INTRA-AND INTER-RATER RELIABILITY OF MANUAL MUSCLE TESTING IN THE NEW HAND CLASSIFICATION OF WHEELCHAIR RUGBY

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OVERVIEW

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Identify eligible impairments for that sport

IPC CLASSIFICATION CODE

Describe methods of assessment so that impact of the impairment on the activity is proven thus

METHODS MUST BE BASED ON EVIDENCE
Figure 1: Basic principles of evidence based classification according to IPC classification code and IPC position stand.
RESEARCH OBJECTIVES

1. To determine the intra-rater reliability of each classifier regarding MMT outcome.

2. To compare the intra-rater reliability between classifier level 2, level 3 and level 4 regarding MMT outcome.

3. To determine the inter-rater reliability within each classifier level regarding MMT outcome.

4. To compare the inter-rater reliability across all classifiers regarding MMT outcome.

5. To determine the intra-and inter rater reliability of specific muscles tested.
RESEARCH METHODS

• Observational, cross-sectional design with convenience sampling\(^{(9, 13)}\)

• All the active international WCR classifiers -2015

• Electronic questionnaire as a measurement tool \(^{(13)}\)

  Biographic information

  Videos

• Pilot study
• Strength of agreement explained by Landis and Koch (1977)

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Descriptive statistics</th>
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</thead>
<tbody>
<tr>
<td>0.0 – 0.2</td>
<td>Slight</td>
</tr>
<tr>
<td>0.21 – 0.4</td>
<td>Fair</td>
</tr>
<tr>
<td>0.41 – 0.6</td>
<td>Moderate</td>
</tr>
<tr>
<td>0.61 – 0.8</td>
<td>Substantial</td>
</tr>
<tr>
<td>0.81 – 1.00</td>
<td>Almost perfect</td>
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</table>
1. ICC for each classifier: 0.6782 - 0.9459.

2. ICC for hand classification within levels: 0.61 - 1.00. (Intra-rater ICCs did not vary between level two, three or four classifiers).

3. Inter-rater ICCs: 0.81 - 1.00.

4. Inter-rater ICCs did not vary between levels.

5. Inter-rater reliability ICCs for finger extensors, thumb abductor and thumb flexor: 0.41 - 0.6.
RESULTS (CONT.)

Accuracy was low, with most accurate classifier scoring 63% and the least accurate raters scoring 37%.

Across all classifiers 18, 52%
CONCLUSION AND RECOMMENDATIONS

• High intra-and inter rater reliability but poor accuracy of Daniel and Worthingham MMT.

• MMT can be practiced internationally, requires little equipment and is easy to administer.\(^7\)

• Daniels and Worthingham’s MMT needs to improve, as seen from low accuracy levels (18, 52%)
Methods that can improve the accuracy and reliability:

1. **Detailed practical training** in the testing methods of Daniels and Worthingham.\(^6\)

2. **New research has to be incorporated**\(^6\) to ensure that WCRC is based on scientific evidence and not examiner experience.\(^10\)

3. The limited **ROM needs to be taken into consideration** during MMT.
4. Change the reference ROM: instead of using the normal anatomical range as the full range of motion, rather use the reference range\(^6\).

5. Daniels and Worthingham do not use any pluses or minuses.\(^9\)

6. MMT wording used on the classification form should be revised.\(^9\)
REFERENCES


THANK YOU!!!