

# Preventing Motor Delays In Infants Due to Early Positioning Choices

## Prone Positioning Matters

### 1992 - 1996 "Back to Sleep" Policy

- 90% of new infants were placed in prone prior to the Back To Sleep (BTS) campaign
- 80% of USA babies sleep supine by 1998

### 2000 - 2005

### American Academy of Pediatrics Addressed Need for Tummy Time

- Lack of Tummy Time shown to cause Torticollis and flat spots on back of head.
- A 6-fold increase in misshapen heads since the Back to Sleep Campaign

## RECOMMENDATIONS

- Continue Back to Sleep program to decrease SIDS

### BUT

- Encourage Tummy Time when the infant is awake and observed.
- Avoid placing the infant for excessive time in car carriers and equipment.

### 2009 Survey of Pediatricians

- 55 invited (11 residents and 44 local doctors)
- 20 responded (11 residents and 9 local MDs)
- 19 definitive answers
- 6 referred when flat spot was noted (31%)
- 13 referred at 4 months or 6 months (68%)

**Babies with flat spots are not referred until 4-6 months by 68% of doctors surveyed.**

## Tummy Time Matters

### 2005 Proven Research

### "Conveying the message about optimal positioning in infants"

Physical and Occupational Therapy in Pediatrics, Vol. 25. No. 3, pp 3-18. Judy T. Jennings PT, MA; B. Sarbaugh OTR/L, MA; N. Payne PhD.

- Significant correlation for preemies placed in TT > 1x day to preemies seldom placed in TT.
- Preemies with TT had normal 6 mo milestones.
- Preemies seldom in TT were delayed at 6 mo

## Written Communication Matters

- 88% of parents who read a positioning brochure started tummy time within first month.
- 17 of 34 babies were started with Tummy Time before the second week of life. (See Page 3, Table 4 and 5 for tabular data.)

## Deliberate Practice Matters and has long term effects

- Delays in fine motor and visual perception seen in 18 mo babies (TT < 1x day)
- Further research needed (See Page 4 abstract.)

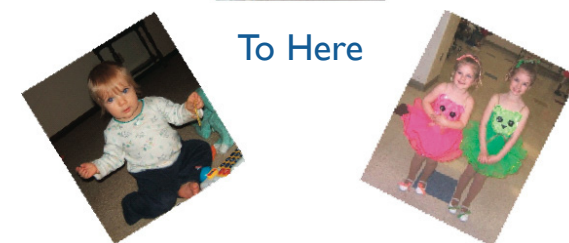
## Physical Therapists Matter

### Making a Difference in Babies

#### From There



#### To Here



### 2008 APTA Recommendations National Release:

### "LACK OF TIME ON TUMMY SHOWN TO HINDER ACHIEVEMENT OF DEVELOPMENTAL MILESTONES"

### Tummy Time Matters

Prone + Side + Back Positions = Normal Development when started Week 2

Scheduled Tummy Time 1-2 min several times a day, when awake and supervised

1992 Babies with misshapen heads = 5%  
Recently, babies referred with misshapen heads = 500% increase

Eye tracking, fine motor delays are seen clinically.

School readiness is impacted

**Increased Tummy Time during Daily Activities is ADVOCATED**

# 2010 Campaign to Prevent Delayed Developmental Milestones

## Making a Commitment Matters

### Polio is Gone - Flat Spots Next

#### I'm In - Prevent Flat Spots on Infants!

##### What Can PT's Do?

1. PT Public Health Campaign
  - A. Educate that Early TT works
    - Birthing Centers
    - Doctors and Staffs
    - Early Intervention Nurses
    - Day Care Center Personnel

- B. Encourage Adding Early Written Information or New Parents

#### RECOMMENDATIONS

Tummy Time 4-6x a day for 1-2 minutes when awake and supervised starting 2nd week at home

### Answers to your Questions

**#1**

Your pediatrician will be able to explain that the American Academy of Pediatrics recommendation to place a new baby on the back is for **SLEEPING** babies. It is important to follow the guidelines of your physician about the optimal sleep position for your new baby.

**#3**

The amount of Tummy Time will increase as the baby gets older and his neck gets stronger. Babies who have developed muscles on the tummy enjoy tummy play for several minutes many times a day. Tummy Time prepares the baby to sit on the floor and bear weight on his hands and knees.

**#4**

Babies with poor head control are at risk of developing flat spots on the head and neck muscles (known as torticollis). To avoid this, vary the positions you use when the baby is awake. Limit the amount of time in these positions, change the direction of the baby's head, and use pillows to support the head. Babies fed with bottles should be changed from side to side as a breast-fed baby would be.

**#2**

It is also important to understand that when **AWAKE** and supervised, babies need to play on their tummies. A good time for this play is after each diapering change or after each feed for at least 1-2 minutes beginning their first day home.

**#5**

When your baby is playing on her tummy place a circle of toys around her just out of reach. Reaching on the side will help her to sit up. Reaching forward will help her to scoot on her hands. Reaching her arms to her mouth and playing with her feet will help her learn to roll from her back to her tummy.

- C. Speak to Community Groups. Teach that milestones matter

All information presented on this poster is available for download in various PDFs. Please visit: [www.fit-baby.com](http://www.fit-baby.com)

## Early CHILD FIND Matters

### It is urgent to see a baby with flat spots at 6 weeks to 2 months!!










#### ARE YOU IN?

Direct PT Referrals at 4-6 months are too late for too many babies.

2. PT Intervention Early
  - A. Start Well Baby Clinics
    - Teach positioning and not early problems
  - B. Partner with Doctors
  - C. Volunteer to Visit New Babies in your church
  - D. School PT's: Teach Positioning for New Siblings

#### Milestones and Normal Core Strength MATTER for all Children

Pictures Showing Normal Milestone Development  
0-11 Months

Points to Consider:

- a) Time spent in a car seat is wasted time unless during transportation where straps provide safety.
- b) Play in all positions is important before 3 months: on back, on belly and on sides when directly supervised.
- c) Both crawling and creeping on hands and knees contribute greatly to readiness skills for school.
- d) Walking early may not be a sign of normal milestone development.
- e) Sleep position should be on back until approximately 4 months when the baby can change positions independently.

- A. Learn Consequences on School Readiness Skills
- B. The **"Clumsy Child"** can Benefit from Physical Therapy

## Research by PT's Matters

### Evidence-Based Practice will Help More Children

#### We Can Do This!

15,000 Children Referred Weekly. 80% Are Considered Learning Disabled  
Hannaford, Awakening the Child Heart

3. Research by PT's
  - A. Question Links Between Lack of Early Milestones AND
    - Increase in Special Needs referrals
    - Torticollis & school readiness
    - Decreased core strength & memory
    - Torticollis and ADHD
  - B. Test Core Strengthening & Decrease in Autistic Symptoms
  - C. Correlations between Delayed Milestones & Some Autism

(For state-by-state statistics, go to:

[www.fit-baby.com/pdf/Autism-Increases-In-US.pdf](http://www.fit-baby.com/pdf/Autism-Increases-In-US.pdf))

### A Worthy Campaign

**If not PT's to fight for decreased motor delays in children  
Then whom?**

(See Page 5 for Why More Children are Coming to School Under-Developed and Consequently at Risk of Academic Failure.)

**Table 4**

Pattern of Increased Prone Play Positioning When a Nurse Visit, Video Showing, and Use of the Brochure Were Added to Physician Information

Source of Information	Placement Choice For Prone Play		
	Not Routinely	Routinely > 1x day	Total Babies
Doctor Directives	11 babies 84.62%	2 babies 15.38%	13
Doctor + Nurse Visit	6 60%	4 40%	10
Doctor + Nurse Visit Video Showing	14 66.67%	7 33.33%	21
Doctor + Nurse + Brochure	4 12.12%	<b>29</b> <b>87.88%</b>	33

**Table 5**

<b>Effect of Placement for Play and Adjusted Age on Average PDMS-2 Locomotion Score</b>					
Total Number of babies 77			Range of locomotion scores was 11-39.		
Adjusted age in days	Placement in Prone for Play				Total Babies
	Seldom	Sometimes < 1 x day	Frequently 1 x day	Routinely > 1 x day	
Less than 174 days > one week premature	3 babies 16.7 ave. score <b>P=.0012</b>	5 babies 21.8 <b>P=.0010</b>	3 babies 26 average score	7 babies <b>30.4 average score</b>	18
174 to 181 days Approx. one week early	3 22	3 28.3	2 23	14 27.5	22
182 to 186, full term		2 29.5	9 27.7	8 26.3	19
187 or older		2 32	3 29.7	13 29.7	18

# Conveying the Message about Optimal Infant Positions

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## ABSTRACT

The purpose of this study was to determine a convenient communication tool to help educate parents about varying the positions of their new babies. Eighty-eight percent of babies whose parents had received a brochure explaining the importance of early and regularly scheduled “tummy time” were placed in the prone position more than one time a day. Seventeen of 34 babies were started prone before the second week of life. The average Peabody Developmental Motor Scales-2 locomotion score of the babies regularly placed in prone was significantly higher than that of the babies not regularly placed in prone when tested at 6 months and again at 18 months of age. **KEY WORDS.** “Back to Sleep” campaign”, infant development, plagiocephaly, torticollis, “tummy time”

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Barbara G. Sarbaugh holds a BS and MA in OT. She has worked with children for 20 years and has served as faculty in the occupational therapy program at Xavier University, Cincinnati, Ohio.

Nicholas S. Payne, PhD, has recently retired from forty years of experience in statistics and data analysis at Proctor and Gamble, Cincinnati, Ohio. His most recent title was Research Fellow in Data Analysis clarifying the needs of mothers and babies.

This work was reviewed by the Institutional Review Board of Xavier University and followed the guidelines for protection of humans in research.

# Why More Children are Coming to School Under-Developed and Consequently at Risk of Academic Failure

There is a common link between what is happening in infancy and what is happening in education programs across the country. Lack of tummy time for tiny babies produces problems that many researchers claim affects success in school. There is an explosion in the number of children being referred to school psychologists, 15000 every week. In 1991, 4.8 million children were labeled as developmentally delayed. In 1997, the number was 7.5 million. In some American schools as many as 80% of the children are labeled with some type of learning disability. (Carla Hannaford, "Awakening the Child Heart", p145.)

**Problems directly linked to lack of tummy time in infancy:** (Assumes child is able to hold head in midline with a good chin tuck, supine and prone.)

1. Weak neck and back muscles providing good head control against gravity
2. Without sufficient neck control, babies are more apt to roll, sit scoot, or walk early rather than belly crawl or creep.
3. Insufficient hand strength from insufficient amount of creeping time and belly crawling time affects fine motor control in preschool.
4. Eye teaming skills do not develop. Too many children are diagnosed as far sighted. The eyes do not readily cross the midline of the body. Children with this development do not track objects from Left to Right well—needed for reading.
5. The STNR infant reflex (ties position of the head to an movement of arms and legs) will disappear when a child starts to creep on the hands and knees. When the baby doesn't creep that reflex persists and limits freedom of movement into the school age years.
6. Retaining of other early infant reflexes (startle reflex, grasp reflex, ie.) are attributed to lack of developmental tummy play. (Svetlana Masgutove, Infant Reflexes Course) (Sally Goddard, "Reflexes, Learning, and Behavior")

Therapists in school programs often must help children with the following problems to increase the potential for success with academics. They are all related to core muscle strength developed by tummy play in infancy:

Hand, foot, and eye dominance—absent or mixed  
Midline crossing abilities  
Tight muscles

Visual Tracking  
Core motor strength—belly, back and neck muscles  
Stress holding in the body

**Final Gross Motor objectives to enhance academic success/  
Each child to be able to access both sides of the brain when doing a school task.  
Steps to Acquire:**

1. Age appropriate core muscle strength for belly and back muscles.
2. Ability to cross the midline of the body with eyes, hands, and feet
3. Good balance reactions standing on one foot
4. Ability to draw a lazy 8 properly and consistently