Chronic Exertional Compartment Syndrome: A retrospective review of patient characteristics

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All author’s disclosure are in the AOFAS Program Book. We have no potential conflicts of interest with regards to this presentation.
Second most common cause of lower extremity pain during activity
- Prevalence 27% - 33%
- Increased compartment pressure during exercise resulting in tissue ischemia and temporary neurologic deficits
- No large study to date evaluating patient characteristics
Methods

- Patient selection
  - Diagnosis of compartment syndrome or history of lower extremity fasciotomy
    - Acute compartment syndrome excluded
- Pressure testing
  - Pedowitz criteria
  - All testing at our institution; post-exercise testing done immediately
- Demographic evaluation
  - Age, Gender, BMI
  - Pain: condition, duration, VAS score
  - Sports: type, number, competitive level
Results

- 153 of 226 patients undergoing pressure measurements were positive
  - 92 (60.1%) women
  - 61 (39.9%) men
  - Average age 24 (13 – 69)
  - Average BMI 25 (18 – 38)
- Symptoms ongoing for 28 months (1 – 144)
- Average VAS 8/10 when pain at its worst
- Pain begins at an average of 11 minutes and resolves on average in 45 minutes
- 92 legs (36.8%) reported symptoms of numbness in anterior/lateral leg
### Compartment Breakdown

<table>
<thead>
<tr>
<th>Compartments</th>
<th>One</th>
<th>Two</th>
<th>Two</th>
<th>Two</th>
<th>Three</th>
<th>Three</th>
<th>Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior</td>
<td>54 (21.6%)</td>
<td>73 (29.2%)</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>32 (12.8%)</td>
<td>1 (0.4%)</td>
<td>43 (17.2%)</td>
<td></td>
<td>1 (0.4%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deep Post</td>
<td>7 (2.8%)</td>
<td>7 (2.8%)</td>
<td>7 (2.8%)</td>
<td></td>
<td>7 (2.8%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sup. Post</td>
<td>1 (0.4%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 (0.4%)</td>
<td>12 (4.8%)</td>
</tr>
</tbody>
</table>

- 93 legs (37.2%) with single compartment involvement
- 99 legs (39.6%) with two compartment involvement
- 44 legs (17.6%) with three compartment involvement
- 12 legs (4.8%) with four compartment involvement
- Bilateral involvement in 63.4% of patients
## Sports Breakdown

<table>
<thead>
<tr>
<th>Sports Participation</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>141</td>
<td>92.2%</td>
</tr>
<tr>
<td>Competitive</td>
<td>89</td>
<td>63.1%</td>
</tr>
<tr>
<td>Non-competitive</td>
<td>52</td>
<td>36.9%</td>
</tr>
<tr>
<td>Competitive team</td>
<td>57</td>
<td>64.0%</td>
</tr>
<tr>
<td>Competitive individual</td>
<td>25</td>
<td>28.1%</td>
</tr>
<tr>
<td>Competitive both</td>
<td>7</td>
<td>7.9%</td>
</tr>
<tr>
<td>One sport</td>
<td>111</td>
<td>78.7%</td>
</tr>
<tr>
<td>Two sport</td>
<td>27</td>
<td>19.1%</td>
</tr>
<tr>
<td>Three or more</td>
<td>3</td>
<td>2.1%</td>
</tr>
</tbody>
</table>

- **Competitive**
  - Soccer most common
  - Track and Lacrosse also very prevalent
  - Field Hockey similar prevalence for girls
- **Non-competitive**
  - Running most common by far
# Total Sports Participation

<table>
<thead>
<tr>
<th>List of Sports</th>
<th>Competitive</th>
<th>Male</th>
<th>Female</th>
<th>Non-Competitive</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soccer</td>
<td>26</td>
<td>7</td>
<td>19</td>
<td>Running</td>
<td>50</td>
<td>28</td>
</tr>
<tr>
<td>Track/Cross Country</td>
<td>25</td>
<td>5</td>
<td>20</td>
<td>Basketball</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Lacrosse</td>
<td>18</td>
<td>1</td>
<td>17</td>
<td>Mulit-sport</td>
<td>2</td>
<td>1</td>
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<tr>
<td>Field Hockey</td>
<td>16</td>
<td>0</td>
<td>16</td>
<td>Walking</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Basketball</td>
<td>9</td>
<td>3</td>
<td>6</td>
<td>Cycling</td>
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<td>0</td>
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<tr>
<td>Football</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>Tennis</td>
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<td>1</td>
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<tr>
<td>Softball</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>Racquetball</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Rowing</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Skating</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Wrestling</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
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<tr>
<td>Ballet</td>
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<td>0</td>
<td>1</td>
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<tr>
<td>Rugby</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
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<tr>
<td>Fencing</td>
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<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ice Hockey</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td></td>
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</tr>
</tbody>
</table>
Conclusions

- Largest study to examine a cohort of patients with CECS
- Confirm prior findings of prevalence in women
- Identifies sport predilection
- Anterior and lateral most commonly affected
- Long duration to diagnosis

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