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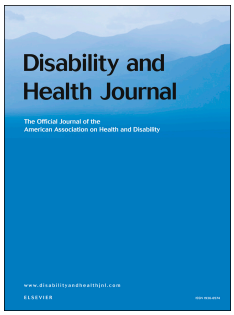

Device-based physical activity levels among Finnish adolescents with functional limitations

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Title:

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The authors declare they have no competing interest

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KN led the conceptualisation and wrote the first draft of the study. JV conducted the statistical analyses and PH revised the methods section. PR, TV and SK provided comments and edits to the manuscript. All authors revised and approved of the manuscript.

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Abstract

Background

Monitoring physical activity among young adolescents with disabilities is a top academic priority. People with disabilities are a diverse group with various abilities in different human functioning. Therefore, we used a novel approach through functional limitations as a marker for disabilities and examined physical activity levels.

Objective

To investigate the levels and differences in light (LPA) and moderate-to-vigorous (MVPA) intensity physical activity between young adolescents with and without functional limitations.

Methods

The study included young adolescents (n=1436) aged 11-15 years olds who attended general schools that were part of the 2016 Finnish School-aged Physical Activity (FSPA) study. PA levels were measured by hip-worn accelerometers during seven consecutive days. The data were disaggregated by the following functions related to; seeing, hearing, speaking, moving, breathing, and remembering or concentrating. Multiple general linear regression models were run to test the differences in amount of time of LPA and MVPA.

Results

One in six young adolescents had disabilities. Young adolescents with functional limitations had 7 mins.day^{-1} less LPA (p=0.021) and 8 mins.day^{-1} less MVPA (p=.011) than their peers without functional limitations. After controlling for gender, age, and device wear time, the differences in LPA among young adolescents with and without functional limitations were the same, however MVPA was no longer significantly less. Results varied according to different functional limitations.

Conclusions

There were significant variations in physical activity behaviours by functional limitations and activity intensity. As such, tailored approaches to physical activity promotion may be dependent on understanding functional limitations as an indicator to disabilities.

Keywords: teenagers, physical exercise, children, ICF, accelerometers

Introduction

There is undisputed evidence that living a physically active lifestyle can be beneficial to the physical, social, and mental health.(1) Currently, the international physical activity recommendations for health in children aged between 5-18 years old is to take part in at least 60 minutes a day of moderate-to-vigorous intensity physical activity (MVPA).(2) Children who meet this recommendation are considered as 'active' and those not meeting the recommendation are described as 'inactive'.(3) According to these labels, the proportion of children who are inactive requires monitoring and attention at a national level. In Finland, approximately 70% of children aged between 9-15 years old were inactive.(4) In other countries in Western Europe and North America, the inactivity prevalence is 75% for boys and 86% for girls.(5) Yet in many studies, children with disabilities are often excluded or simply not reported, and there is a need to provide better insight for the purposes of health promotion.(3) There are greater health disparities between children with and without disabilities. For example, children with disabilities have lower levels of physical activity.(6) Physical activity can be a protective factor of secondary conditions to existing disabilities, of which, both would be more complicated to treat.(7) Therefore, children with disabilities are considered an important population group to study.

According to the UN Convention on the rights of persons with disabilities, people with disabilities "have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".(8) Therefore, specific functions limitations are reported in research as markers for reporting disability.(9) Moreover, bodily impairments may affect the timing of puberty, which has traditionally been defining time for adolescence.(10) Sawyer and colleagues suggest that the endpoint of adolescence should include youth activities up to the age of 24 years old, thus there is a need to create a defining period for "young (or early)

adolescence" for children aged between 10-15 years old.(11) From a public health perspective, being aligned with current policies is crucial to help inform the relevant stakeholders. As such, the UN convention on the rights of persons with disabilities, of which Finland has signed and ratified the convention, states that in Article 30, data collected shall be disaggregated by disabilities to be used for assessing barriers faced by persons with disabilities.

Many studies have reported a variety of frequently reported barriers to physical activity that are unique to young adolescents with disabilities.(12) The barriers to physical activity could vary by the impairment types. For example, young adolescents with physical impairments may have difficulties to execute physical competencies(13) whereas, those with sensory impairments may experience unique social barriers such as lack of sighted guides,(14) and those with intellectual impairments may have difficulties to follow instructions on their own.(15) These differences can have theoretical and practical implications for increasing physical activity levels. As such, these reports confirm the need to investigate and report nationally representative data on physical activity behaviours after consideration of specific functional difficulties (as opposed to the non-categorical approach where all people with disabilities are grouped together and compared to people without disabilities).(16)

Measurements of physical activity among young adolescents has brought forth much debate on the accuracy of data collected and thus the interpretation of the results.(17) Costs and appropriateness in data collection are often a major factor towards the choice of measurements. Self-report instruments are the most cost-effective strategies to producing nationally representative reports of physical activity levels and are appealing when conducting studies that can be compared with other similar studies.(18) However, there has been some criticism of self-reported data, and surveillance surveys such as NHANES have included accelerometers to measure movement and therefore assess physical activity levels.

Accelerometers can be placed on the thigh, arms, hips, and other parts of the body to detect movement, however placement at the hip covers a vast range of movement that is sufficiently stable to approximate to overall physical activity.(19) Compliance to wearing the device may be an issue among young adolescents with disabilities,(20) and is needed to be considered when interpreting results.

Few studies are emerging that have used device-based measures of physical activity among young adolescents with functional limitations, and there is an obvious need to carry out studies based on nationally representative samples. Recruiting participants from the general school settings has the advantage of conducting research where the context of inclusion can be examined and to consider the recent growth, from 8% in 2010 to 16% in 2016, in the proportion of pupils who need intensified or special educational support in the Finnish schools.(21) To our knowledge, this is the first nationally representative study describing device-based measures of physical activity by disability type, according to the core functions related to disabilities and physical activity. Thus, the purposes of this study are to investigate the levels and differences in light (LPA) and moderate-to-vigorous (MVPA) intensity physical activity among young adolescents with and without functional limitations,

Methods

Procedures

Data were collected from the 2016 Finnish School-aged Physical Activity (FSPA) study that is the national physical activity monitoring study for children and adolescents (LIITU in Finnish). The FSPA study was approved by the University of Jyvaskyla ethical committee to carry out research based on survey data and device-based measures of physical activity and sedentary behaviours. To that effect, the sample was segmented into the survey participants (n=6369) and the device-based measures participants (n=3284) aged between 9 and 15 years old during spring 2016 (Figure 1). The sample was organised so that a nationally representative sample was derived for survey participants. Selection of participants

was random and a regionally stratified sampling method was deployed with the class in the school. The primary sampling unit was calculated through probability proportion size. Overall, there were 285 Finnish-speaking schools, and 44 Swedish-speaking schools that participated. Over half of the schools responded to the survey (Finnish schools: 61%, Swedish schools: 58%).(22) The survey consisted of an online survey questionnaire completed in a classroom, presided by a teacher with instructions. The survey was conducted anonymously and voluntarily, allowing pupils to withdraw at any point in time. There were a number of reasons for having fewer participants with device-based measures; 1) only Finnish-speaking schools were invited for that part of the study, 2) only the schools within 100 km from the research centres were invited, 3) the schools were free to select only the survey part of the study if they liked to (so they could deny from the accelerometer part), and 4) we needed to have an informed consent from the pupils and their guardians before the pupil could participate. A specific code was allocated to individuals who were also assigned to device-based measures. The pupils from the Finnish-speaking schools were asked to write their specific code into the survey so that their data of device-based measurements of PA could be matched with the survey. Following the cleaning of data with matched codes, the sample (n=2129) was ready for analysis. Although the FSPA study included also 9 year old pupils (n=635), the data of this study covers the ones aged 11, 13, and 15 years because the survey of the youngest age group did not include questions about disabilities. Finally, some other data were missing, such as gender of pupil, outlier of age and missing functional difficulty data, and this reduced the sample size (n=1436).

Measures

The participants provided background information such as their gender (boy or girl), month of birth and year of birth. Their age was then calculated based on the time of data collection. The age groups of 11, 13, and 15 year olds were allocated by the closest age group category. The academic year in Finland is from August to June, however age is determined

from January to December. Therefore, the mean ages for each age group were 11.7y, 13.7y, and 15.7y. We used a proxy measure of social-economic status that can be completed by young adolescents in the form of the family affluence scale (FASIII). The FASIII consists of six items about what the young adolescent has access to in their own family including; 1) number of cars, 2) family holidays, 3) bathrooms, 4) computers at home, and 5) whether they have their own bedroom and 6) dishwasher. We then created a composite score and ranked responses through relativeness and identified distributed integral transformation (ridit) in SPSS from 0 to 1. We then used this index as an indicator of socioeconomic position.

Disabilities by functional limitations

The Washington Group on Disability Statistics was used as a method for measuring disabilities.(23) The "short set" was designed based on international consensus, with the primary aim of reporting accurately prevalence of disabilities at the population level.(24) The short set included six items of body functions that are indicators for disabilities. This perspective corresponds to the WHO international classification of functioning, disability, and health (ICF) framework where functions are linked to health conditions, activities and participations as well as environmental factors of the ICF. We modified the items for self-reporting in the following way, "Do you have any difficulties in," six functions were listed, "seeing, even with glasses", "hearing, even with hearing aid", "speaking", "moving", "breathing", and "remembering or concentrating". There was a five-point response scale ("no difficulties", "a little difficulty", "some difficulty", "a lot of difficulty", and "cannot do") that corresponded with the functional modifiers within the ICF. A cut off for difficulty was aligned with the ICF core sets, whereby ratings of "no difficulties" and "a little difficulty" were considered not sufficiently limiting to be classified as a person with disabilities. Whereas responses of "some difficulty", "a lot of difficulty", and "cannot do" were considered as severe enough difficulties for the participant to be classified as a person with

disabilities.(25) The group of pupils without disabilities were the reference group in the statistical analyses.

Device-based measures of physical activity

Physical activity was measured with tri-axial, hip-worn accelerometers (UKK AM30 and UKK RM42, UKK Terveyspalvelut OY, Tampere, Finland). Research assistants delivered the devices to pupils during a lesson and gave both oral and written information on how to use the device. The accelerometer was attached to a flexible belt on the right hip and the participants were instructed to wear the belt for seven consecutive days (1 week) during waking hours, except during showering and other water-based activities. The accelerometer measured and stored the acceleration of the device in three orthogonal directions at sampling rate of 100 Hz. The resultant acceleration (i.e. the magnitude of the acceleration vector) was determined from these three components. Then the mean amplitude deviation (MAD) of the resultant was analysed in 6-second epoch length.(26) The MAD values were then converted to metabolic equivalents (MET).(19) The epoch-wise MET values were further smoothed by calculating 1min exponential moving average to better indicate physiological responses (heart rate, oxygen consumption etc.) of activity. Using the smoothed MET values total physical activity was classified in light (1.5–2.9 MET), moderate (3.0–5.9 MET) and vigorous (≥ 6 MET) activity. In the results, moderate and vigorous activities were combined to moderate-to-vigorous activity (MVPA) because vigorous activity covered a very slight proportion of the total measurement time. In the present study, variables of physical activity are presented as mean time in each activity during measurement days.(22) To be included into present study, the participants needed to have accelerometer data for at least four days, at least 10 h each day.

Statistical analyses

Descriptive statistics were performed to test outcome variables of MVPA and LPA against the missing values. Homogeneity between missing and completed data were tested through student t-test. T-tests were performed repeatedly on MVPA and LPA for each disability group. FAS did not significantly confound the results between group analysis, and due to sample size, it was therefore omitted from further analyses. To account for gender and age differences, general linear models were performed with physical activity as the outcome variable, and disabilities as the independent variable with age, gender and device wear time as covariates. Cohen's D was reported to produce effect size in the differences in the mean MVPA and LPA. Statistically significant reporting were based on 95% confidence intervals.

Results

Descriptive Results

Less than one in six (13.2%) young adolescents reported to have functional difficulties that were considered to be disabling. The most common type of disability was related to remembering and concentrating difficulties (7.3%) and the least common was related to moving difficulties (0.8%) (Table 1).

Over 40% of participants had seven-day compliance with over 10-hour wear time per day (Table 1). There were no differences in device wear time between genders and across age groups. However, fewer young adolescents with disabilities reported seven days of wear time and more reported five days than the adolescents without disabilities (p=0.009). More specifically, 30.5% of adolescents with moving difficulties reported five days of wear time, and 28.8% reported seven days, in contrast to the 17.2% of adolescents without disabilities who had five days of wear time and the 44.7% who had recorded seven days of wear time.

Light PA

Children with disabilities (m=197.3 mins.day^{-1}, SD=47.9) reported on average significantly less LPA minutes per day than children without disabilities (m=204.7 mins.day^{-1}, SD=40.7, p=0.002). The effect size, according to Cohen's D was 0.18 (Table 2).

Young adolescents with remembering or concentrating difficulties had significantly less LPA than young adolescents without disabilities (m=191.5 mins.day^{-1}, SD=48.8, p=.002). The effect size was 0.32.

After controlling for gender, age and device wear time, young adolescents with moving difficulties (p=0.042) and remembering or concentrating difficulties were significantly less active (p=0.012) than adolescents without disabilities after controlling for age, gender and wear time. The LPA of the other disability groups did not differ from the non-disabled group after adjustments. We did not compare all groups with each other. (Table 3).

Moderate to vigorous PA

The average amount of time in moderate to vigorous physical activity was significantly (p=0.011) greater in young adolescent without disabilities (m=97.3 mins.day^{-1}, SD=42.2) than in young adolescents with disabilities (m=88.9 mins.day^{-1}, SD=42.2). The effect size, according Cohen's D was 0.20 (Table 2).

Young adolescents with speaking (m=74.6 mins.day^{-1}, SD=40.4; p=0.008) or remembering or concentrating (m=87.1 mins.day^{-1}, SD=41.6; p=0.018) difficulties were significantly less active than young adolescents without disabilities. There were relatively small effect sizes and no significant differences in MVPA among young adolescents with other disabilities.

After adjustment for gender, age and device wear time, young adolescents with speaking difficulties (p=0.011) were significantly less active than adolescents without disabilities. Other differences were not statistically significant after the adjustment (Table 3).

Discussion

The main findings of this study were that, after controlling for gender, age and device wear time, light intensity physical activity (LPA) was significantly lower among young adolescents with functional limitations than same age peers without, however the difference was not statistically significant in moderate-to-vigorous intensity physical activity (MVPA). However, there was variation among the different types of functional limitations. In particularly, light physical activity (LPA) was significantly lower among young adolescents with functional limitations when compared with same age peers without functional limitations, and specifically with moving difficulties, or difficulties with remembering or concentrating. In addition, there were significantly lower levels of MVPA among young adolescents with speaking difficulties when compared to their peers without functional limitations.

The majority of literature supports the notion that children with functional limitations have low levels of physical activity.(27) For example, in a study of children in special schools, physical activity levels were very low after measuring school time physical activity levels.(28) There are many factors that can explain school time as well as, out of school time PA may be low among children with functional limitations, such as lack of friends, family support, fun,(29) poor infrastructure,(30) and low efficacy among instructors.(31) However, few studies have been conducted in the context of general schools and participation of large scale surveys of children in these general schools.(3) Prior efforts to include functional limitations measures into the mainstream schools to assess differences in physical activity levels were based on a non-categorical approach to disabilities,(32) In such studies of self-reported physical activity, young adolescents with functional limitations were not significantly less active than their peers without functional limitations.(33) The results of the adjusted means analysis from this study largely concur with these previously reported findings, whereby the difference in MVPA between young adolescents with and without

functional limitations was not statistically significant. Yet, few studies have explored the lower intensity of physical activity, such as LPA, and it was with this intensity that differences were noticed. Health promotion activities may need to pay more attention to the types of difficulties young adolescents have prior to considering ways to engage them into doing more physical activity. Currently, the physical activity recommendations stress the importance to be in the active category (at least 60 minutes of MVPA per day), yet it has been well documented that even LPA has health benefits.(1) In this study, young adolescents with moving difficulties took part in 22 minutes less of LPA per day than their peers without functional limitations. Similarly, young adolescents with remembering or concentrating difficulties took part in 10 minutes less LPA per day than their peers without functional limitations. Therefore, there is a need for strategies that ensure sufficient opportunities, both in and out of school contexts, specifically targeting young adolescents with moving difficulties or difficulties with remembering or concentrating to take part in LPA.

Young adolescents with remembering or concentrating difficulties may have a lack of social opportunities to engage in out of school physical activities(34) and this may be a reason for the low levels of unadjusted MVPA and LPA. Parents may also be restricting opportunities as they are worried that their child finds it hard to follow instructions and gain friends.(15) However, there are possible strategies that can increase physical activity opportunities. Klavina and colleagues demonstrated the use of social support in the form of peers who slowly improve social acceptance into sports, to motive children to be physically active as well as, become a “buddy” whereby the individuals can provide reminders and prompts to keep on task.(35) Once young adolescents with functional limitations are involved in organised sports, they are two times more likely to meet the physical activity recommendations than non-participants with functional limitations.(32) Such findings may contribute to our understanding for why, in our study, the average levels of MVPA were not significantly different between young adolescents with and without functional limitations.

It is often assumed that participation in physical activities requires communication skills. Therefore, it was not surprising that young adolescents with speaking difficulties spent significantly less time in MVPA than their peers without functional limitations. However, communication comprises of both speaking and hearing functions. According to the findings from our study, although not statistically significant, young adolescents with hearing difficulties took part in 7mins more MVPA per day and almost 13min of LPA per day compared to young adolescents without functional limitations. The polarity of physical activity behaviours from young adolescents with functions that are related to each other may preclude to a better understanding in creating targeted physical activity promotion strategies. To do this, it would be important to investigate how and what communication skills are influential for regular MVPA.

Disaggregation of the data by functional limitations as an indicator for disabilities is a novel approach used in this study. Previous clinical studies and study reviews have been limiting, because different methods were used, or that disability types tended to be merged together into a non-categorical approach. Although epidemiological studies may be beneficial to be presented with disabilities as a universal group (16), one size does not fit all approach in health promotion and would suggest the importance for disaggregation of data. The measures of disabilities were based on the working measures of the Washington Group on Disability statistics,(23) which is becoming a standard for international comparisons of disability data.(36) Coupled with the latest state of the art algorithms from the mean amplitude deviation,(26) device-based measures provide an accurate picture of overall physical activity, that also include sedentariness and sitting time. Data is without recall bias that has typically been used to criticise self-reported physical activity among adolescents.(37)

Including data disaggregated by functional limitations is an important right for people with disabilities to be represented in large national surveys.(8) The tool used as a marker for

disabilities is not a medically diagnostic tool, as disability is considered the interaction of impairments and participation in society that first puts the focus on functional limitations. Future studies may consider this or preferably, the updated version of the Washington group questions for producing comparative data.(9) We modified the short set instrument for this study whereby it was possible for the young adolescents to report themselves. Disability advocacy and children rights groups suggest the need to include the people in the study where possible, and this is the value from self-reported surveys. We also included another item related to physical activity – breathing difficulties. The majority of physical activities suitable for young adolescents relies upon the cardiovascular system and breathing is a vital component of this. However, there were hardly any differences in both LPA and MVPA. Difficulties with breathing may be considered a sign of contraindication to vigorous intensity physical activities, thus individuals may feel that participation organized activities are restricted.(38) However, symptoms from breathing difficulties may be reduced through medication, and it may be possible that a divide in the amount of self-reported physical activity among young adolescents with breathing difficulties appeared. This may have depended on those that were encouraged to take part in organized sport activities (and perhaps may take medication) to those who do not participate at all.(39) More analyses based on the severity levels of functional difficulties may provide more insight into this phenomenon.

Comparisons with other data sets or over time in trend data may be limited to similar featured functional limitations. Currently, that would include the following functional groups, difficulties in seeing, hearing, speaking and remembering or concentrating. Moreover, the response scale in our study was a five-point scale, whereas the updated versions of the Washington group are based on a four-point scale. We used a cut-off value of at least “some difficulties”, and the results from this cut-off value are similar to the reported prevalence of disabilities by the Finnish National Institute of Health and Welfare.(40) Despite our

confidence that the cut-off values were sufficient in representation of the population, the items themselves and the response categories may have influenced the results. Therefore, it is unclear if the differences in physical activity levels would have been magnified or diminished.

Study limitations include that the sampling of children in general schools exclude children who require more support in a special school. Interpretation of difficulties were subjective from the adolescent's experience, which must be taken into account when interpreting these results. Devices were worn over a week and seasonal changes between March to the end of May were not taken into account. Due to the anonymous nature of the data collection around the country, it was not possible to take into account weekly season changes. Furthermore, water-based activities, like swimming, were not included. Additionally, activities like cycling and Nordic skiing are not adequately captured at the moment and thus the intensity of this kind of activities is likely to be slightly underestimated. However, all participants of the present study used the same type of devices. Finally, the sample size of each functional difficulty was representative at a population level. Larger sampling with weights may be needed in future studies to reduce the underpowered results from this study.

Conclusion

The amounts of MVPA is used for measuring compliance with physical activity recommendations for young adolescents. However, in this study, the levels of MVPA were not significantly different between young adolescents with and without functional limitations. Some exceptions existed, whereby young adolescents with speaking difficulties had less MVPA when compared to their peers without functional limitations. However, when we examined LPA, young adolescents with functional limitations, moving difficulties, or difficulties in remembering or concentrating took part, on average, in less LPA.. Overall health promotion action plans need to recognise the techniques for increasing different

intensity physical activity levels to meet overall national targets in all school-aged populations based on information of functional limitations.

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Tables and Figures

Table 1. Descriptive device wear time of device by background characteristics

Table 2. Unadjusted means of MVPA and LPA minutes per day with differences by disabilities and effect size

Table 3. Regression coefficients of Device worn MVPA and LPA minutes per day, adjusted for gender, age, and wear time

Figure 1. Sample Flow Chart of the FSPA 2016 study

Table 1. Descriptive device wear time of device by background characteristics

		Days of 10hr wear (%)				Chi	Overall minutes	
	n	4	5	6	7	p	Mean	SD
Total	1436	9.3	18.5	28.8	43.5		846.59	70.64
Gender						0.354		
Boy	571	10.7	17.0	28.4	44.0		848.14	74.92
Girl	865	8.3	19.4	29.0	43.2		845.57	67.69
Age						0.874		
11y	595	8.4	18.3	28.1	45.2		840.83	77.10
13y	503	9.1	18.7	29.6	42.5		849.06	65.28
15y	338	27.8	23.4	23.5	22.7		853.05	65.66
Disability						0.009		
None (Ref)	1247	9.3	17.2	28.9	44.7		845.19	69.60
Disabilities	189	9.0	27.0	28.0	36.0		855.80	76.69
Functional Limitations								
Seeing	39	10.3	23.1	12.8	53.8	0.172	861.45	89.97
Hearing	15	13.3	26.7	26.7	33.3	0.699	843.22	93.04
Speaking	25	8.0	16.0	28.0	48.0	1.000	849.75	87.04
Moving	12	16.7	25.0	16.7	41.7	0.613	973.20	91.77
Breathing	59	8.5	30.5	32.2	28.8	0.028	855.56	84.71
Remember/Conc.	105	13.3	25.7	23.8	37.1	0.052	850.15	68.31

SD=standard deviation, Remember/Conc. = Remembering or Concentrating

Device worn PA measures by functional limitations

Table 2. Unadjusted means of MVPA and LPA minutes per day with differences by disabilities and effect size

	n	%	MVPA	sd	p	d	LPA	sd	p	d
Disability										
None (Ref)	1247	86.8	97.3	42.2			204.7	40.7		
Disabilities	189	13.2	88.9	42.2	0.011	0.198	197.3	47.9	0.022	0.179
Functional Limitations										
Seeing	39	2.7	94.9	42.4	0.728	0.057	208.5	49.3	0.577	-0.091
Hearing	15	1.0	118.0	46.3	0.060	-0.489	218.0	40.0	0.212	-0.324
Speaking	25	1.7	74.6	40.4	0.008	0.539	194.9	55.1	0.237	0.239
Moving	12	0.8	83.1	47.0	0.247	0.336	186.3	54.8	0.119	0.452
Breathing	59	4.1	92.8	40.6	0.423	0.107	213.0	41.9	0.127	-0.204
Remember/Conc.	105	7.3	87.1	41.6	0.018	0.241	191.5	48.8	0.002	0.318

N = number of study participants; MVPA = mean Moderate-to-vigorous physical activity; sd = standard deviation, d=Cohen's d, LPA = mean light physical activity, Remember/Conc. = Remembering or Concentrating.

Device worn PA measures by functional limitations

Table 3. Regression coefficients of Device worn MVPA and LPA minutes per day, adjusted for gender, age, and wear time

	MVPA				LPA			
	Beta	LCI	UCI	P	Beta	LCI	UCI	p
Disability								
None (Ref)	REF				REF			
Disabilities	-4.276	-9.662	1.111	0.120	-7.181	-13.108	-1.255	0.018
Functional Limitations								
Seeing	0.050	-11.100	11.200	0.993	0.709	-11.377	12.794	0.909
Hearing	7.504	-10.439	25.447	0.412	12.912	-6.379	32.203	0.190
Speaking	-17.984	-31.880	-4.089	0.011	-6.080	-21.163	9.004	0.430
Moving	-12.378	-32.371	7.615	0.225	-22.307	-43.828	-0.786	0.042
Breathing	-1.259	-10.407	7.888	0.787	4.190	-5.736	14.117	0.408
Remember/Conc.	-5.608	-12.655	1.396	0.116	-10.377	-18.064	-2.689	0.008

MVPA = moderate-vigorous-physical activity, LPA = light physical activity, LCI = Lower confidence interval, UCI = Upper confidence interval, Remember/Conc. = Remembering or Concentrating.