



## Physical activity of workers with and without chronic diseases

Bette Loef<sup>a,b</sup>, Ellen L. de Hollander<sup>a</sup>, Cécile R.L. Boot<sup>b</sup>, Karin I. Proper<sup>a,b,\*</sup>

<sup>a</sup> Centre for Nutrition, Prevention and Health Services, National Institute for Public Health and the Environment, Bilthoven, The Netherlands

<sup>b</sup> Department of Public and Occupational Health, EMGO Institute for Health and Care Research, VU University Medical Center Amsterdam, The Netherlands

### ARTICLE INFO

Available online 3 December 2015

#### Keywords:

Physical activity  
Chronic diseases  
Working population

### ABSTRACT

**Objective.** To contribute to the development of measures that increase physical activity (PA) levels in workers with and without chronic diseases, insight into workers' PA level is needed. Therefore, this study examined the association between the number of chronic diseases and PA in a Dutch working population.

**Methods.** Data of 131,032 workers from the Dutch Public Health Monitor 2012 were used in this cross-sectional study conducted in 2015 in the Netherlands. PA was operationalized as adherence (yes/no) to three PA guidelines. One of these was the American College of Sports Medicine (ACSM) guideline ( $\geq 3$  days/week,  $\geq 20$  min/day of vigorous-intensity activities). Also, the amount of moderate- and vigorous-intensity PA in min/week for those who were physically active for  $>0$  min/week was calculated. Associations between chronic diseases (0, 1,  $\geq 2$  chronic diseases) and PA were examined using logistic regression and Generalized Estimating Equations stratified for age (19–54 years/55–64 years).

**Results.** Workers aged 19–54 years with one (OR = 0.90 (99% CI = 0.84–0.95)) and multiple chronic diseases (OR = 0.76 (99% CI = 0.69–0.83)) had lower odds of adhering to the ACSM-guideline than workers without chronic diseases. Similar patterns were found for older workers. Younger workers with one (B = 24.44 (99% CI = 8.59–40.30)) and multiple chronic diseases (B = 49.11 (99% CI = 26.61–71.61)) had a higher amount of moderate PA than workers without chronic diseases.

**Conclusion.** Workers with chronic diseases adhered less often to the ACSM-guideline, but among workers aged 19–54 years who were physically active for  $>0$  min/week, those with chronic diseases spent more time in moderate-intensity PA than those without chronic diseases.

© 2015 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### Introduction

The beneficial effects of physical activity (PA) are well known. People with sufficient levels of PA are at decreased risk for the development of several chronic diseases (Physical Activity Guidelines Advisory Committee, 2008a; World Health Organization, 2010). Furthermore, PA is associated with work-related outcomes such as reducing absenteeism and improving work performance (Lahti et al., 2010, 2012; Pronk et al., 2004; Proper et al., 2006). Research has also shown that people with chronic diseases benefit from sufficient levels of PA (Physical Activity Guidelines Advisory Committee, 2008a). A physically active lifestyle can reduce pain and contribute to an improved physiological, emotional and social functioning in everyday life for chronically ill people (Bossen et al., 2014; Martin, 2013; van der Ploeg et al., 2004). In turn, this could result in improved quality of life and ability to function independently, and decreased use of health care and medication

(Bossen et al., 2014; Barile et al., 2012). Despite these benefits, PA levels in the general adult population, including those with chronic diseases and disabilities, are low (de Hollander et al., 2015; Carroll et al., 2014). More specifically, just above 50% of the general adult population without chronic diseases and 31%–52% of the population with chronic diseases and disabilities is sufficiently active according to PA recommendations (i.e. performing  $\geq 5$  days/week of  $\geq 30$  min/day or  $\geq 150$  min/week of at least moderate-intensity activities) (de Hollander et al., 2015; Carroll et al., 2014).

The risk of developing a chronic disease increases with age (Slingerland et al., 2007). As society is aging and the statutory age of retirement is rising, an increasing number of chronically ill people are stimulated to take an active part in the workforce (Boot et al., 2011). Considering the health benefits of PA and because workers with chronic diseases may be more prone to productivity loss, engaging in PA to maintain and improve health is especially relevant for this group (Bergh et al., 2007; Roskes et al., 2005). To contribute to the development of effective measures that increase PA levels in all workers, i.e. both with and without chronic diseases, insight into the level of PA among these worker groups is needed. This insight is important to tailor future policy measures and workplace PA programs to target specific

\* Corresponding author at: Centre for Nutrition, Prevention and Health Services; National Institute for Public Health and the Environment; P.O. Box 1, 3720 BA; Bilthoven, The Netherlands. Fax: +31 30 274 4407.

E-mail address: [karin.proper@rivm.nl](mailto:karin.proper@rivm.nl) (K.I. Proper).

poor PA behaviors of workers with and without chronic diseases. To this end, detailed aspects of their PA levels should be examined, taking into account differences in duration and intensity of PA. So far, such comprehensive knowledge about the PA level of workers with and without chronic diseases is still lacking; PA levels have often been operationalized without adequate distinctions in duration and intensity. In addition, previous studies concerning PA in people with chronic diseases have focused on the general population and not specifically on the working population.

Therefore, the aim of this study was to examine the association between the number of chronic diseases and PA levels in a working population aged 19–64 years.

## Methods

### Study population and design

In this cross-sectional study (conducted in 2015), data were used from the Dutch Public Health Monitor of the Community Health Services, Statistics Netherlands and the National Institute for Public Health and the Environment 2012. Data from the Dutch Public Health Monitor 2012 were available through an online application at the national Health Monitor office (<http://www.ggdghorkennisnet.nl/loket-monitors-gezondheid>). A random sample of participants was extracted from the Municipal Personal Records Database. Participants of the Dutch Public Health Monitor 2012 received a questionnaire with questions about demographic factors and (determinants of) health via the Internet or by mail, and few were filled out verbally. As an Institutional Review Board (IRB) approval is only needed when the daily life of participants is influenced or when participants are required to perform specific actions, an IRB approval was not warranted. This was confirmed by the Medical Ethical Committee of the VU University Amsterdam. Of the people approached to complete the questionnaire, approximately 50% responded ( $n = 387,195$ ) (*Gezondheidsmonitor (Public Health Monitor)*). For the present study, a selection of the working population was made, defined as those aged 19–64 years with a paid job for  $\geq 12$  h/week. In total, 131,032 workers with complete data on the relevant variables were used for analyses (Fig. 1).

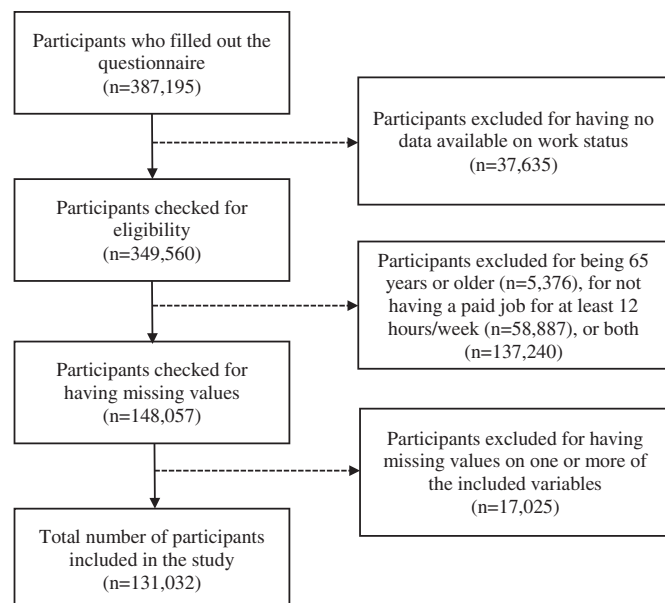


Fig. 1. Flow diagram of study participants (The Netherlands 2015).

## Measures

### Physical activity

PA was measured with the validated Short QUEStionnaire to ASses Health enhancing physical activity (SQUASH) (de Hollander et al., 2012; Wendel-Vos et al., 2003). In SQUASH, participants are asked to report the number of days per week and the average amount of time per day they engage in leisure time activities, household activities, activity at work and school and commuting activities. Based on the compendium of Ainsworth, every activity receives a MET-value (Ainsworth et al., 2011). Light-intensity activities are operationalized as activities with a MET-value of  $<4.0$  for people aged 18–54 years and a MET-value of  $<3.0$  for people aged  $\geq 55$  years. Moderate-intensity activities are operationalized as activities with a MET-value of 4.0–6.4 for people aged 18–54 years and a MET-value of 3.0–4.9 for people aged  $\geq 55$  years. Vigorous-intensity activities are operationalized as activities with a MET-value of  $\geq 6.5$  for people aged 18–54 years and a MET-value of  $\geq 5.0$  for people aged  $\geq 55$  years (Kemper et al., 2000). Subsequently, the amount of time a person engages in respectively light-, moderate-, vigorous-intensity activities can be calculated. Based on the frequency and intensity of PA, the following dichotomous PA variables were created (adhere to guideline/do not adhere to guideline):

- *Dutch PA guideline (NNGB)*:  $\geq 5$  days/week and  $\geq 30$  min/day of at least moderate-intensity activities (yes/no). The NNGB is aimed at maintaining a good health over the long-term (Kemper et al., 2000; Haskell et al., 2007).
- *American College of Sports Medicine (ACSM) guideline*:  $\geq 3$  days/week and  $\geq 20$  min/day of vigorous-intensity activities (yes/no). The ACSM-guideline is aimed at maintaining physical fitness (e.g. strength, endurance) (Kemper et al., 2000; Haskell et al., 2007).
- *Combined guideline*: NNGB and/or ACSM-guideline (yes/no). Participants adhere to the combined guideline when they adhere to one or both of the other two guidelines.

Besides examining differences in adherence to PA guidelines in the total study population, the duration of PA was also examined for workers who were doing at least some physical activity (here defined as  $>0$  min/week). To this end, for those who were physically active ( $>0$  min/week), two variables for the duration of PA (in min/week) were created for the amount of moderate- and vigorous-intensity activities, respectively in min/week.

### Chronic diseases

Chronic diseases were assessed by asking participants to indicate whether they had or have had chronic diseases (yes/no) from the following list: 1) Diabetes; 2) Cardiovascular diseases (i.e. stroke, cerebral hemorrhage, cerebral infarction; myocardial infarction; other severe heart conditions; vasoconstriction of vessels in abdomen or legs); 3) Cancer; 4) Migraine; 5) Asthma or COPD; 6) Skin disorders (i.e. psoriasis; chronic eczema); 7) Bowel disorders (i.e. severe or persistent bowel disorder for  $\geq 3$  months); 8) Musculoskeletal disorders (i.e. joint degeneration of hips or knees; chronic joint inflammation; severe or persistent back disorder, disorder of neck or shoulder, disorder of elbow, wrist or hand). For myocardial infarction, stroke, cerebral hemorrhage and cerebral infarction, participants were asked whether they have ever had these diseases. For diabetes, the time-frame of the question was currently (“Do you have diabetes?”). For all other diseases, participants were asked whether they currently have or have had that disease in the last 12 months. Participants could report having no, one or more diseases. Those who reported having multiple diseases within one disease category as specified above were considered as having one chronic disease. For example, in case of having psoriasis and chronic eczema and no other diseases, the participant was classified as having one chronic disease (i.e. skin disorder).

Download English Version:

<https://daneshyari.com/en/article/4202328>

Download Persian Version:

<https://daneshyari.com/article/4202328>

[Daneshyari.com](https://daneshyari.com)