Effect of lipid-based nutrient supplement on physical activity of Malawian toddlers

Anna Pulakka
anna.pulakka@uta.fi
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BACKGROUND
WHY TO STUDY PHYSICAL ACTIVITY?

• Physical activity increases the exploratory behaviour of children
  – Essential for cognitive development
  – Mother-child interaction

• Physical activity and malnourishment
  – Malnourishment is associated with decreased physical activity
  – Recovering from malnutrition: increasing physical activity or gaining weight?
METHODS
iLiNS-DOSE

• In Malawi

• Randomised, controlled, single-blind, parallel-group clinical trial

• Objectives:
  – To test the hypothesis that children receiving LNS are more active at 18 months than children not receiving LNS

• 1932 participants:
  – 6 month old healthy children
  – Recruited from Mangochi and Namwera areas
Interventions

- LNS-40g M
- LNS-20g M
- LNS-10g M
- LNS-40g NoM
- LNS-20g NoM
- Control (Delayed intervention)
Physical activity measurement

• One week measurement at the end of the intervention
  – ActiGraph GT3X+ -accelerometer
• Outcomes
  – Mean accelerometer counts/15 s
  – % of time in moderate-to-vigorous physical activity (MVPA)
Participants in iLiNS-DOSE 1932

- Deaths 79
- Drop-outs 405

Measured for activity 1345 (70%)

- Data lost/unusable 52
- Insufficient data 240

Enough activity data 1053 (55%)

- Malfunction
- Data lost
- Device lost
- No/some valid days
- Measured too late
RESULTS
Accelerometer counts by groups

Mean counts/15s

Control 10g milk 20g milk 20g no-milk 40g milk 40g no-milk

Vector magnitude Vertical axis
% of time in moderate-to-vigorous physical activity (MVPA)

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>10g milk</th>
<th>20g milk</th>
<th>20g no milk</th>
<th>40g milk</th>
<th>40g no milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean (SD) % of time in</td>
<td></td>
<td></td>
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<tr>
<td>MVPA</td>
<td>11.5%</td>
<td>12.1%</td>
<td>11.9%</td>
<td>12.5%</td>
<td>12.5%</td>
<td>12.0%</td>
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<tr>
<td></td>
<td>(4.4)</td>
<td>(3.9)</td>
<td>(4.1)</td>
<td>(4.3)</td>
<td>(4.2)</td>
<td>(4.1)</td>
</tr>
<tr>
<td>Difference (95% CI) in</td>
<td>0.6</td>
<td>0.4</td>
<td>0.9</td>
<td>1.0</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>mean % of time in MVPA,</td>
<td>(-0.3 to 1.5)</td>
<td>(-0.5 to 1.3)</td>
<td>(0.0 to 1.8)</td>
<td>(0.1 to 1.9)</td>
<td>(-0.5 to 1.3)</td>
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<tr>
<td>compared to control</td>
<td>P=0.187</td>
<td>P=0.390</td>
<td>P=0.046</td>
<td>P=0.032</td>
<td>P=0.346</td>
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</table>
Conclusions

• 10-40 g of LNS per day did not increase physical activity of the children
http://www.nature.com/ejcn/journal/vaop/ncurrent/full/ejcn2014138a.html