April 24, 2006

Cognitive Development

Research Paper

Expectant mothers are often faced with many choices and options when carrying for their new child. With all the new information given it is easy to feel overwhelmed. When it comes to the nutritional health for your new born infant a mother wants what is best. One issue that arises is whether or not to breastfeed your baby. Most mothers want to know what the benefits and consequences of breastfeeding are. One mother writes to inquire about breastfeeding and the connection to intellectual advantages. She has heard that breastfeeding your baby increases their IQ. Being a working mother can make it difficult to breastfeed and now this mother is trying to decide whether to breastfeed her baby for at least a while. This is hot topic among mothers and has been studied by many researchers.

Scientists all over the country have been researching the correlation between breastfeeding and higher IQ scores and trying to find answers to this complicated question. In recent research studies the data suggests that there is an association between the duration of breastfed children and their intelligence quotient. In one study done by Horwood and Fergusson, children from birth to 1 year of age were monitored and maternal breastfeeding practices were recorded. This study’s objective was to examine the association between duration of breastfeeding and childhood cognitive ability and the academic achievement of children in an 18-year longitudinal study. When the children in
the study entered school at the age of 8 they were assessed on a range of measured
cognitive and academic outcomes. They were assessed until they reached age 18.

Methods of intelligence such as standardized testing, school performance; teacher ratings
and passing school rates were all used in this study. Methods of data collection also
included collecting maternal breastfeeding practices during the period birth to age 1. The
results of this study found that breastfeeding is associated with detectable increases in
cognitive ability in children and achievement in the classroom. Interestingly, the mothers
that chose to breastfeed the longest were women who were better educated and from
higher socio-economic statuses. The women were also from 2-parent families, did not
smoke and had above average income and living situations (Horwood, 1998). The
researchers were interested in duration of breastfeeding as a major component in later
cognitive abilities too. Further research will also need to be done to determine if higher
income is an actual direct determinant in higher academic outcome. Which may prove to be
the bigger determining factor, rather than breastfed versus non-breastfed children's
intelligence. However, other types of factors associated with breastfeeding, such as
income levels, reduced the association between breastfeeding and cognitive outcomes.

However, in 82% of the models duration of breastfeeding remained significant.
Breastfed children for more than 8 months had test scores that were 0.11 and 0.30 SD
units higher than children not breastfed (Horwood, 1998). Thus, the conclusion that
breastfeeding is associated with an increase in cognitive abilities. The findings of
Harwood and Fergusson are similar to those of Gomez-Sanchiz in 2003.
In the Gomez-Sanchiz study done by five doctors, the issue of breastfeeding and mental development framed the research topic for these doctors. In their study the purpose was to analyze the effects of breastfeeding on cognitive and motor development. The study involved 249 babies from two rural and urban regions. The cognitive development of these babies was assessed at the age of 18 months. Using the Bayley's Mental and Psychomotor Development Indices and consideration of other factors, such as parental IQ or income level, makes this study similar to the Horwood study mentioned earlier. The Bayley Scale scores mental and psychomotor development. The Gomez-Sanchiz study differs for the Horwood study in the fact that a cohort study was used rather than a longitudinal study. The results of this study revealed that scores from the mental development index were higher in breast-fed babies that were breast-fed for more than 4 months. In fact the scores were 4.6 points higher (Gomez-Sanchiz, 2003). There was also a significant correlation between the duration of breastfeeding and the Bayley's mental development index. Concluding that breast-feeding for more than 4 months can have a positive effect on the mental development of your young baby. However, in the Horwood study they concluded that breast-feeding your baby for more than 8 months increases your babies IQ level. Either way both the Horwood Study and the Gomez-Sanchiz study show a positive correlation between breast-fed babies and higher test scores, higher IQ levels and greater academic achievement. In both studies other factors were taken into account. These factors were mentioned in greater depth in the Horwood study.

In the Horwood study factors that might also attribute to greater mental developments included higher socioeconomic income levels, greater parental IQ, two-
parent families and mothers who did not smoke during pregnancy. These issues were discussed in the results of the study. However, the Gomez-Sanchiz study vaguely mentions including factors as part of the results. This would lead one to conclude there were interpretational differences. However, another contributing factor that may cause a slight difference in recommended breast-feeding time is the difference between the sample subjects. Two cohort study groups were used in the Gomez-Sanchiz study and one large longitudinal study was used in the Horwood study. Different scoring and methods of statistical analysis can be the factors in differences in mean test scores between the two studies.

Differences in the types of studies used and difference in mean test scores were very small. Results in both studies concluded that mothers who breast-feed their babies for more than 4 months, up to 8 months, have babies with higher IQ's and greater mental development. Based on the evidence in the two research studies, it seems as if breast-feeding your baby is beneficial for the mother and child. The Gomez-Sanchiz study also concluded that mothers who breast-feed their babies have a 25 percent decrease in postpartum depression. Concluding that breast-fed children have greater mental development and happier mothers. Also, factors that might contribute to higher IQ's in children, such as higher income families, two-parents households, and non-smoking mothers, can lead to higher test scores. These factors however, were taken into consideration during the two studies. The pattern of results between the two studies suggests breast-feeding your child is recommended. For mothers who work outside the home, pumping your breast milk and bottle feeding your child your own breast milk is always better than formula feeding your infant. Given the recent studies and information
on this subject, and more specifically the two aforementioned studies, you might be helping your child and yourself in the long run when you breast-feed them.

Coal paper... why she showed a number of questions about your child and your own health. Clearly, the conclusion that the study found very long-term effects of breastfeeding on your child's health and well-being are not lost. Our very rare; why? Since you said you've been working on your health and well-being, you may want to consider this.

Study found very long-term effects of breastfeeding on your child's health and well-being.
References:


## Paper Grading Rubric

<table>
<thead>
<tr>
<th>Points:</th>
<th>Exemplary</th>
<th>Good</th>
<th>Limited</th>
<th>Unsatisfactory</th>
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<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>Thesis is clearly defined and focused</td>
<td>Thesis is clear; provides some direction for paper</td>
<td>Thesis is inappropriate, unclear, or incomplete</td>
<td>Ineffective or missing introduction</td>
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<tr>
<td><strong>Study 1 Description</strong></td>
<td>Accurate, appropriate level of detail</td>
<td>Sufficient and accurate</td>
<td>Partly inaccurate, incomplete, or unclear</td>
<td>Missing, inappropriate study</td>
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<tr>
<td><strong>Study 2 Description</strong></td>
<td>Accurate, appropriate level of detail</td>
<td>Sufficient and accurate</td>
<td>Partly inaccurate, incomplete, or unclear</td>
<td>Missing, inappropriate study</td>
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<td><strong>Synthesis/Comparison</strong></td>
<td>Interesting, sophisticated, insightful comparison of 2 studies</td>
<td>Sufficient and accurate</td>
<td>Inaccurate, incomplete, or unclear comparison; summarizes previously stated information</td>
<td>Missing comparison of 2 studies</td>
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<td><strong>Conclusion/Recommendations</strong></td>
<td>Extends and connects ideas; insightful comments</td>
<td>Satisfactory; Purposeful; appropriate comments</td>
<td>Unclear, incomplete, or inappropriate; Summarizes previously stated information</td>
<td>Missing</td>
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<td><strong>Total Points Earned</strong></td>
<td>11</td>
<td>8</td>
<td>5</td>
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<th>3</th>
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<tr>
<td><strong>Paragraph Order</strong></td>
<td>Contributes to effective arguments; reinforces content</td>
<td>Demonstrates a plan</td>
<td>Ineffective or inconsistent</td>
<td>Random</td>
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<td><strong>Transitions</strong></td>
<td>Effective and varied</td>
<td>Clear and functional</td>
<td>Mechanical</td>
<td>Absent</td>
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<tr>
<td><strong>Sentence Structure</strong></td>
<td>Complete and varied/interesting</td>
<td>Complete and correct</td>
<td>Some errors are evident</td>
<td>Repetitious; fragments and run-ons are frequent</td>
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<td><strong>Word Choice</strong></td>
<td>Engaging, powerful choice of words</td>
<td>Appropriate to task</td>
<td>Uneven</td>
<td>Inappropriate or incorrect words are frequent</td>
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<tr>
<td><strong>References</strong></td>
<td>Complete list of references; studies are clearly referred to in text</td>
<td>Complete list of references; studies not always clearly referred to in text</td>
<td>Reference list is incomplete</td>
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Overall Points Earned: 59 (out of 75)  Letter Grade: C+