

VALIDITY, RELIABILITY AND SENSITIVITY TO CHANGE OF THE BASKETBALL WHEELCHAIR MOBILITY PERFORMANCE TEST

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The Perfect Sports Wheelchair



Celeritas 300

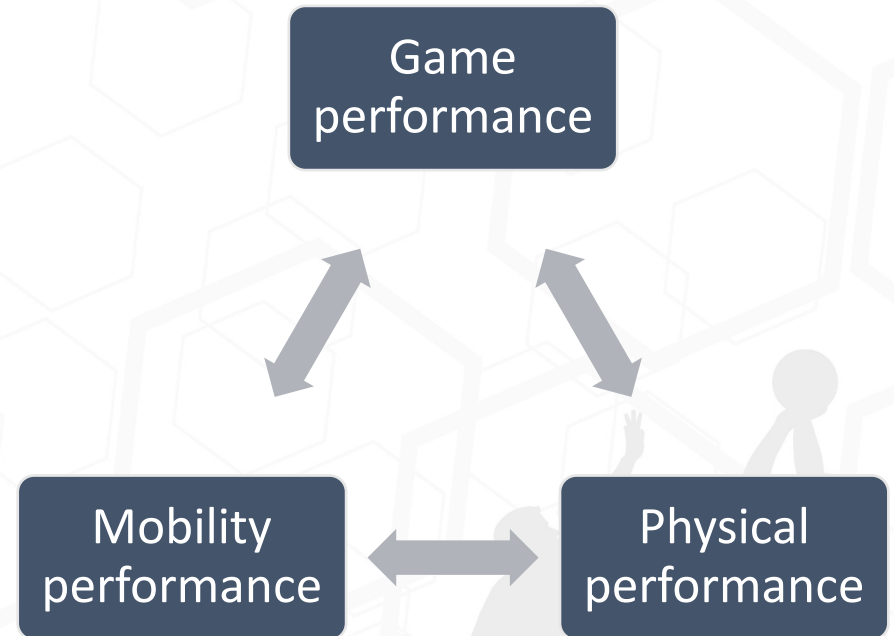
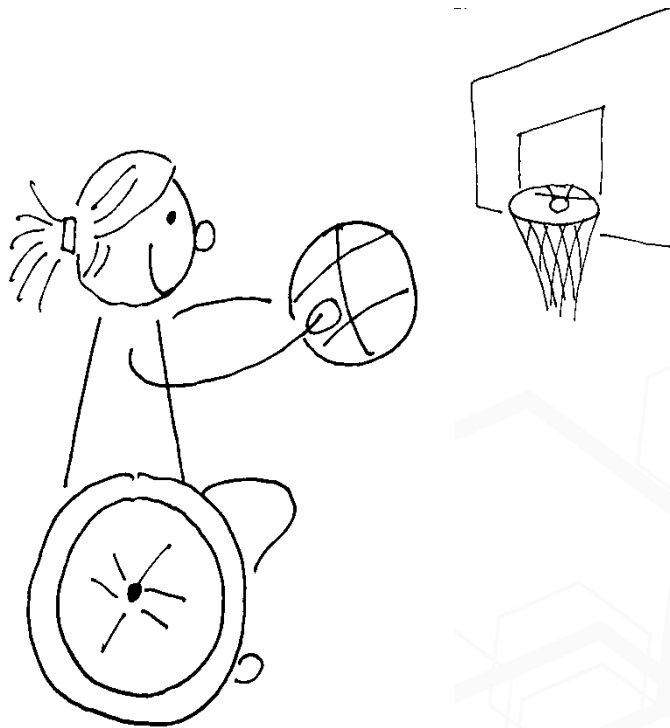


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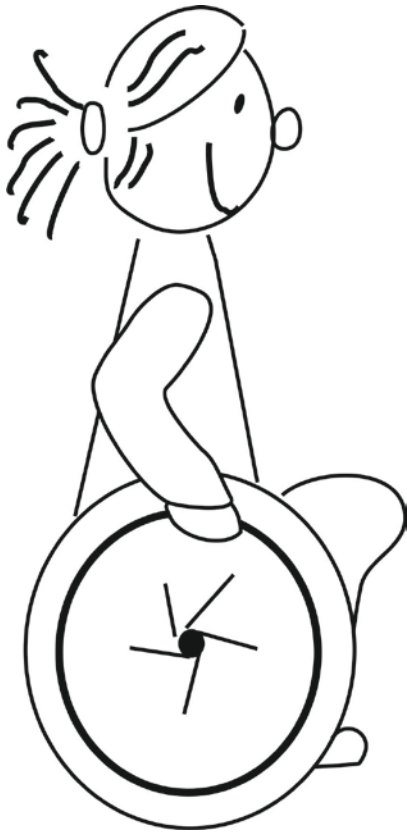


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Wheelchair Basketball



Wheelchair Mobility Performance

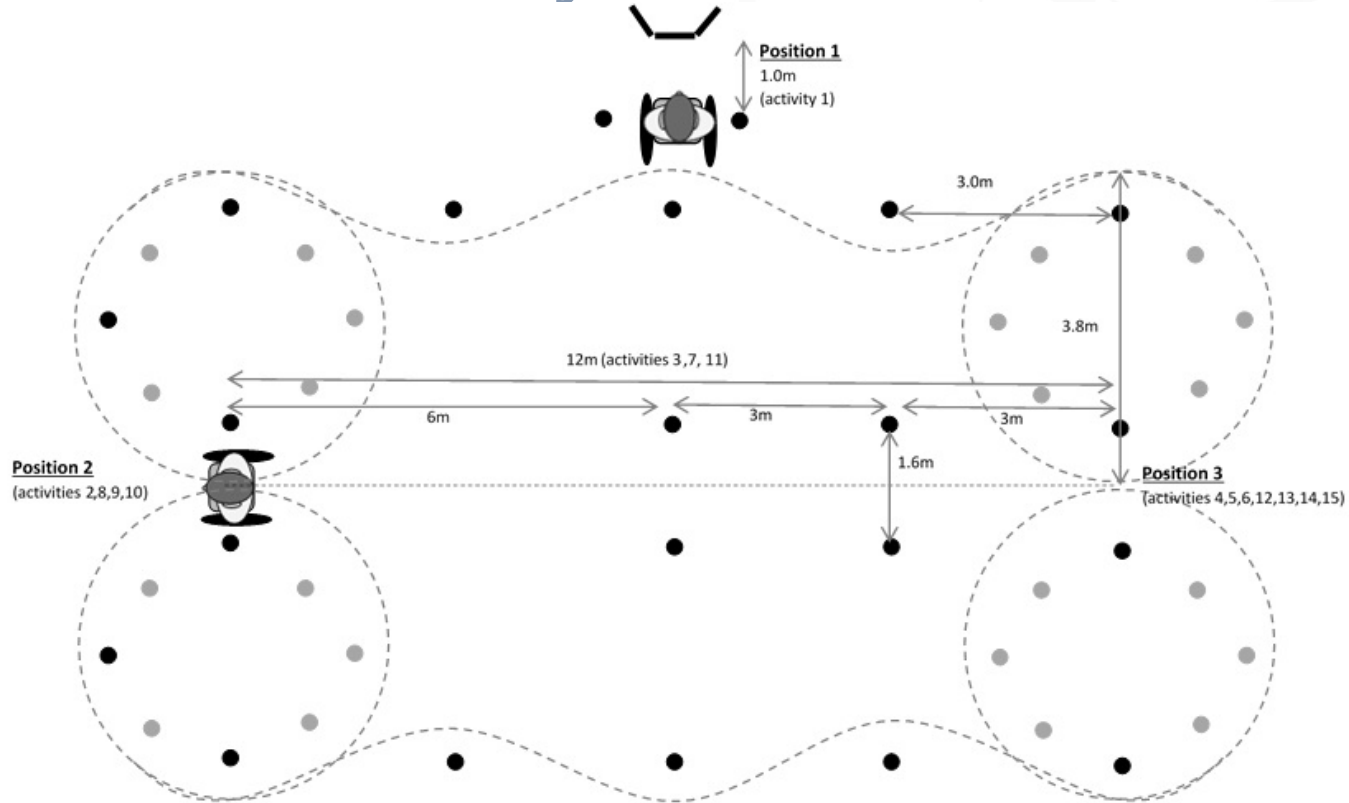


Ability of performing wheelchair activities:

- Standing still
- Driving forward or backward
- Accelerating
- Rotating
- Braking
- Blocking



Wheelchair Mobility Performance Test



Outcome variable:
Performance time (in seconds) on the wheelchair mobility performance test (WMP test),
consisting of 15 tasks.

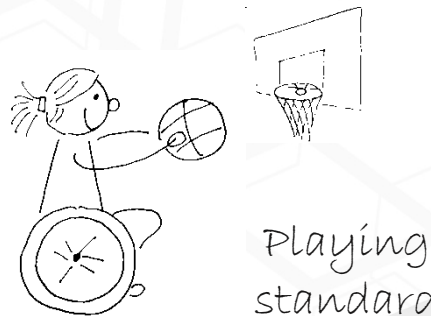
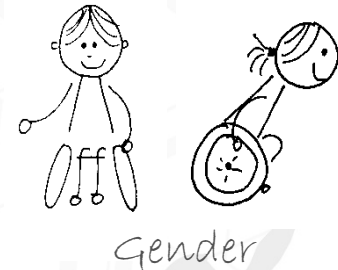
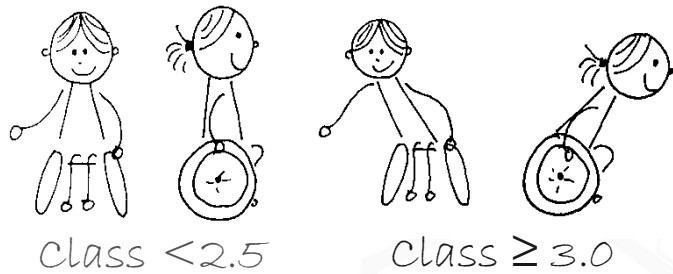
Research question

Is the WMP test:

- valid?
- reliable?
- sensitive to change?

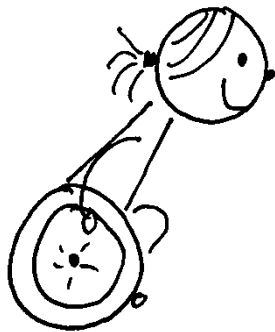
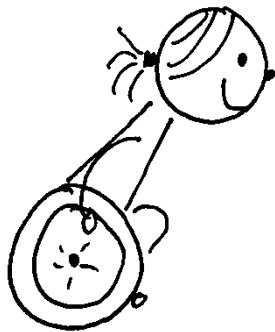
Methods **construct validity**

- 46 wheelchair basketball players
- Differences in time to complete the test
- Independent-sample t-test and effect size



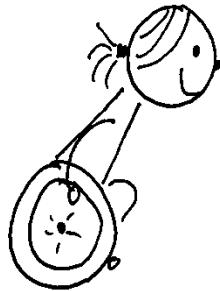
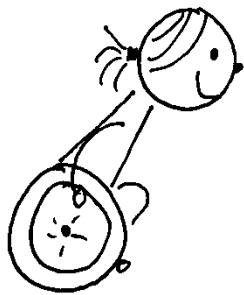
Methods **reliability**

- 23 wheelchair basketball players
- Difference in time to complete the test
- ICC was calculated

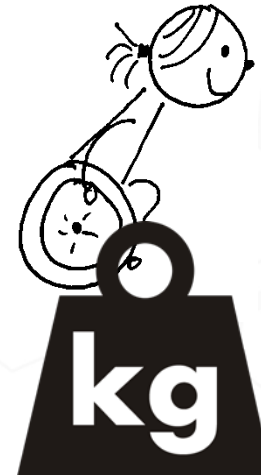


Methods sensitivity to change

- 16 wheelchair basketball players

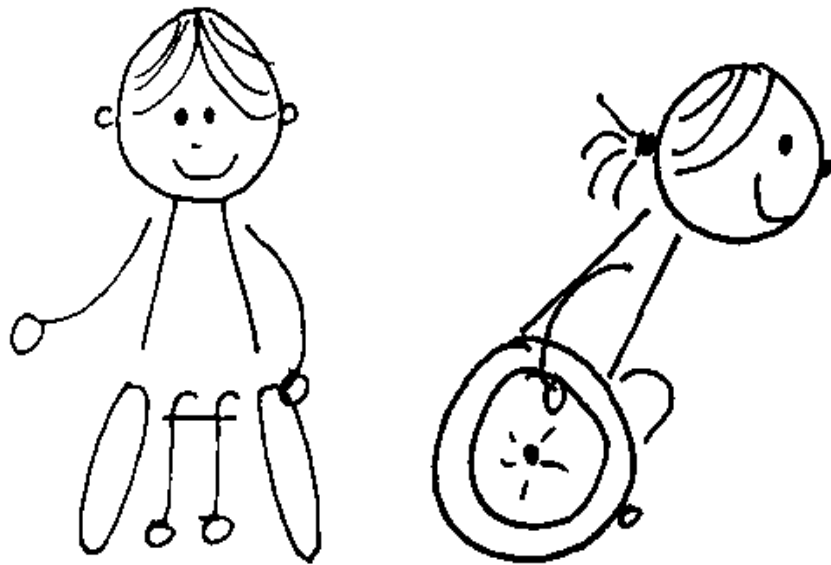


Pffff
ffff



- Significant difference between both conditions in time
AND
- observed difference between both conditions larger than SEM_{agreement}
→ ES was calculated

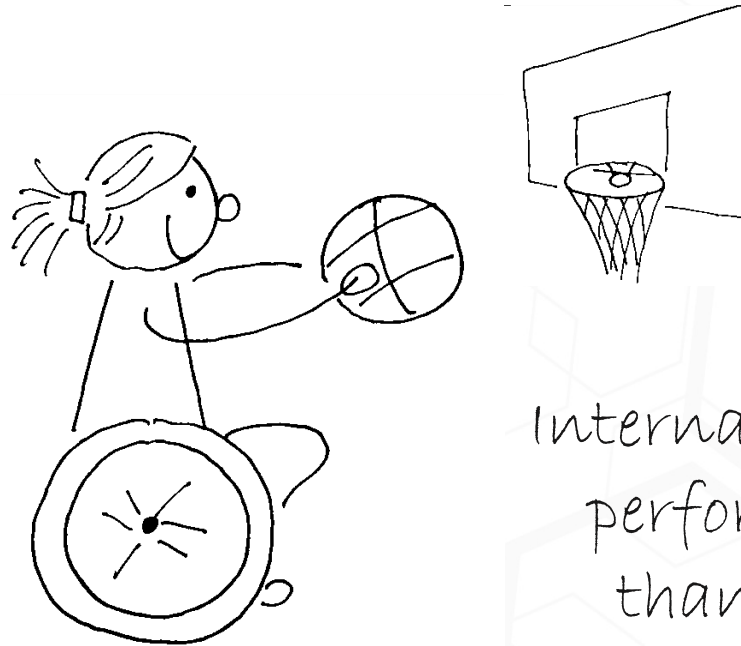
Results **construct validity**



Males faster than females!

$P < 0.001$, $ES = 1.26$

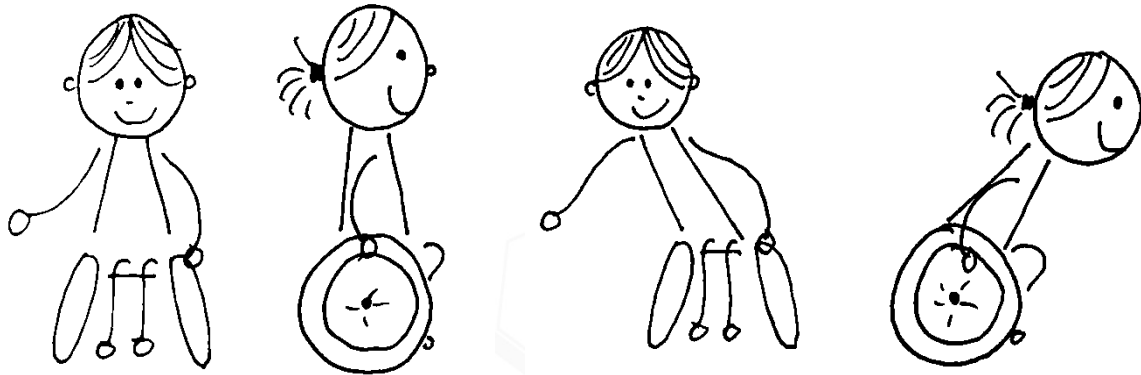
Results **construct validity**



International males
performed better
than national
males

$P < 0.001$, $ES = 1.62$

Results **construct validity**



Class <2.5

Class ≥ 3.0

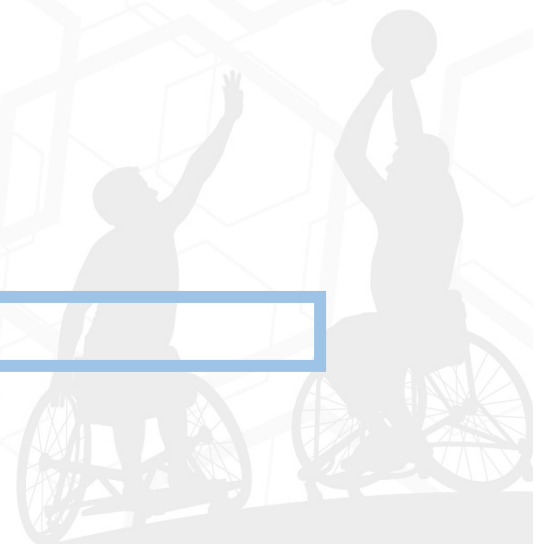
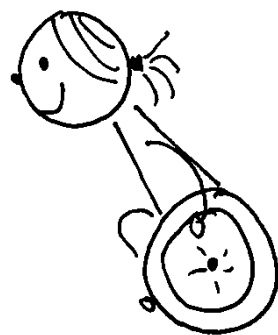
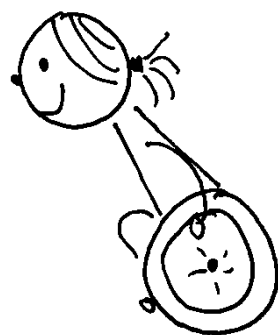
No differences

$P = 0.06$, $ES = 0.58$

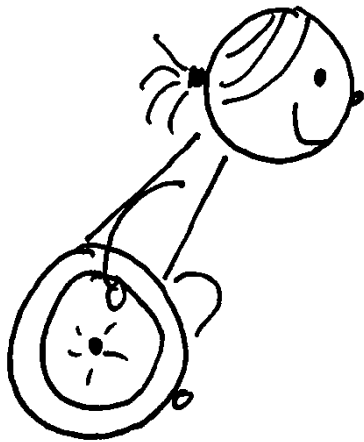
Results **reliability**

$ICC = 0.95$

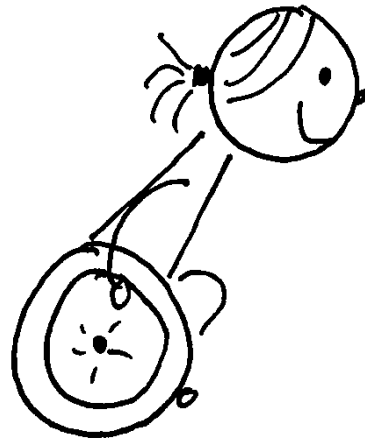
- ☒ **Excellent**
- ☐ **Good**
- ☐ **Satisfactory**
- ☐ **Poor**



Results sensitivity to change

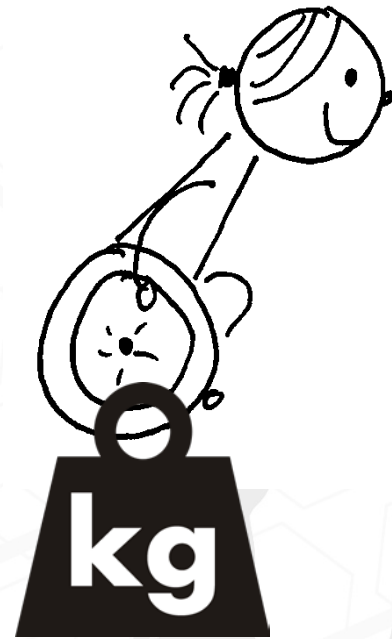


$101.6 \pm 9.6 \text{ s}$



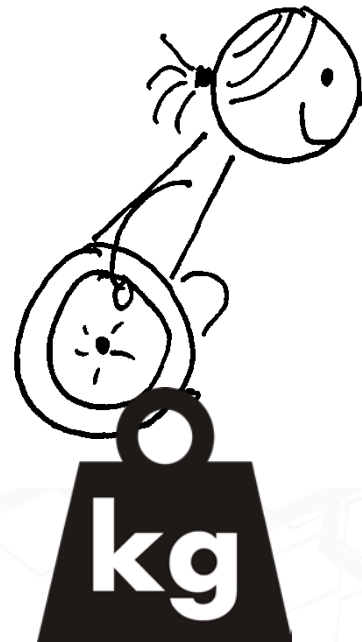
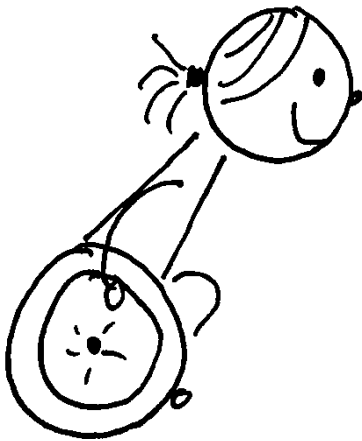
Pfffffffff

$104.4 \pm 11.0 \text{ s}$



$106.0 \pm 10.5 \text{ s}$

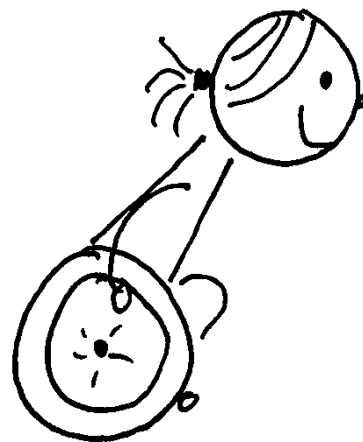
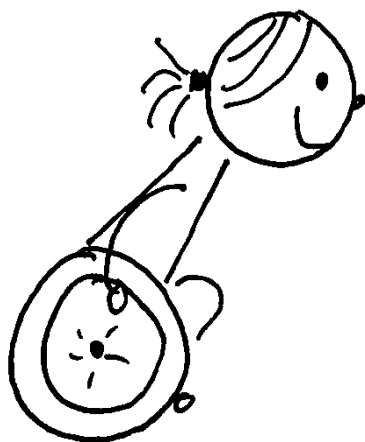
Results sensitivity to change



ES = 0.44



Results sensitivity to change

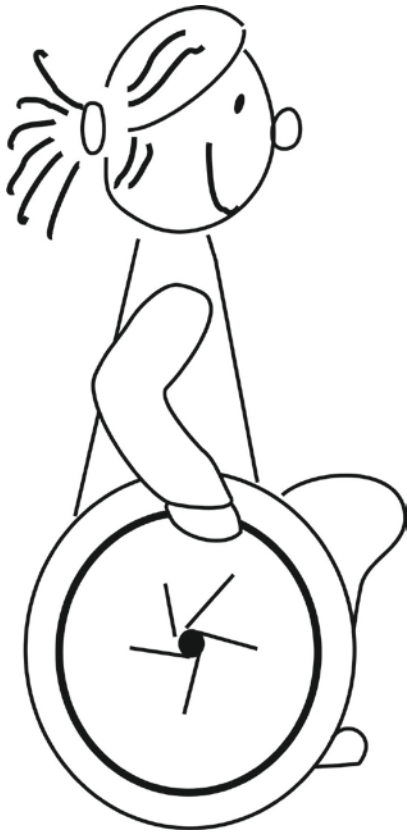


Pfffffffff

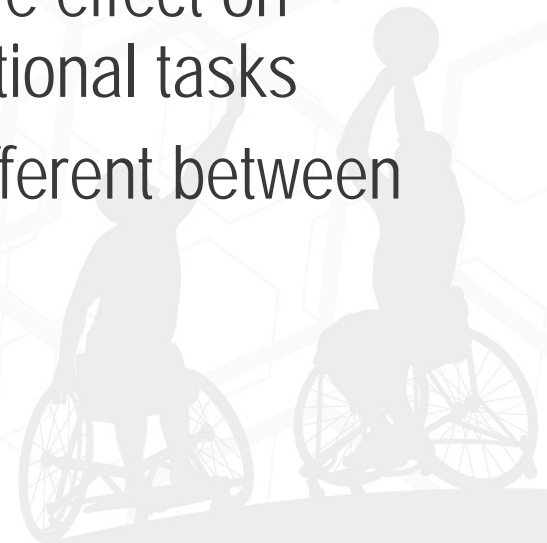
ES = 0.38



Discussion



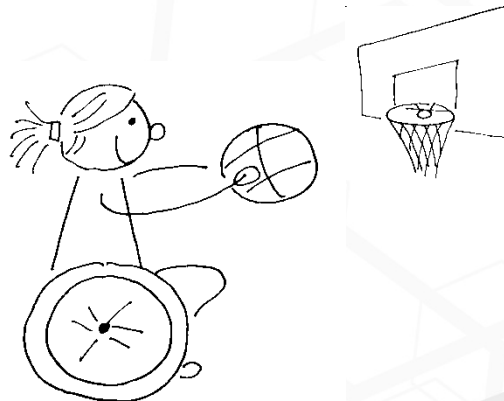
- Manipulation of wheelchair configuration but what if athlete of wheelchair athlete interaction was changed?
- Weighted condition had more effect on translational tasks than rotational tasks
- Relative weight gain was different between participants



Conclusion

The WMP test is :

- valid
- reliable
- sensitive to change



A background image of a wheelchair basketball game. A player in a white jersey is jumping to shoot the ball, while a player in an orange jersey is defending. The scene is set in a large arena with a crowd of spectators. A blue semi-transparent box is overlaid in the center, containing the text 'THANK YOU FOR YOUR ATTENTION'.

THANK YOU FOR YOUR ATTENTION

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Responsiveness versus sensitivity to change

- Responsiveness = a measure to detect change over time
- Sensitivity to change = a measure to detect change when it has occurred