The influence of movement quality on heart rate frequency while performing the dance-specific aerobic fitness test (DAFT) in pre-professional contemporary dancers

Annemiek Tiemens, MSc
Codarts Rotterdam, The Netherlands
Disclosures

Annemiek Tiemens, MSc has no financial disclosures that would be a potential conflict of interest with this presentation.
Content

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Background information

Dance specific?  Representative?

DAFT

- Dance-specific movements
- 5 Stages of 4 minutes
- Increase in tempo & intensity
- Monitoring heart rate (HR)
DAFT – an example
Study purposes

• What is the effect of movement quality on the heart rate frequency during the DAFT?

• Monitoring fitness throughout the year

• Fitness related to injuries?
Methods

Participants

• 13 pre-professional contemporary dancers
• 6 females, 7 males
• Age: 19 ± 1.46 yrs old

Procedures

• Two trials of the DAFT
• Trial 1: like a performance
• Trial 2: reduced movement quality instructions

Outcome measures

• Heart rate frequency (bpm)
• RPE score (6-20 Borg scale)
• Movement quality score (0-45)
• Coordination
• Sequencing
• Effort level
• Travelling distance
• Consistent arm position
• Pointed feet
• Lunge depth
• Jump height
• Overall movement quality
Results

Subjective rate of perceived exertion (RPE) was significantly lower in Trial 2 (14.15 ± 1.63 vs. 9.54 ± 1.66)

Heart rate significantly lower in Trial 2 for all stages!
## Results

<table>
<thead>
<tr>
<th></th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sequencing*</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Coordination</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Effort Levels*</td>
<td>0</td>
<td>54</td>
</tr>
<tr>
<td>Travelling Distance</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pointed Feet</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>Consistent Arm Position*</td>
<td>9</td>
<td>39</td>
</tr>
<tr>
<td>Lunge Depth (Chest to Thigh)*</td>
<td>24</td>
<td>41</td>
</tr>
<tr>
<td>Jump Height</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>Overall movement quality*</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total number of observations was higher in Trial 2.

Movement quality was significantly lower in Trial 2!
Discussion

• Every determinant of movement quality could be used only once
  – Do they all have the same effect on HR?
    • Sequencing vs. Jump height

• No clear guidelines for observing movement quality

• Intra-class correlation and inter-rater reliability for observing movement quality?
Future research

Validity and reliability movement observations

Normative values HR

Combined score DAFT HR & movement quality

DAFT & injury levels
Take home messages

- Heart rate frequency is lower when movement quality is lower.

- Use movement observations together with HR to make statements about a dancer’s aerobic fitness.
Questions?

Contact: atiemens@codarts.nl