SLEEP DEPRIVATION & STRESS RESPONSES
Could emergency work have a negative impact on your health?

PhD Student: Alex Wolkow 1,2
Supervisory Team: Dr Brad Aisbett 1, 2, Assoc. Prof. Sally Ferguson 2,3, Dr Luana Main1
1 Centre for Exercise and Sports Science, Deakin University, Burwood, Vic; 2 Bushfire Co-operative Research Centre, East Melbourne, Vic; 3 Appleton Institute, Central Queensland University, Adelaide, SA.

Background
• Emergency work can expose personnel to sleep deprivation
• Sleep deprivation can elicit negative physiological & psychological responses, including;
  • Hormone & immune function
  • Mood & behaviour

What is known

<table>
<thead>
<tr>
<th>Response</th>
<th>Duration of Sleep Deprivation and/or Restriction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤ 1 Night</td>
</tr>
<tr>
<td>Hormonal</td>
<td>✗</td>
</tr>
<tr>
<td>Immune</td>
<td>?</td>
</tr>
<tr>
<td>Mood &amp; Behavioural</td>
<td>?</td>
</tr>
<tr>
<td>Psycho-physiological</td>
<td>?</td>
</tr>
</tbody>
</table>

= no response; ✰ = response; ? = unknown response

What isn’t known
• If other occupational stressors are contributing to the reported responses
• The degree to which these acute responses are a risk factor to health

Why aren’t these things known
• Previous research has
  • Lacked control over;
    • Sleep variables (e.g., duration & frequency)
    • Other occupational stressors (e.g., energy restriction & physical work)
  • Investigated physiological & psychological changes in isolation

Research Priorities
• Future research should focus on
  • Controlled periods of sleep deprivation
  • Concurrent measurement of multiple responses
  • Psycho-physiological responses

Industry Implications
• Future research will
  • Help contextualise the significance of stress responses to consecutive nights of sleep deprivation
  • Determine if agencies need to take further action to protect personnel from adverse responses

References available on request

What Does This Mean for Emergency Workers
• Emergency personnel exposed to
  • > 1 night of sleep deprivation and/or restriction demonstrate negative hormonal, immune or mood & behavioural responses
• Possible implications of these negative responses to;
  • Short-term health: Viral infections (e.g., colds), depressed mood & fatigue
  • Long-term health: Cardiovascular disease & mood disorders (e.g., depression & anxiety)