Quitting Smoking During Pregnancy and Birth Outcomes: Evidence of Gains Following Cessation by Third Trimester

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**BACKGROUND**

- Research has clearly shown that infants born to smokers are significantly smaller at birth than those born to non-smokers.
- Programs exist to assist pregnant women in their efforts to quit smoking.
- While some of these interventions are effective in reducing smoking rates, it is uncertain whether birth outcomes are significantly improved for pregnancy quitters, especially those who quit later in pregnancy.

**OBJECTIVE**

The goal of the study was to determine if smoking cessation by the end of the second trimester was associated with significant improvements in birth outcomes compared to smoking continuation.

**METHODS**

- Women (n=1040) were recruited from 6 prenatal practices at entry into prenatal care, and detailed demographic and substance use information was collected.
- Smoking status was ascertained via self-report and biochemical verification at each prenatal visit and at delivery.
- Infant birth outcomes were extracted from hospital delivery records.

**RESULTS**

**Pregnancy Smoke Exposure and Birth Outcomes**

<table>
<thead>
<tr>
<th></th>
<th>Non-Smoker (n=230)</th>
<th>Smoked but Quit by 3rd Trimester (n=103)</th>
<th>Smoked Thruout Pregnancy (n=707)</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth Weight (gm)</td>
<td>3230</td>
<td>3234</td>
<td>3044</td>
<td>10.22</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Birth Length (cm)</td>
<td>50.0</td>
<td>50.0</td>
<td>48.8</td>
<td>8.52</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Head Circumference (cm)</td>
<td>33.8</td>
<td>33.8</td>
<td>33.0</td>
<td>5.44</td>
<td>.004</td>
</tr>
<tr>
<td>Gestational Age at Birth (wks)</td>
<td>38.3</td>
<td>38.4</td>
<td>38.4</td>
<td>0.16</td>
<td>.857</td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

- Compared with women who continued to smoke, women who quit by the third trimester gave birth to infants who were significantly heavier, longer, and with greater head circumferences.
- In fact, infants born to women who quit were virtually identical in size to infants born to women who did not smoke at all.
- After control for potentially confounding background variables, including drug and alcohol use, infants whose mothers quit smoking were still significantly heavier at birth (adjusted mean difference=163gm) and had significantly greater head circumferences (adjusted mean difference=.5 cm) than infants whose mothers continued to smoke.
- Effects of smoking on birth outcomes were not due to shortened gestational duration since smoking status was unrelated to gestational age at delivery.

**In the current sample, quitting smoking during pregnancy was associated with a significant increase in newborn size, even when considering background differences between women who quit and women who continued to smoke.**

**Findings are encouraging and suggest that efforts to intervene with pregnant smokers can lead to direct improvements in birth outcomes, and that quitting even later in pregnancy can still be beneficial.**