Introduction

• As infants learn a new motor skill, they begin to experience an increase in night waking and movement (Scher, 2005).
• Studies highlight that newborn infants who learn a new skill during the day exhibit the same behavioral pattern at night (Fifer et al., 2010).
• Previously, non-invasive methods like actigraphy were used to monitor body activity and sleep quality (Sadeh, 1991), but could not document the type or location of movements.

Objective

• The current study aims to examine the change in number of movements and wake episodes (WEPs) during infants’ sleep surrounding crawling onset.

Hypothesis

• We expect to find crawling-relevant movements during WEPs as a possible sleep disruptor.

Participants

<table>
<thead>
<tr>
<th>Infant</th>
<th>Gender</th>
<th>Age at start</th>
<th>Age of Crawling Onset</th>
<th># of Days Participated</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>M</td>
<td>7 months</td>
<td>8 months</td>
<td>124</td>
</tr>
<tr>
<td>B</td>
<td>M</td>
<td>8 months</td>
<td>8 months</td>
<td>118</td>
</tr>
<tr>
<td>C</td>
<td>F</td>
<td>3 months</td>
<td>7 months</td>
<td>285</td>
</tr>
<tr>
<td>D</td>
<td>M</td>
<td>4 months</td>
<td>8 ½ months</td>
<td>260</td>
</tr>
</tbody>
</table>

Methods

• The Nanit™ camera was used to code movements during WEPs.
• Three nights of observation: night before, of, and after crawling onset.
• WEPs occurred 10 minutes post sleep onset and lasted a minimum of five minutes with a significant movement every three minutes.
• Parents documented infants progress in a motor milestone diary.

Results

Wake Episodes (WEPs)

• Wake Episodes (WEPs)
  • There was no a linear effect of time on WEPs.
  • Number of wake episodes decreased on the night after milestone acquisition. F(1,3)=2.14, p=.24.

Hands and Knees

• Hands-and-knees (hk)
  • Infant props self-up onto hands-and-knees
  • No significant quadratic effect of time on proportion of WEPs infants spent transitioning to the hands and knees posture, F(1,3)=3.37, p=.16
  • Infants did have a mean increase in proportion on hands knees on the night of crawling onset.

Limb Movements

• Leg and arm movements (lam)
  • A bout of continuous limb movements.
  • Significant linear effect on LAM movements (F(1,4)=8.64, p<.05).
  • indicating how the infant uses the night to help practice what they learned, as we know occurs in newborn infants (Fifer et al, 2010).

References


Conclusion

• Infants experienced the most fragmented sleep night of onset suggesting that with a new milestone acquisition comes lower quality of sleep.
• The night of onset presents the most skill relevant movements of crawling, however this does not affect number of WEPs.
• In future studies it would be ideal to contrast these results with those of walking infants.