



TUMMY TYME

Notes

#1



THINGS WE KNOW ABOUT CHILD DEVELOPMENT

MOST IMPORTANT: BONDING and SECURITY!!

Provide a secure, loving, responsive relationship with your baby! Setup sleep, eating and bath **routines** so baby knows what to expect. Mimic womb conditions during first few weeks (low sound, low light, warm). Brain's first priority is **SECURITY & SURVIVAL**, so create a calm, supportive, loving environment.

A newborn's movements are driven by reflexes (suck reflex for nursing or Moro startle reflex, for instance). These automatic reflexes begin the *process of learning* as they are tied to our sensory processing. We gather information about the world through our senses (eyes, ears, nose, taste, touch plus balance (vestibular) and proprioception (receptors around muscles)). Everything a baby comes in contact with brings sensory information to be catalogued: movement, coordination, body awareness and balance, a multi-sensory world!

3 to 6 Months: Primitive reflexes may still be active (for instance, head movement is tied to automatic arm and leg movements until the reflex matures and is released by the higher brain). Moro reflex inhibited; startle response replaces Moro.

BABY MASSAGE: stimulates the skin, our largest sensory organ. Babies learn initially through sensory stimulation with the mouth and skin. Babies will find and recognize their hands and feet but most important to them is the sound of their mom's and dad's voice and seeing their faces.

FACE TO FACE: deliberately spend 'face to face time' (within 10-12 inches of baby's face) and speak with exaggerated expressions and mouth movements. Speak in parentese (matches infant's hearing ranges). Try to stimulate and maintain infant's eye contact. Throughout the day, point out objects to baby and label them (actually promotes language development later on). Engage baby and move fun object across midline of body to stimulate tracking across midline (from left to middle and then right).

TUMMY TYME: by 3 to 4 months should be able to support chest with forearms when laid on tummy and reach for objects. At 3 months movement should be symmetrical (balanced on both sides); head should not lag when pulled up to sit (support head if it is lagging); reaches for toys with both hands; grasps toys with full open hands; smiles and gurgles; and very interested in faces. By 4 months, attempts to roll over using the hips (matures later with attempts made from the shoulder); great imitator of facial expressions; focuses and follows nearby moving objects; and begins to pull self forward on tummy

READING: read books aloud every day. Before 4 months, baby will enjoy the sounds of your voice and the private time together. At 4 months of age, lap reading can begin. By 6 to 7 months, baby's full range of vision should be intact and cloth or plastic books can become a favorite object. **Establish a ritual of reading.** By 6 months, permanent neural (brain) networks are created that recognize subtle sounds and rhythmic patterns of their native language. Being read to helps 'tune' neuron bundles in the growing brain which will help in learning to speak and later to read by themselves.

Seattle study found that a mother's expectations affect the mental growth and development of their babies – found mother's treated their babies according to their expectations. Mothers that knew more about baby's abilities were more emotionally and verbally responsive to their babies. Therefore, a parent's knowledge about child development does make a difference, and babies are truly alert little learning machines!



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THINGS WE KNOW ABOUT CHILD DEVELOPMENT

SOME SCIENCE BACKGROUND FOR THOSE INTERESTED

MOVEMENT MATTERS!!

Humans are quite unique. We're born with only our survival mechanisms intact (breathing, heart rate, blood pressure and such). We must *learn everything* else beyond survival:

(1) our brain must find our body (infants slowly discover their fingers and toes – and that they actually MOVE!). Our brain must learn 'where' to find and create all the connections that operate our different body parts. This process of learning will also be used later for academics and higher learning.

(2) We learn about the outside world / what it means to us through our senses.

Connections are driven by MOVEMENT, movement that arises from our lower brain (the brain stem) in the form of primitive reflexes. The dance between brain and body begins before birth but blossoms into *primitive reflexes* by birth and then in a few months to *postural reflexes*, both of which will initiate and drive connections to our higher brain. Why is this important? These connections take the brain from the lower brain stem (survival) up to the higher brain, the cortex, which develops into our 'thinking brain'. The presence and absence of these reflexes can also be used by clinicians to evaluate the development of the brain.

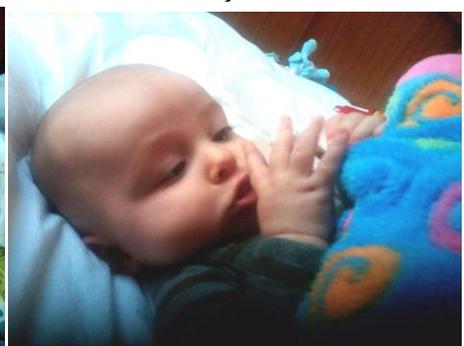
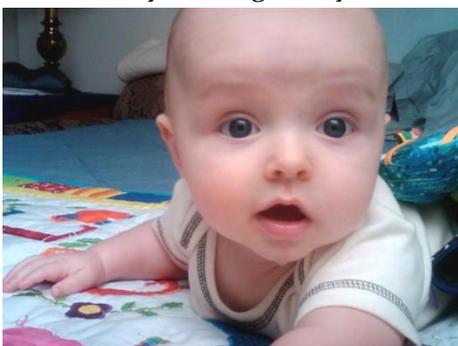
We now know that babies learn much sooner and are capable of much more than was thought just a few decades ago:

(1) Babies have been shown to recognize and prefer a book read to them during the last 6 weeks of *pregnancy*. Within hours of birth, babies preferred familiar stories read by their mother over a different story. Babies may not see mom, but they can hear mom (and dad) during pregnancy and recognize the story and the voice within hours of birth (used pacifiers hooked up to computers which measure sucking rates – babies suck slower when intently interested in something).

(2) During the **first month of life**, a baby's brain will increase the connections between other brain cells by **twenty-fold**. If a baby's body grew this much, the baby would weigh 170 lbs. at one year of age!

(3) IQ is not fixed at birth – we now know IQ can vary by 20-30 points depending on *environmental experiences that a baby* is exposed to on a consistent basis.

(4) Pediatricians recommend no 'screen time' (no TV, ipad, iphone, computer) until **2 years of age** – because they can negatively affect the development of our attention span and attentional system.





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“The quality of your child’s first relationships has broader and longer-lasting effects *than any other factor in your control,*” Jill Stamm, PhD in ‘Bright From the Start’.

HOW TO HELP CALM YOUR BABY:

Look up **Dr. Harvey Karp**, well known pediatrician, and watch his YouTube video of the **5 S’s** to soothe your baby and help them to stop crying and be able to sleep: <https://www.youtube.com/watch?v=mm3aJ78TXak>. He also has a marvelous book, *The Happiest Baby on the Block*, available at Amazon. And remember, **INFANTS CANNOT BE SPOILED!** The area of the brain involved in manipulation has not yet developed in an infant’s brain, so don’t worry about spoiling an infant – show them prompt, consistent, caring responses.

The 5 Essentials for Tummy Time (Pathways.org)

Specialists at Pathways.org want moms to start Tummy Time as soon as the belly button has healed. They suggest starting with a couple of minutes, a couple of times a day with the goal of working up to a combined time of one hour a day in small segments by the time your baby is 3 months old. They suggest creating a Tummy Time daily routine which links Tummy Time to familiar activities such as diapering, bathing or play time, so baby will expect and anticipate Tummy Time. It should become a FUN time of interaction between you and your baby, but many young babies will initially be fuzzy because Tummy Time requires developing muscle strength. Also, remember it is best to start when your baby is awake, fed and happy and you can devote your time to baby.

1. **TUMMY TO TUMMY:** Moms lean back on a raised stack of pillows to rest shoulders and head on pillows, face up (angles baby slightly up). Then position baby’s tummy on mom’s tummy. Mom’s should hold onto baby’s bottom to keep them stable. Even if your newborn is not raising their head yet, this position will help your baby get used to Tummy Time and help them strengthen neck and back. By 3 months, baby should be lifting their head and pushing up on forearms to push up and look around.
2. **EYE LEVEL SMILE:** Place babies on the floor and moms get down at eye level. Babies love faces and voices. Baby will try to see your face, so get down at eye level so baby will hold up his head to see your face. Then move your face or a bright toy from side to side to encourage side to side movement. If baby continually only moves to one side, take note and speak to your physician at your next visit.
3. **LAP SOOTHE:** Mom sits in a chair and places baby face down across her lap. Mom can have both legs the same height or raise one leg to elevate baby’s shoulders. Keep a hand on baby’s bottom to help stabilize the baby on your knees.
4. **TUMMY-DOWN CARRY:** This is a good alternative to always carrying your baby upright. Mom’s hand supports his tummy by putting Mom’s hand between his legs and supporting his chest with her other hand supporting his head and shoulders. Baby should be nestled close to mom’s body to give added support. This is a good way of carrying baby room to room – great for dads also!
5. **TUMMY MINUTE:** Incorporate Tummy Time into your daily routine (do a few minutes after diapering). Use a rolled up receiving blanket to place under baby’s chest and upper arms to lift. Add a few minutes of Tummy Time after each diapering, for instance. Use mirrors and toys to encourage baby to raise their heads and follow the toy’s movement.



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THINGS WE KNOW ABOUT CHILD DEVELOPMENT

Dr. Harvey Karp, pediatrician and author of *'The Happies Baby on the Block'*, states the first 3 months after birth should be called the 4th trimester as human babies are born earlier than other species. Our brains are not fully developed at birth (except for our life support systems) and actually require experience to connect, develop and organize the brain. This 'experience' centers around movement and primitive reflexes which guide brain development.

The best movement for young babies begins with Tummy Time! Why is Tummy Time so important? Head control is central to movement control (which also helps brain development). So developing head control is a major step and Tummy Time is key to proper development. Tummy Time affects neck, abdominal and core muscles which are important in postural control and proper development.

Sleeping should always be on the back, but an alert, happy baby should have daily short spurts of Tummy Time for best overall development. A lack of Tummy Time has been shown to affect head shape, motor development and skeletal development.

0-3 Months: All About Learning to Live in the Outside World

During this period, babies learn to smile, raise their head when on their tummies (TT), track objects with their eyes, open and shut their hands, bring objects to their mouth, grip objects (can't release objects until close to 3 months old) and swipe at toys within their sight (Pathways.org).

4-6 Months: Reaching Out and Touching the World

During this period, babies learn to roll over in both directions (front to back is usually first), laugh, babble, grab objects to manipulate and investigate, and to sit with support with good head control. Support babies on exercise balls with them on their tummies – closely monitor to keep babies safe. Babies of this age will use their hands to support themselves while sitting. While standing with your support, babies at this age should be able to support their entire weight with their legs. Babies should use both hands to explore toys and be able to transfer a toy from one hand to the other while lying on their backs.

“A child's motor abilities have a significant impact on their success later on in school,” states R. Scott Ward, PT, PhD, President of the American Physical Therapy Association. Lack of Tummy Time has effects on head shape, motor development and skeletal development.





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Early brain development relates to the formation and refining of 'connections' between brain cells (neurons). Our early years are important because they establish the way information flows and is processed in the brain.

Some Interesting Facts to know:

- 1.) Human brain is **Immature at Birth** – only survival mechanisms are fully connected while higher cognitive areas of the brain are not connected but waiting for sensory motor input to connect.
- 2.) Human brain increased its thinking capacity by folding (adding grooves) eons ago. This increased our thinking capacity by 67% (for comparison, rats have no grooves at all).
- 3.) Human brain only weighs 25-30% of the adult brain weight while other mammals are born with 60-90% of their adult brain weight. This difference is due to the added weight of 'connections' between brain cells and explains why many animals can stand, walk and even run within minutes or hours of birth while humans will require 6 to 12 months or more to establish these connections.
 - a. It will take humans up to 5 years to achieve the 90% adult brain weight.
 - b. Our larger brain size required an earlier birth which meant our brain would be more immature compared to other mammals.
- 4.) During the **FIRST MONTH** of life, our brain will increase its connections by 20 fold – about 700 new connections form each **SECOND** up to 4 years of age – dependent on our experiences/environment.
- 5.) Our brain develops through connecting one cell to another; it literally **GROWS** itself depending on what it is experiencing.
- 6.) 50% of our brain development occurs with the first 6 months.
- 7.) 70% of our brain development is complete by our first birthday.
- 8.) The brain's first concern is **NOT LEARNING** but **SURVIVAL** and **SECURITY**, which are **KEY** to brain development.
- 9.) **BONDING** to a few close people, at least one consistent person, is essential for the brain to feel secure. Prompt, predictable, loving care is **CRITICAL** for a child's healthy early brain development.
- 10.) **BONDING** grows out of thousands of interactions with the baby's few close relationships. Genes switch on and off depending on our **EXPERIENCES** but are influenced by bonding.
- 11.) **BONDING** in the **FIRST YEAR** is critical because our **EMOTIONAL SYSTEMS (LIMBIC SYSTEM)** wire (connect) during this time period.

"The quality of your child's first relationships has broader and longer lasting effects than any other factor in your control", Jill Stamm, PhD, Neuroscientist, *Bright From the Start*.





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First Three Years of Life Are the Most Valuable Years for BRAIN DEVELOPMENT

We experience and connect to our world (both inside our bodies and outside) through our senses. During this time, sensory information comes to the brain to begin the long process of understanding our bodies and the environment into which we are born.

As our brain is sorting through all the various information coming its way, the emotional centers of the brain are also developing and 'wiring'. This joint timing means the incoming information will also be 'tagged' with emotional content which places great importance on the emotional environment for the baby.

How the brain is wired to process emotions (positive, supportive or negative, stressful) in the earliest years sets the stage for how the child will respond much later in life. We now know the emotional content experienced in our early years affects the **quality of connections to the cortex**. The cortex is our higher brain - where our thinking and judgements occur; where planning, memory storage, and understanding consequences occur.

BOTTOM LINE: PROVIDE A CONSISTENT/ROUTINE ENVIRONMENT WITH POSITIVE, LOVING INTERACTIONS AND PROVIDE PLENTY OF MOVEMENT!

BRAIN'S primary focus:

- **SURVIVAL ORGAN – first and foremost! Safety and security are key to development.**
- **PATTERN SEEKING: helps to categorize and understand**
- **PLEASURE SEEKING: brain has centers just for pleasure**
- **NOVELTY SEEKING: brain constantly wants to learn and know more**
- **ENERGY CONSERVING: brain uses 20-30% of entire body's energy usage**
- **MEANING SEEKING: brain strives to understand**

First and foremost, the brain must feel secure – only then will it venture out to 'learn more'. We are born with underdeveloped brains with only our survival systems fully wired. Our higher, thinking brain is not wired yet, but waiting for input. That inputs comes to the brain through our senses (eyes, ears, touch, balance, nose, muscles, etc.). The more senses we involve (multi-sensory), the better for the brain. Since our emotional centers are wiring during this early time period also, the security and consistency of our environment can have a large impact on brain development.





