Zinc supplements increased growth more in stunted infants than in non-stunted infants


QUESTION: In stunted and non-stunted infants, do zinc supplements promote growth?

Zinc supplement v placebo for change in length and weight in stunted and non-stunted infants at 6 months†

<table>
<thead>
<tr>
<th>Outcomes at 6 months</th>
<th>Stunted</th>
<th>Non-stunted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Zinc</td>
<td>Placebo</td>
</tr>
<tr>
<td>Increase in length (cm)</td>
<td>7.0</td>
<td>2.9</td>
</tr>
<tr>
<td>Increase in weight (kg)</td>
<td>1.73</td>
<td>0.95</td>
</tr>
</tbody>
</table>

†CI defined in glossary and calculated from data in article.
‡Not significant.

COMMENTS

Theaim of the study by Umeta et al was to investigate whether the low rate of linear growth of apparently healthy breast fed infants in a rural village in Ethiopia can be improved with zinc supplementation.

The results of this high quality study show that daily oral zinc supplementation for 6 months improved the linear growth of stunted infants. The investigators attribute the beneficial effect of zinc to its essential role in the immune system.

The zinc status of the children was assessed using serum and hair, which are acknowledged as imperfect markers of zinc status. None the less, stunted children had lower zinc concentrations than did non-stunted children, and zinc supplementation increased the zinc concentrations of stunted children, further implicating zinc deficiency as a cause of the stunting.

Other randomised studies have suggested that zinc supplementation improves the weight gain of malnourished children.

Why are these breast fed infants zinc deficient? The breast milk of malnourished mothers has a zinc concentration similar to that of mothers in developed countries. However, the volume of breast milk produced by malnourished women is lower, and daily zinc intake of their infants at 9 months is as low as 10% of the recommended daily allowance. This finding is less than the relatively low estimation calculated by Krebs and Hambidge to be essential for growth. We do not know the zinc status of the mothers or the birth weights of the babies, but given the staple diet in Ethiopia, the mothers are likely to be zinc depleted. Zinc deficient mothers have growth retarded babies, who, in turn, are zinc depleted, increasing the likelihood of zinc deficiency during growth spurs.

The clinical implication of this study is that infants in malnourished communities need more zinc. For breast fed infants, this could be achieved by dietary supplementation of the mothers. Alternatively, routine supplementation of weaning foods could be implemented and monitored.
Zinc supplements increased growth more in stunted infants than in non-stunted infants

*Evid Based Med* 2001 6: 50
doi: 10.1136/ebm.6.2.50

Updated information and services can be found at:
[http://ebm.bmj.com/content/6/2/50](http://ebm.bmj.com/content/6/2/50)

**References**

This article cites 6 articles, 3 of which you can access for free at:
[http://ebm.bmj.com/content/6/2/50#BIBL](http://ebm.bmj.com/content/6/2/50#BIBL)

**Email alerting service**

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

**Topic Collections**

Articles on similar topics can be found in the following collections

- [Childhood nutrition](http://ebm.bmj.com/content/6/2/50#BIBL) (101)
- [Clinical trials (epidemiology)](http://ebm.bmj.com/content/6/2/50#BIBL) (1596)
- [Immunology (including allergy)](http://ebm.bmj.com/content/6/2/50#BIBL) (571)

**Notes**

To request permissions go to:
[http://group.bmj.com/group/rights-licensing/permissions](http://group.bmj.com/group/rights-licensing/permissions)

To order reprints go to:
[http://journals.bmj.com/cgi/reprintform](http://journals.bmj.com/cgi/reprintform)

To subscribe to BMJ go to:
[http://group.bmj.com/subscribe/](http://group.bmj.com/subscribe/)