III. METHODS

Thresholds

Step

II. PROPOSED MODEL

• As part of an overall model, cycling has been proven successful in physical activity assessment, due to its applicability from rehabilitation populations to elite athletes.

The purpose of this study was to compare the traditional predictive threshold powers from blood sample lactate thresholds (LT1 & LT2) and ventilatory thresholds (VT1 & VT2) to the Aerobic Threshold (BSX AT) and Anaerobic Threshold (BSX LT) via a wearable BSXinsight device which uses non-invasive Near Infrared Spectroscopy (NIRS).

III. METHODS

• Male (n=9) subjects. Age (21.250.84 years), Weight (72.818.31 kg).

• Pearson Correlations between VT1 vs. BSX AT, and VT2 vs. BSX LT

IV. RESULTS

<table>
<thead>
<tr>
<th></th>
<th>Correlation (R)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LT1 vs. BSX AT</td>
<td>0.931</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>LT2 vs. BSX LT</td>
<td>0.909</td>
<td>&lt; 0.02</td>
</tr>
<tr>
<td>VT1 vs. BSX AT</td>
<td>0.952</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>VT2 vs. BSX LT</td>
<td>0.893</td>
<td>= 0.055</td>
</tr>
</tbody>
</table>

V. CONCLUSIONS

• Previous work (Borges, 2015) has compared the reliability of the BSXinsight versus blood lactate samples in a running population.

• Our work extends this idea into the cycling population.

VI. CONCURRENT & FUTURE STUDIES

• Predicting the Expenditure of AW Cexp Based on Changes to the T-v Curve (Karlee Edwards)

• Modeling of real-time power output based on wearable, non-invasive NIRS device (Clemson Univ.)

VII. REFERENCES


ACKNOWLEDGEMENTS

• Furman Advantage (funding), Dr. Scott Murr, Dr. Ray Moss

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