as the main aspect of burnout, with the Dutch version of the Maslach Burnout Inventory (MBI). General health was measured with the question, 'How would you rate your health in general?'; the response options included reasonable, moderate or poor.

In all, 21 of the participating companies provided sickness absence data. A total of 1,080 (89%) of the 1,213 participating workers gave their informed consent for a follow-up questionnaire, based on their sickness absence records. If available, reasons for sickness absence were provided and coded according to the adapted Dutch version of the International Classification of Diseases, ninth revision (ICD-9). All diagnoses of mental disorders were considered to indicate a sickness absence due to psychological or mental health problems.

Claire Bernaards, TNO Work and Employment