The Effect of Growth Hormone on Wool Production

Produced for the CRC for Premium Quality Wool undergraduate program by;
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Growth Hormone (GH)

- 191 amino acids long
- released from pituitary
- does not act through secondary endocrine organ
- stimulates production of IGF1 from tissues
General Actions of Growth Hormone (GH)

- Growth hormone
  - Na+ retention
  - Decreased insulin sensitivity
  - Lipolysis
  - IGF 1
    - Protein synthesis
    - Epiphyseal growth
  - Insulin-like activity
  - Antilipolytic activity
  - Protein synthesis
  - Epiphyseal growth
Effect of Growth Hormone on Wool Growth

• wool growth is suppressed by exogenous GH
  – after removal of GH injections, wool growth increases

GH stimulates muscle accretion
After GH stopped, muscle returns to normal and more amino acids available for wool
## Effect of Growth Hormone on Fleece Weight

- GH administration to ad lib fed sheep

<table>
<thead>
<tr>
<th></th>
<th>Greasy Fleece weight (kg)</th>
<th>Clean Fleece weight (kg)</th>
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<tbody>
<tr>
<td>Control</td>
<td>5.49</td>
<td>3.04</td>
</tr>
<tr>
<td>+GH</td>
<td>6.02*</td>
<td>3.42*</td>
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In *ad lib* fed animals there is sufficient nutrients to stimulate both muscle and wool growth.
Effect of Growth Hormone on Wool Follicles

• Local effect of GH on follicles?
  – GH BPs in rabbit ORS and IRS