Motor Concerns in Very Young Infants

Identifying and Planning Strategies for Tiny Babies with Motor Concerns

Learning Objectives

After attending this webinar, the participant will:
1. Know basic information about motor concerns in young infants.
2. Know how to determine the appropriate evaluation/assessment/IFSP team for young infants.
3. Understand the difference between clinical vs. functional observations.
4. Know how to determine adequate service planning levels for young infants.

Topics to be Covered

• Motor issues for young infants
• Appropriate evaluation teams for qualifying infants with motor concerns
• Clinical vs. functional limitations
• Resources to support clinical opinion
• Appropriate IFSP team for infants with motor concerns.
• Planning for intervention
Motor Issues in Young Infants

• Hypotonia

• Hypertonia

• Range of motion issues

Hypotonia

• Low muscle tone

• Prematurity
  • Later development of spasticity or cerebral palsy

• Genetic conditions such as Down syndrome

Hypertonia

[Box with options]

- High tone
- Less common
- More severe than hypotonia when seen at a young age
- More severe neurological damage
Range of motion issues

• Torticollis

• Arthrogryposis

General Effects of Abnormal Muscle Tone

• Abnormal muscle tone makes movement difficult due to lack of optimal control of the body

• Infants with abnormal muscle tone may have poorly aligned posture, uncoordinated movements

• May have limited or too much range of motion

• May have poor balance, and altered sensory motor experiences

What is Muscle Tone?

• Muscle tone refers to how tense a muscle is at rest.

• This tension helps to prepare the muscle for movement.

• Helps to support the muscles and joints as they move.
Can You Change Muscle Tone?

- There is no cure for abnormal tone
- Strength building can help function
- Stretching the extremities can help with range of motion issues when tone is high

What is the difference between “Tone” and “Strength?”

**Tone**
- Tone is the resting state of the muscle
- Tone is controlled automatically by the brain

**Strength**
- Strength is controlled voluntarily
- Strength is a measure of how many fibers within the muscle are working

Hypotonic or Low Tone Babies

- Have to work harder to move body against gravity
- Often move less
- Limited variation in movement
- Joint issues can arise later
- Spasticity can develop usually at 2-3 months
Characteristics of Hypotonia in Young Infants

- Body flat against the floor in supine
- Head control in sitting
- Head lag when pull to sitting
- Head and body are asymmetrical
- Frog leg position in prone and spine

Body Flat in Supine

Head Control in Sitting
**Pull to Sit**

**Asymmetry of Head and Body**

**Frogged Leg Position**
Hypertonic or High Tone Babies

- Condition marked by an abnormal increase in muscle tension
- Reduced ability of a muscle to stretch
- Caused by injury to motor pathways in the central nervous system
- Generally sign of very serious neurological damage in very young infants
- More noticeable around 2-3 months of age

Severe Hypertonic Symptoms

- Extreme flexor tone in the shoulders/elbows
- Extreme extensor tone in the legs and ankles
- Body can be rigid
- Does not move out of this position

Development of Spasticity

- Generally start with hypotonicity
- More noticeable around 2-3 months of age
- May include hypertonicity, clonus, muscle spasms, and fixed joints
**Appropriate Teams**

What is an appropriate team for evaluation and assessment of a very young infant with motor concerns?

Expertise and experience regarding concerns at referral
- Concerns expressed by referral source
- Information in medical records
- Good knowledge base re: therapist clinical opinion
- Experience re: infant neuromuscular development

This usually is a therapist (PT/OT) but other individuals may have the needed skills and knowledge.

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**Evaluating Tiny Babies**

What about concerns that might not show up on BDI?

Example:
BDI items GM 1-5 are all upper body
No consideration of lower extremities or early movement patterns

Example:
Adjusted age of -0:], unable to demonstrate delay

Move on to Qualitative Determination…

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**Why Use Qualitative Determination?**

- BDI-2 may not pick up some of the motor concerns
- Infants under three months have limited physical milestones
How can OT/PT Support Evaluation Team Members?

- Knowledge beyond developmental milestones
- Knowledge of typical/atypical development
- Knowledge of how of muscle tone, weakness, spasticity, and joint limitations affect mobility and function

Therapist Clinical Observation

In addition to developmental milestones the therapist will also evaluate the following:

- Muscle tone and its effects
- How does the baby move when at rest?
- Baby's posture and movement in different positions
- The amount of effort required and variety associated with movement

Clinical vs. Functional Limitations

Clinical Description

- Can be described in technical terms
- Includes medical information
- Includes parent information

Functional Description

- How does this impact the baby?
- What part of the daily routines are being impaired?
- How is it affecting the caregiver/infant relationship?
## Clinical vs. Functional

<table>
<thead>
<tr>
<th>Clinical Description</th>
<th>Describe the Effects on Functional Abilities of the Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bo presented with low muscle tone in his trunk and extremities. He could not maintain head in midline when in supine.</td>
<td>Bo has difficulty bringing head and eyes together to look at mom or toys. Mom has to position his head in order for him to drink from a bottle with coordinated suck.</td>
</tr>
<tr>
<td>He cannot bring hands to midline in supine.</td>
<td>He has trouble reaching for toys and cannot transfer from hand to hand or hold a bottle.</td>
</tr>
<tr>
<td>In prone, Bo has difficulty lifting his head high enough to turn his head. He can get stuck with his face to the floor. He is not bearing any weight on his forearms or elbows.</td>
<td>Mom has to watch Bo constantly when in tummy time because he is in danger of suffocation.</td>
</tr>
</tbody>
</table>

## Clinical Vs. Functional

<table>
<thead>
<tr>
<th>Clinical Description</th>
<th>Describe the Effects........</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torticollis: Joey presents with tight neck muscles, that tilt and rotate his head to the right.</td>
<td>Joey will only nurse on one side and he doesn’t turn his head to both sides to look at faces.</td>
</tr>
<tr>
<td>Head position is tilted and rotated to the left.</td>
<td>He sleeps with his head turned only to one side.</td>
</tr>
<tr>
<td>Eye are deviated to the left and up.</td>
<td>He cannot focus his eyes at midline to look at toys. One eye seems to turn in.</td>
</tr>
</tbody>
</table>

## Resources to Support Clinical Opinion

- Test of Infant Motor Performance (TIMP)
- Alberta Infant Motor Scales (AIMS)
- Prechtl’s Assessment of General Movement
Test of Infant Motor Performance (TIMP)

- Good test for preterm babies *(begins at 34 weeks post conceptual age)*
- Has pictures of various positions
- Emphasis on *functional* motor behavior
- Sensitive to the effects of therapy
- Developed by a physical therapist

Alberta Infant Motor Scales

- Established test for infants
- For birth until independent walking
- Attainment of milestone and components

Prechtl’s Assessment of General Movement

- Assesses infants through observation and video
- Looks at type, amount, and variability of infant movements
- Can determine brain dysfunction
Eligibility is Established

- The BDI-2/qualitative determination is the “entry gate.”
- The IFSP and other assessments determine infant/family needs and concerns.
- Outcomes are developed to address needs based on priority.
- Type, duration and frequency of services is then determined.

OT/PT on IFSP Planning

- Effective use of time
- Knowledge about therapeutic interventions can be taught and infused into family’s daily routines
- Knowledge about positioning to support function
- Knowledge of sensory responses and intervention strategies
- Knowledge about assistive technology and adaptive equipment

Why have a motor therapist at the IFSP meeting?

Service Planning

Factors to consider in determining frequency and intensity:

- Nature and complexity of the child’s needs
- Nature of intervention strategy
- Confidence of the family in knowledge and skill related to the baby
- Family risk factors
Nature and Complexity of the Child’s Needs

Simple outcomes may require less frequent or intense services to support their attainment than more complex outcomes.

Nature of Intervention

- Some children with severe disabilities have more complex needs
- Families of children with more complex needs might need more service time
- Family will need to learn much more about how to support their child’s development.

Confidence of Family Knowledge

- A family who is feeling challenged in their ability to address the child's needs will need more service.
- It may also take more time to help them work intervention into their daily routines.
- The family’s confidence may be related to the complexity of the child’s needs.
**Family Risk Factors**

- One adult household
- Teenage parent
- Large number of children
- Lack of other resources

**Determining Frequency/Intensity for Intervention**

1. Frontloading
2. Low level of service
3. Medium level of service
4. High level of service

**Frontloading**

- When a family quickly needs to acquire a specific skill
- When a child is at a particular point in development
- Emerging skills
- Family has special challenges, such as a parent with intellectual disabilities
**Low Level of Direct Support from a Therapist**

- Baby seems to be making steady progress
- Baby does not demonstrate neuro muscular concerns requiring therapeutic intervention
- Parent/team comfortable with level of support

**Medium Level of Support**

- Baby making steady progress toward outcomes with current level of support
- Periodic problem solving needed to attain outcomes
- Parent competence/safety in follow through with routines

**High Level of Support**

- Baby is changing very quickly
- Baby has potential for rapid progress or decline
- Critical period for change
- Requires clinical skills and continual problem solving by a therapist to support family
- Parent needs frequent feedback and coaching
**Additional References and Resources**

- Help with the HELP Module
  - Extranet in Eligibility Document Library
  - Request CD from Rachel Moyer-Trimyer
- Eligibility webinars (August, 2011)
- Materials provided as handouts
  - References
  - Pathways Charts of Development