

# Do children participate in the activities they prefer? A comparison of children and youth with and without physical disabilities

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## Abstract

**Objective:** To assess the discrepancy between the leisure activities children prefer and the leisure activities they actually participate in, for children with and without a physical disability, and to explore how in both groups this is related to age and gender.

**Design:** Cross-sectional comparison.

**Subjects:** Children with and without physical disabilities that were recruited from schools for special education and regular schools in the Netherlands.

**Main measures:** The Children's Assessment of Participation and Enjoyment (CAPE) and the Preferences for Activities of Children (PAC). A discrepancy score was calculated representing high preference but no participation in the activity in the past four months.

**Results:** A total of 141 children (6–18 years) with a physical disability (mean age 12.5, 43% girls, 57% boys) and 156 children without physical disabilities (mean age 11.5, 55% girls, 45% boys) were included in the study. There was no significant difference in discrepancy scores between children with and without physical disabilities (informal activities  $9.8 \pm 5.0$  vs.  $9.8 \pm 4.6$ , formal activities  $6.4 \pm 3.4$  vs.  $6.6 \pm 2.8$ ). Discrepancy between preference and performance varied by age and gender for children without disabilities but not for children with disabilities.

**Conclusions:** Both groups are equally able to participate in the activities they prefer. Age and gender had a significant effect on the discrepancy scores for children and adolescents without physical disabilities but not for children with physical disabilities.

## Keywords

Participation, leisure, preference, children, physical disability, typically developing

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## Introduction

Participating in leisure activities contributes to an individual's physical and social well-being and is a determinant of quality of life.<sup>1,2</sup> Leisure activities are defined as 'freely chosen activities performed when not involved in self-care or (school)work'.<sup>3</sup> Participation in leisure activities is often challenging for children and adolescents with physical disabilities. Their participation is less frequent and they participate in fewer activities.<sup>4-7</sup> Personal factors often correlated with a child's participation are age,<sup>8-11</sup> gender<sup>11-14</sup> and preference for activities.<sup>13,14</sup> Preference refers to what a child would like to do.

Preferences for activities are a result of the beliefs and values of the people in the social environment of the child, success of earlier experiences of children and the level of enjoyment the child encountered doing activities.<sup>15-17</sup> Currently very few studies have looked into the relation between preference of children and the activities they actually engage in. For children without physical disabilities, a significant relation has been reported between the preference of children and the activities they do.<sup>18</sup> In contrast, no or moderate correlations have been reported for children with physical disabilities.<sup>19,20</sup> As a consequence of their activity limitations children with physical disabilities could have a discrepancy between wanting to do activities, but not engaging in them, because of the challenges and barriers they meet. Not being able to do the activities they prefer could have negative psychological consequences like feeling alone and depressed.<sup>21</sup>

Preferences for activities also differ as a result of gender and age.<sup>15,16</sup> Boys tend to prefer sports and gaming activities, whereas girls prefer more social- and skill-based activities.<sup>22</sup> School-aged children tend to have higher preference for physical activities and informal activities, whereas older children are more likely to prefer skill-based activities and self-improvement activities.<sup>23</sup>

To date no studies are available that have looked at the discrepancy between which activities children prefer and their engagement in the activity. Therefore the aim of this study is (1) to assess whether there is a discrepancy between the leisure

activities children prefer and the leisure activities they actually participate in, for children with and without a physical disability, in different activity types, and (2) to explore if discrepancy scores differ with age and gender.

## Methods

The data were gathered as part of a validation study of the Dutch Children's Assessment of Participation and Enjoyment (CAPE)<sup>7</sup> and the DiPart-CY (Disability and Participation – Children and Youth) study. The diagnoses of physical disability were categorized by a rehabilitation physician (Table 1). This convenience sample was taken from two schools for special education for children with physical disabilities, and from two organizations that counsel children with disabilities who attend regular school classes in their community. The children without physical disabilities were recruited from five schools for regular education in the Netherlands and did not have any physical disabilities. Children were eligible if they were aged between 6 and 18 years and able to complete the CAPE with or without assistance. After approval of the ethics committee of University Medical Centre Utrecht and the local school management, parents were sent an information letter about the study, together with a consent form and a stamped return envelop. Parents who returned the informed consent form participated in the study with their child.

Participation in leisure activities was assessed using the CAPE. The CAPE is a 55-item questionnaire that assesses participation in leisure activities of children and adolescents from 6 to 21 years.<sup>24</sup> The CAPE is a self-report measure that has been shown to be valid and reliable in the Dutch population.<sup>7</sup> The CAPE assesses five dimensions of participation: diversity (Has the child done the activity in the past four months?), intensity (How often has the child done these activities?), with whom and where, and enjoyment (How much did the child like or enjoy the activity?). Scores can be calculated for five different activity types (recreational activities, active physical activities, social activities, skill-based activities and self-improvement activities)

**Table 1.** Demographic characteristics.

	Total study sample		Children with a physical disability		Children without a physical disability	
	N = 297	%	N = 141	47.5%	N = 156	52.5%
Gender						
Female	145	48.8	60	42.6	85	54.5
Male	152	51.2	81	57.4	71	45.5
Age (in years)						
6–12	168	56.6	73	51.8	95	60.9
13–18	129	43.4	68	48.2	61	39.1
Diagnoses						
Central nervous system (CNS)						
Acquired brain injury			8	5.7		
Cerebral palsy or related			42	29.8		
Developmental delay			22	15.6		
Minor motor			11	7.8		
Spina bifida, spinal cord or related			13	9.2		
Other CNS			20	14.2		
Musculoskeletal						
Neuromuscular			12	8.5		
Skeletal			10	7.1		
Other musculoskeletal			1	0.7		
Unknown			2	1.4		

and two domains (formal and informal activity domain). In this study the diversity scores were used. This is a dichotomous variable (0, the child has not done the activity in the past four months; 1 the child has done the activity in the past four months). Diversity scores can range according to the number of activities in each activity type; 0–12 for recreational activities, 0–13 for active physical activities, 0–10 for social, skill-based and self-improvement activities, 0–15 for formal activities and 0–40 for informal activities.

Preference was assessed using the Preferences for Activities of Children (PAC). The PAC<sup>24</sup> is a questionnaire that assesses the preference for activities. This measure accompanies the CAPE and assesses preference on a 3-point scale (1 = Would not like to do at all, 2 = Would sort of like to do, 3 = Would really like to do) for the same 55 activities as mentioned in the CAPE.

Data were collected by 15 research assistants who received a training in administration of the

measures. The CAPE and PAC were completed in a one-on-one session with one of the research assistants. Assistance was provided by the research assistant through explaining the purpose of the measures, explaining the answers that could be given and giving examples to the child whenever an activity was unclear. Demographic data, age and gender were gathered through the informed consent form filled out by the parents.

## Data analysis

To analyse the discrepancy between the participation and preference scores, an item discrepancy score was calculated. This item discrepancy score represents the number of activities the child would like to engage in but has not engaged in four months prior to the assessments. First the PAC preference scores of each item were dichotomized indicating that the child 'would not like to do at all' (score 0),

or 'would sort of like to do it' and 'would really like to do it' (score 1).

The diversity score of the CAPE and the dichotomized score of the PAC were combined resulting in a 'discrepancy score'. Whenever a child preferred an activity (dichotomized PAC score was 1) but the diversity score on the CAPE indicated that the activity was not done in the past four months (diversity score 0) the score for discrepancy was 1. A discrepancy score of 2 for an activity type means that the child expressed a preference for two activities but has not participated in these two activities in the past four months. All other combinations of participation and preference scores were coded as 0. Thus we focused on the discrepancy for activities the child preferred to do, but has not done in the last four months. Discrepancy scores for activities children were engaged in but did not like were not calculated.

Next, discrepancy scores were calculated for each activity type and the formal and informal domains scores by adding up all the scores for the items on an specific activity type. For this discrepancy sum score a higher score indicates a discrepancy on more items in the activity type.

After visual inspection and calculation of skewness and kurtosis it was concluded that almost all activity type scores were normally distributed and parametric statistical analysis were used. To analyse the difference in discrepancy scores between children with and without disabilities, independent *t*-tests were used for the five activity types and two domains. Because multiple *t*-tests are performed, an alpha of 0.001 was used to indicate significant differences. Multiple regression analysis was used to explore the relation between discrepancy scores and age and gender.

## Results

In total 145 children with physical disabilities and 158 children without disabilities were included in the analyses. Four children with disabilities were excluded from the analysis because they had only completed the CAPE or the PAC. From the group of children without disabilities, two were excluded

because they only filled out the CAPE and not the PAC. The mean age of the children with a physical disability was 12.5 years (SD 3.3); for children without a physical disability the mean age is 11.5 years (SD 3.1). See Table 1 for demographic characteristics.

Table 2 shows how many activities the children participated in during the four months prior to the assessment and the preferences for these activities for both children with and without physical disabilities. Children with physical disabilities participated in significantly less activities in all activity types both in the formal and informal activity domain. Differences for the preference scores were small but statistically significant. Preference scores were lower for children with physical disabilities on active physical and social activities.

Table 3 shows the discrepancy scores for the children with and without disabilities at activity type level. There are no significant differences between children with and without disabilities on the discrepancy scores in each activity type nor for the formal and informal domain. Within the activity types highest discrepancy scores were found for 'taking care of a pet' for recreational activities (33.1% for children with a physical disability, 31.6% for children without a physical disability), 'going to a live event' for social activities (52.4% for children with a physical disability, 57.6% for children without a physical disability), 'taking art lessons' for skill-based activities (52.4% for children with a physical disability, 59.5% for children without a physical disability) and 'doing volunteer work' for self-improvement activities (42.8% for children with a physical disability, 57.6% for children without a physical disability). For physical activities, children with a physical disability had the highest discrepancy score for 'doing a paid job' (57.1%), whereas children without physical disabilities had highest discrepancy for 'doing water sports' (79.1%).

Table 4 shows that for children with a physical disability, on social activities only gender was a significant predictor for the discrepancy scores. No significant contribution was found for age. For children without physical disabilities age was a significant predictor for physical activities, social

**Table 2.** Activity type diversity scores and mean preference score per activity type for children with and without physical disabilities.

	Children with a physical disability N = 141	Range	Children without a physical disability N = 156	Range	t-value (df 300)
<b>Diversity sum score (SD)</b>					
Recreational activities	7.4 (2.4)	1–12	8.0 (2.2)	2–12	2.4
Active physical activities	3.1 (1.9)	0–9	4.4 (2.0)	0–9	5.5*
Social activities	6.3 (2.0)	1–10	7.2 (2.0)	1–14	4.0*
Skill-based activities	1.8 (1.6)	0–8	2.6 (1.6)	0–8	4.6*
Self-improvement activities	4.1 (1.9)	0–9	4.9 (2.0)	0–9	3.7*
Informal activities	20.6 (5.8)	6–36	24.1 (4.9)	13–34	5.7*
Formal activities	2.4 (1.6)	0–9	3.4 (1.9)	0–11	4.9*
<b>Preference mean scores (SD)</b>					
Recreational activities	2.2 (0.4)	1.3–3.0	2.2 (0.4)	1.3–3.0	0.3
Active physical activities	2.0 (0.5)	1.2–3.0	2.2 (0.4)	1.3–2.9	3.8*
Social activities	2.5 (0.3)	1.5–3.0	2.6 (0.3)	1.3–3.0	3.6*
Skill-based activities	2.0 (0.5)	1.0–3.0	2.1 (0.5)	1.0–3.0	1.7
Self-improvement activities	1.7 (0.4)	1.0–2.9	1.7 (0.4)	1.0–2.7	1.2
Informal activities	2.1 (0.3)	1.4–2.9	2.2 (0.3)	1.5–2.8	3.0
Formal activities	1.9 (0.4)	1.1–2.9	2.0 (0.3)	1.1–2.9	1.9

SD, standard deviation; df, degrees of freedom.

\* $<0.001$ .**Table 3.** Preference discrepancy sum scores (number of activities for which participants showed a discrepancy).

	Children with a physical disability N = 141		Children without physical disability N = 156		t-value (df 295)
	Preference discrepancy sum (SD)	Range	Preference discrepancy sum (SD)	Range	
Recreational activities	2.0 (1.7)	0–8	1.9 (1.6)	0–6	-0.5
Active physical activities	5.4 (2.5)	0–11	5.8 (2.2)	1–11	1.7
Social activities	2.5 (1.8)	0–8	2.2 (1.7)	0–8	-1.4
Skill-based activities	4.4 (2.6)	0–10	4.4 (2.1)	0–9	0.1
Self-improvement activities	1.9 (1.7)	0–8	2.1 (1.7)	0–9	0.8
Informal activities	9.8 (5.0)	2–23	9.8 (4.6)	1–22	-0.01
Formal activities	6.4 (3.4)	0–15	6.6 (2.8)	0–13	0.6

df, degrees of freedom.

activities, self-improvement activities, and formal and informal activities. Gender was a significant

predictor for social activities, skill-based activities and formal activities.

**Table 4.** Multiple regression analysis discrepancy scores.

	Children with a physical disability N = 156			Children without a physical disability N = 141		
	B	SE	P-value	B	SE	P-value
Recreational activities						
Age	-0.023	0.044	0.606	-0.035	0.041	0.391
Gender	0.154	0.297	0.605	-0.126	0.252	0.619
Active physical activities						
Age	0.041	0.063	0.518	-0.226	0.054	<b>&lt;0.001</b>
Gender	-0.645	0.428	0.134	-0.090	0.337	0.789
Social activities						
Age	0.009	0.044	0.831	-0.231	0.040	<b>&lt;0.001</b>
Gender	-0.613	0.297	<b>0.041</b>	-0.653	0.250	<b>0.010</b>
Skill-based activities						
Age	0.012	0.065	0.852	-0.196	0.049	<b>&lt;0.001</b>
Gender	0.350	0.440	0.428	10.233	0.306	<b>&lt;0.001</b>
Self-improvement activities						
Age	0.002	0.043	0.956	-0.256	0.039	<b>&lt;0.001</b>
Gender	0.427	0.290	0.143	-0.060	0.243	0.805
Informal activities						
Age	-0.030	0.127	0.811	-0.634	0.109	<b>&lt;0.001</b>
Gender	-0.652	0.855	0.447	-0.1070	0.674	0.114
Formal activities						
Age	0.073	0.087	0.408	-0.310	0.068	<b>&lt;0.001</b>
Gender	0.325	0.590	0.583	10.373	0.419	<b>0.001</b>

Bolded *p*-values show significant associations.

## Discussion

This study has demonstrated that there is no difference in the discrepancy between preference and performance in leisure activities between children and adolescents with physical disabilities and their non-disabled peers. However, differences were found for the diversity and preference scores, of which the discrepancy score was derived. Age and gender had a significant effect on the discrepancy scores for children and adolescents without physical disabilities but not for children with physical disabilities.

This is the first study that has compared the discrepancy between preference and performance for participation in leisure activities for children with and without physical disabilities. This study has found lower preference for activities for children

with physical disabilities. Why they have lower preference for activities remains unclear from these data. However, one earlier study reported that children with developmental coordination disorder have lower preference for all types of leisure activities than children without physical disabilities.<sup>4</sup> Although they did not relate lower preference to actual participation, a higher preference was related to higher self-efficacy. Self-efficacy is the evaluation someone makes of his or her capacity to perform a task competently.<sup>25</sup> Children who have lower levels of self-efficacy have shown lower preference for activities.<sup>4</sup> Lower preference in turn leads to lower participation. This relation is also found in adults with cerebral palsy, showing that 49% of variance in outcome on social participation could be explained by self-efficacy.<sup>26</sup> Apart from the psychological consequences of lower levels of

participation, studies also show that children who have lower preference for physical activities when they are 8 years old participate less in these activities when they are 16 years old. According to Kantomaa et al.<sup>27</sup> this is associated with higher levels of inactivity and lower levels of fitness, leading to potential health risk for adolescents.

Age and gender had a significant effect on the discrepancy scores for children without disabilities but not for children and youth with physical disabilities. The discrepancies found for children without disabilities could be expected because preference of children without physical disabilities also varies between boys and girls and younger and older children.<sup>15,16</sup> Why these differences were not found for children with physical disabilities remains unclear. As described earlier by Watkinson et al., children evaluate past experiences and incorporate their past achievement in the process of choosing new activities.<sup>17</sup> If children with physical disabilities do not experience that they can be successful in activities it is less likely that they will choose those activities again. Moreover, variables related to the environment the child lives in could be of importance. The beliefs and values of important people around the child, such as the parents, also influence preference of the child. Research shows that family activity preferences influence participation of the child.<sup>28</sup> It is also known that a substantial number of parents of young children with cerebral palsy view themselves as not being able to participate in activities as a normal family. Seventy-five per cent feel they are partly or completely restricted because they have a child with a physical disability.<sup>29</sup> Having few experiences or less positive experiences with participating in leisure activities may lead to negative interpretation of past events and therefore lower preference for activities. Unfortunately it was not possible to incorporate environmental or family variables in this study. The relation between early experiences for children and the relation with preference for activities at a later age needs to be assessed in another study.

Garton and Pratt<sup>18</sup> have looked into the discrepancy between preference and performance in adolescents without physical disabilities. Activities for which they have found a

discrepancy between preference and performance mainly concerned organized sports that require specific gear or instructions (e.g. horse riding, cricket, water skiing). Reasons for not being able to engage in those activities were the lack of facilities, too much cost involved, people could not get to facilities and the lack of specific gear. The PAC, used in the present study, was not originally designed for the use of single items. However, asking children which activities they would like to do but actually do not do at the moment, and what barriers they encounter in trying to participate, would be a great contribution to goal setting and interventions aimed at facilitating participation of children with physical disabilities. Attention to the discrepancy could also help in the dialogue with parents and children about the goals they set for rehabilitation intervention.

Although this study has given useful insight into the discrepancy between preference and performance there are some limitations. Participation is assessed using the CAPE, which asks about participation in the four months prior to the assessment. The PAC assesses preference for activities by asking what the child would like to do. Because of the difference in timeframe there will possibly be a discrepancy between preference and performance. It would be interesting to see if the performance in leisure activities changes over time according to the preferences of the child. In other words, do children have the opportunity to express their preference and wishes and is there an increase in the performance in these activities accordingly? Moreover, in general there has been a discussion on how to define and measure participation.<sup>30</sup> Using discrepancy scores that combine both the objective (frequency of participation) and subjective (preference for participation) view provides another, rather new, point of view to add to this discussion.

Further research into child characteristics related to the development of preference in children with a physical disability is needed. Since the development of preference depends on earlier experiences of the child, including those of the social environment, future research should incorporate those factors as well. Focusing on the participation of families and

supporting parents to engage in all kinds of activities with their child(ren) to foster positive leisure experiences in children with physical disabilities is therefore crucial.

This article has shown significantly lower preferences for activities of children with physical disabilities. Even though this may not lead to a higher discrepancy between the activities they actually engage in, lower preference in itself is an important finding. Children with physical disability might 'settle for less', estimating that many activities might be hard for them to engage in. Rehabilitation intervention should therefore not only try to focus on functional limitations and promoting participation but also focus on the dreams and expectations of children, trying to broaden their horizons and encouraging them to have dreams and make plans to achieve them, even though they might think they are unreachable.

### Clinical messages

- Children with physical disabilities do not experience a higher discrepancy between their preference for activities and their actual participation compared to children without physical disabilities.
- Age and gender are related to discrepancy scores for children without physical disabilities and not for children with physical disabilities.

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### Conflict of interest

The author declares that there is no conflict of interest.

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