Low exercise capacity in small, unrepaired Ventricular Septal Defects

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Background
- Small ventricular septal defects (VSD) are mostly left unrepaired
- Some patients complain of reduced physical endurance
- Long-term results remain undetermined

Aim
- Determine long-term exercise capacity of adults with small, unrepaired VSDs

Material & Methods
- Patients with small, unrepaired VSDs (all with a QpQs < 1.5) and healthy controls, matched on age and gender
- Upright bicycle test with an incremental workload protocol of 8-12 minutes, until exhaustion
- Endpoints determined using a breath-by-breath technique

Results

<table>
<thead>
<tr>
<th></th>
<th>Controls (N = 28)</th>
<th>Patients (N = 34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>26.9 ±5</td>
<td>26.5 ±6</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>22.8 ±3</td>
<td>24.0 ±3</td>
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<tr>
<td>Lean body mass, %</td>
<td>77.0 ±6</td>
<td>75.6 ±9</td>
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<tr>
<td>Heart Rate\text{max}, beats per minute</td>
<td>182.0 ±9</td>
<td>183.7 ±10</td>
</tr>
<tr>
<td>Respiratory Exchange Ratio</td>
<td>1.3 ±0.1</td>
<td>1.3 ±0.1</td>
</tr>
<tr>
<td>Test time, minutes</td>
<td>10.0 ±2</td>
<td>9.9 ±2</td>
</tr>
</tbody>
</table>

Results

- Workload: Controls 277 ±57, VSD 230 ±63
- Peak O2: Controls 44 ±6, VSD 36 ±8
- Ventilatory threshold: Controls 31 ±7, VSD 24 ±7

* p<0.001

Conclusion
Compared with healthy controls, patients with small, unrepaired VSDs demonstrate:
- Lower peak VO2 per Kg
- Lower ventilatory threshold
- Lower workload (watt)

TAKE HOME MESSAGE
Small, unrepaired VSDs reveal lower exercise capacity when matching with healthy peers with comparable physical activity levels and body composition.

Small, unrepaired VSDs—Not just innocent bystanders