Positioning the Neonate for Best Outcomes
# Consequences of Nonphysiologic Positioning

<table>
<thead>
<tr>
<th>Improper Position</th>
<th>Morbidity</th>
<th>Functional Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hyperextended neck</strong></td>
<td>• Failure to regularly reposition head</td>
<td>• Difficulty with head centering and midline arm movement in supine position</td>
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<tr>
<td></td>
<td>• Preferential head turn to right</td>
<td>• Limited head control in prone position and sitting</td>
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<td></td>
<td>• Right lateral gaze</td>
<td>• Limited downward gaze (visual tracking)</td>
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<td></td>
<td>• Plagiocephaly (flattened occiput) and dolichocephaly</td>
<td>• Right hand preference</td>
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<td></td>
<td>• Scaphocephaly</td>
<td>• Delayed, decreased, or limited fine motor skills</td>
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<td>• Torticollis</td>
<td>• Delayed, decreased, or limited Hand eye coordination</td>
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<td></td>
<td>• Hyperextended neck and retracted shoulders</td>
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<td></td>
<td>• Lateral trunk curvature</td>
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<tr>
<td><strong>W-position of arms</strong></td>
<td>• External shoulder rotation and retraction</td>
<td>• Decreased ability for hand-to-mouth activity</td>
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<td>• Muscle tightening of the neck extensors</td>
<td>• Inability to prop in prone position needed for head control, rolling over, and crawling</td>
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<td>• Scapular retraction</td>
<td>• Lack of midline positioning</td>
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</tr>
<tr>
<td><strong>M-position of legs</strong></td>
<td>• Hip abduction</td>
<td>• Transitioning in and out of prone position and sitting</td>
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<tr>
<td></td>
<td>• External hip rotation</td>
<td>• Hip stability for crawling milestone</td>
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<tr>
<td></td>
<td>• Knee flexion</td>
<td>• Wide base gait and excessive out-toeing</td>
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<td></td>
<td>• External tibial torsion</td>
<td>• Difficulty rolling over</td>
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<td></td>
<td>• Ankle eversion</td>
<td>• Pronation in standing—immature flat foot pattern with delayed heel to toe pattern</td>
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## CONSEQUENCES OF NONPHYSIOLOGIC POSITIONING

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| **Tight swaddle** | • Lack of ability to discover and push against boundaries  
  • Lack of ability to move hands to mouth  
  • Lack of bone and muscle development | • Decreased ability for hand-to-mouth activity  
  • Poor range of motion  
  • Contractures  
  • Decreased ability to self quiet |

### Improper Position

**Extended body with externally rotated hips and ankle eversion**

- Improper diapering (too large or placed backward) leading to hip abduction  
  - Externally rotated ankle eversion  
  - Extended body

**Morbidity**

- Shoulder external rotation and retraction
- Muscle tightening of the neck extensors
- Scapular retraction
- Increased neck tone and arching
- Hip abduction
- External rotation
- Knee flexion
- External tibial torsion
- Ankle eversion

**Functional Limitation**

- Decreased ability for hand-to-mouth activity
- Inability to prop in prone position needed for head control, rolling over, and crawling
- Delayed transitioning in and out of prone position and sitting
- Hip stability for four-point crawl
- Wide base gait and excessive out-toeing
- Difficulty rolling over
- Pronation in standing—immature flat foot pattern with delayed heel to toe pattern
- Delayed walking
Supportive Positioning

Supine Positioning

**Indications**
- American Academy of Pediatrics Safe Sleep
- Transition to discharge

**Principles**
- Patient should be flexed
- Patient should have midline capability
- Support to facilitate position (containment)
- Facilitate hand to mouth

Prone Positioning

**Indications**
- Improved lung mechanics
- Decreased symptoms of reflux

**Principles**
- Patient should be flexed
- Patient should have midline capability
- Support to facilitate position (containment)
- Facilitate hand to mouth

Side-Lying Positioning

**Indications**
- Supports midline behavior
- Minimizes reflux symptoms (left side-lying)

**Principles**
- Patient should be flexed
- Patient should have midline capability
- Support to facilitate position (containment)
- Facilitate hand to mouth