Age-related differences in physical activity profiles of English adults

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Objective. Describe the proportion of total moderate or vigorous physical activity (MVPA) time that is represented by specific types of physical activity among active adults.

Methods. We analyzed data from 4750 adult participants in the 2008 Health Survey for England who reported 30 min of MVPA on ≥ 5 days per week. The proportion of their MVPA time spent in: occupational, domestic, walking, exercise and fitness, team sports, non-team sports, outdoor pursuit, and leisure pursuit activities were calculated and averaged across 6 age categories.

Results. Exercise and fitness activities make up a greater proportion of total MVPA for young adults (16–24 years: men = 27%; women = 21%) than old adults (65+ years: 12%; 11%); the same is true for Team sports (16–24 years: 12%; 2%; 65+ years: 0%, 0%). Domestic activities make up a greater proportion of total MVPA time among older men and women (16–24 years: 9%, 16%; 65+ years: 34%, 38%). Walking is one of the most important contributors to total MVPA across all age groups for both sexes (range all ages: 26–42%, 37–45%).

Conclusion. The physical activity profile of physically active English adults varies with age. Age-specific interventions to increase physical activity among adults may be needed.

Introduction

Health agencies from around the world call for higher physical activity levels (World Health Organization, 2004). Guidelines and interventions are developed by many countries to promote participation in moderate or vigorous intensity physical activity (MVPA) (Global Advocacy Council for Physical Activity, 2010). However, initiatives among adults tend to be general and do not target specific types of physical activity. Interventions may be more effective if they promoted activities that are the most likely to attract and retain participants.

Opportunities for physical activity come from four domains: occupation, transport, domestic duties, and leisure (Abu-Omar and Rütten, 2008), which encompass different types of physical activity. Although occupational physical activity represents an important component of adults’ physical activity (Allender et al., 2008a), the overwhelming presence of labor-saving technologies facilitating daily activities makes it unlikely that it will contribute to increasing population-level physical activity substantially. For this reason, people are generally encouraged to increase their participation in leisure- and transport-related physical activity (World Health Organization, 2004). Previous studies have documented the relative popularity of such physical activities (i.e.: proportion of population reporting participation in various activities) (Bélanger et al., 2009; Hamar et al., 2010; Stamatakis and Chaudhury, 2008). However, these studies do not permit determining the relative importance of each activity type in enabling participants to meet the recommended physical activity levels. In this analysis, we report the proportion of total physical activity time that different types of activities contribute for the attainment of the recommended 30 min or more of MVPA on at least five days per week among physically active adults (Chief Medical Officer, 2004).

Methods

Data were obtained from the 2008 Health Survey for England, a nationally representative survey of the noninstitutionalized population. Of the 14250 households selected for the 2008 Health Survey for England, 64% had at least one respondent and a total of 15102 adults participated in the survey (Craig et al., 2009). For the current analyses, the sample included only adults aged 16 years and above who met recommendations for physical activity. We also excluded participants with implausible physical activity reports (n = 53). Participants were categorized as meeting the recommendations if they reported an average of 30 min or more of MVPA on five or more days per week over the past four weeks.

Data were collected for occupational, domestic (house and manual work), walking (for any purpose), and leisure physical activities. For leisure
activities, each of the three authors independently grouped activities based on their similarities. Thereafter, they commonly agreed on the following mutually exclusive grouping of leisure activities (examples): Exercise and fitness pursuit (running and aerobics), Team sports (football and rowing), Non-team sports (tennis and martial arts), Outdoor pursuit activities (snowboarding and orienteering), and Leisure pursuit (dancing and ice skating) activities (Appendix). More details on the questionnaire and categorization of activities are available elsewhere (Roth, 2009; Craig et al., 2009). Only activities of moderate or vigorous intensity were considered for the current analysis. For occupational, domestic and leisure activities, this was determined according to the nature of activities. Participants’ perception of whether the activity was enough to make them “out of breath or sweaty” was also used to estimate the intensity of leisure activities. For walking, only sessions with a pace reported to be fairly brisk or fast were considered.

Analyses

For each participant, we calculated the proportion of MVPA time that was spent in each type of physical activity. These types of physical activity-specific proportions were then averaged across participants. As the popularity of different physical activities varies according to age (Ifedi, 2008), we stratified analyses by 10-year age group. Analyses based on number of minutes (instead of proportion of time) yielded results similar to those presented herein. For all analyses, we applied the Health Survey for England weights to account for the sampling frame of the study (Craig et al., 2009).

Results

About 34% (n = 4750) of participants were categorized as meeting the recommendation for physical activity and were retained for the analyses. Whereas the proportion of men meeting the recommendation decreased markedly with age, the proportion of women meeting the recommendation was similar across all age categories, with the exception of the 65 years and older (Table 1). Among both men and women meeting the physical activity recommendation, the reported time spent participating in MVPA was the lowest among the 16–24 year olds, and the highest among the 45–54 and 55–64 year olds.

Walking was the most important contributor to the total amount of MVPA for every age category among women, and one of the most important for all age groups in men (Fig. 1). Although domestic activities represented a large and relatively stable proportion of total physical activity for women across all age groups, its importance increased with age.

### Table 1

<table>
<thead>
<tr>
<th>Age category (years)</th>
<th>Proportion meeting physical activity recommendationa, %</th>
<th>Minutes of moderate or vigorous physical activity per weekb, Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men (n = 6760)</td>
<td>Women (n = 8342)</td>
</tr>
<tr>
<td>16–24</td>
<td>53</td>
<td>35</td>
</tr>
<tr>
<td>25–34</td>
<td>49</td>
<td>36</td>
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<td>35–44</td>
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<td>55–64</td>
<td>32</td>
<td>28</td>
</tr>
<tr>
<td>65+</td>
<td>16</td>
<td>12</td>
</tr>
</tbody>
</table>

a Health Survey for England 2008 data.

b ≥ 30 min of moderate or vigorous intensity physical activity on ≥ 5 days per week.

c Among those meeting physical activity recommendation.

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Fig. 1. Proportion of total moderate or vigorous physical activity time spent in specific types of physical activity by age category in England in 2008.
Discussion

The physical activity profile of typical physically active adults varies considerably according to age in England. There is a marked age-related decline in the proportion of total MVPA attributable to exercise and fitness. Similarly, participation in team sports was only a relatively important contributor to total MVPA time among the younger age group. This may be related to changes in interests, opportunities, and time constraints occurring with age (Allender et al., 2008b). Although it was recently suggested that young adults taking part in team sports tend to transition to non-team sports once they become older (Lunn, 2010), the proportion of MVPA time attributable to non-team sports, outdoor pursuit activities, or leisure pursuit activities in the current analysis was not greater among middle age or older adults, in comparison to the youngest age group. Sporting activities may have contributed relatively little in this study because they tend to only be practiced on a weekly basis; in contrast, walking, domestic, and occupational activities may be performed daily. Occupational and domestic activities represented a large proportion of total MVPA time. Recent reports nevertheless suggest that such activities do not offer protection against cardiovascular diseases (Stamatakis et al., 2009a, 2009b). However, we showed that walking, which has been documented to independently protect against cardiovascular diseases and all-cause mortality (Hamer and Chida, 2008), is one of the most important contributors to total MVPA.

Strengths of this analysis includes that data come from a population-based sample and that seasonality does not influence the results because of year-round data collection. It nevertheless needs to be considered that unverifiable assumptions had to be made to group activities and that the self-report measures are subject to estimation errors because of the potential for inaccurate recall and social-desirability.

These results could help guide public health interventions in becoming more specific about the types of physical activity that are recommended. While also considering which activities are the most likely to be associated with beneficial health outcomes, future interventions could target different age groups by promoting physical activities they are more likely to adopt.

Conflict of interest statements

The authors have no conflict of interest to declare.

Appendix

Grouping of leisure physical activities listed in the Health Survey for England 2008.

Exercise and fitness pursuit
Cycling, exercise bike, swimming (continuous laps), running (including on a treadmill), jogging (including on a treadmill), weight training, rowing machine, stepping machine, home exercises (e.g. push-ups, press-ups, and chin-ups), floor exercise (e.g. push-ups, press-ups, and chin-ups), aerobic, step-aerobics, pilates, aqua aerobics, assault course, circuit training, hitting punch sack, skipping, Tai Chi, Territorial Army Training, toning table/bed, yoga.

Appendix (continued)

Team sports
Football (casual or training), rugby (casual or training), football (game), rugby (game), basketball (training), handball (training), netball (training), basketball (game), handball (game), netball (game), cricket, American football, baseball, softball, rounders, curling, hockey, lacrosse, polo, rowing (not including machine), volleyball, water-polo.

Non-team sports
Tennis, badminton, squash, martial arts, golf (not mini-golf, or golf using a power car), bowls (including outdoor, crown, green, and Petanque), archery, croquet, diving, fencing, field athletics, flies, gymnastics, ice dancing, rackets, skittles, snooker, sumo wrestling, swing ball, table tennis, tenpin bowling, wrestling.

Outdoor pursuit
Water skiing, downhill snow skiing, snowboarding, dry slope skiing, horse riding, abseiling, parasailing, adventure, back packing, canoeing, climbing, rambling, fell walking, cross country walking, hang gliding, paraglatching, orienteering, roller skating, roller blading, sailing (including dinghy), skateboarding, surfing, wind surfing.

Leisure pursuit
Swimming (leisurely, splashing about, and paddling in river/lake), dancing (including taking lessons or nightclub), battle re-enactment, darts, dog training, drumming (in a group), fishing, fly fishing, ice skating, juggling, motor sports (motor-cross, go-karting, and jet-skiiing), power boat (driving), scuba diving, subaqua (underwater) diving, shooting, snookering, trap shooting.

References


