$\dot{V}O_2$, $\dot{V}CO_2$ and $\dot{V}E$ BETWEEN-DAY RELIABILITY
OF THE VYNTUS CPX METABOLIC CART
DURING PROGRESSIVE CYCLING

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Methods

Subjects (N=6 males):
Age = 28±2.3 yr,
Height = 1.81±0.04 m,
Weight = 75±3.5 kg,
VO$_{2\text{max}}$ = 59.4±5.8 mlO$_2$/kg/min

Experimental procedure:
- 3x6 min at 55%, 65% and 75% of VO$_{2\text{max}}$
- VO$_{2\text{max}}$ trial after 15 min break
- Repeat after 24h

Instruments:
- Vyntus CPX (CareFusion)
- Cyclus 2 ergometer (RBM elektronik-automation GmbH)
- 3L calibration syringe
Between-Day Reliability of Vyntus CPX
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Results
Between-day difference

<table>
<thead>
<tr>
<th>% mean±CV</th>
<th>65%</th>
<th>75%</th>
<th>85%</th>
<th>(\dot{V}O_2)max</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\dot{V}O_2)</td>
<td>3.6±5.0</td>
<td>2.4±2.9</td>
<td>1.7±2.3</td>
<td>1.8±2.2</td>
</tr>
<tr>
<td>(\dot{V}CO_2)</td>
<td>4.9±6.2</td>
<td>2.9±3.4</td>
<td>2.7±3.9</td>
<td>4.4±6.1</td>
</tr>
<tr>
<td>(\dot{V}E)</td>
<td>2.4±2.7</td>
<td>3.5±5.2</td>
<td>3.4±3.6</td>
<td>4.5±5.6</td>
</tr>
</tbody>
</table>

\(\dot{V}O_2\) between-day (repeated measures corrected)
Bias [LoA]ml/min: -10 [206, 185], \(R^2:0.98\)

\(\dot{V}CO_2\) between-day (repeated measures corrected)
Bias [LoA]ml/min: -25 [-319, 341], \(R^2:0.97\)
Conclusion
The Vyntus CPX does produce reliable Breath-By-Breath measurements between days during progressive cycling.