The 6-minute push-test in youth with Spina Bifida who use a wheelchair
Test-retest reliability and physiologic response
Part of the Let’s Ride….. study

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Purpose

The purpose of this study was to determine
- reliability
- physiologic response
of the 6MPT in youth with spina bifida who self-propel a wheelchair

Introduction

- Youth with spina bifida
  - Low levels of physical activity and physical fitness
- 6-minute push-test (6MPT)
  - Reliable functional test for wheelchair-using youth with cerebral palsy
  - Physiologic response?
- Cardiopulmonary response may differ between diagnosis
- No information about 6MPT in youth with spina bifida

Physiologic response

6 Minute Push Test
- Standardized instructions
- 6 minutes propelling
- As much distance as possible

Shuttle Ride Test
- Maximal incremental exercise test
- Continue until exhaustion
- Maximal encouragement

Research group Lifestyle and Health, Child in Motion
Institute of Human Movement Studies
Utrecht, The Netherlands

Research Centre
For Healthy and Sustainable Living
Participants (n=53)

<table>
<thead>
<tr>
<th></th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy / girl (n, %)</td>
<td>31 / 21</td>
</tr>
<tr>
<td>Ambulation level (n, %)</td>
<td></td>
</tr>
<tr>
<td>- Community ambulator</td>
<td>5 (9.4%)</td>
</tr>
<tr>
<td>- Household ambulator</td>
<td>6 (11.3%)</td>
</tr>
<tr>
<td>- Therapeutic ambulator</td>
<td>4 (7.5%)</td>
</tr>
<tr>
<td>- Non-ambulator</td>
<td>38 (71.7%)</td>
</tr>
<tr>
<td>Age (mean, sd)</td>
<td>13.8 (3.1)</td>
</tr>
</tbody>
</table>

Physiologic response (n=45)

<table>
<thead>
<tr>
<th></th>
<th>Test (mean±SD)</th>
<th>Rest (mean±SD)</th>
<th>ICCagreement (95% CI)</th>
<th>SDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate</td>
<td>158±19 beats/min</td>
<td>152±20 beats/min</td>
<td>0.81 (0.53-0.92)</td>
<td>23.5 beats/min</td>
</tr>
<tr>
<td>Total distance</td>
<td>424.9±101.5 meters</td>
<td>406.7±100.2 meters</td>
<td>0.95 (0.83-0.98)</td>
<td>60.7 meters</td>
</tr>
</tbody>
</table>

Reliability (n=26)

Discussion

- No equal for ‘not running’ during 6 minute push test
- Role of propulsion technique
- Heterogeneous study population
The 6MPT is a reliable and high level submaximal test in youth with spina bifida who use a wheelchair

- Determine level of functional performance → use total covered distance
- Seems less appropriate for children under 10 or youth with a cognitive impairment

Research Centre
For Healthy and Sustainable Living

Call for abstracts open till June 15 2019
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Research group Lifestyle and Health, Child in Motion

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