

The Amazing Baby Brain

Here's a fun fact: by 12 months, a newborn's brain doubles in size; by 36 months, it triples, almost adult size. How it happens, and why, has researchers and pediatricians very excited. Previously, it was thought that the baby's personality, their ability to think and to learn, and even their social skills were driven by their DNA. But it turns out our experiences have a big effect, especially for the young child. In fact, the period from conception through the first 3 years of life is singular in its explosive rate of linear growth, tissue development, and brain expansion. For optimal development, particularly in the brain, it is critical that early exposures are positive.



During pregnancy, what happens to mother happens to baby. Mother's nutrition directly affects the growing fetus. Excess or inadequate calories are both harmful. So is poor quality diet. Weight gain during pregnancy (too little or too much), exposures to toxins (tobacco, alcohol, drugs), health (blood pressure, diabetes), and mental health (stress, depression), shape all aspects of fetal development – not only size and function of cells, tissues, and organs, but also the body's signaling and metabolism. These changes last a life time. It's startling that the baby's future health and mental health as an adult – the risk for such problems as obesity, hypertension, cardiovascular disease, diabetes, depression, bipolar disease, stress responses – all can reflect their fetal experiences.

This “plasticity” continues after birth and is most remarkable in the infant's brain.

Immediately after birth the baby's 85 billion brain cells begin to wire together, forming connections at a stunning 700 per second. The brain will add 1% volume every day over the first few months. Neurons in specific regions (termed “the social brain”) are exquisitely tuned to human facial expressions, eyes, gestures, and voices. The newborn undertakes an extraordinary sensory-motor exploration of their world. What looks like play is actually research and the infant's future cognitive ability is founded on it.

The infant brain uses 60% of consumed daily energy. We often hear about how important iron, zinc, choline, or DHA are during this time. But it takes a consistent supply of many different nutrients to build, expand, fuel, and maintain the brain. Food choices matter. Breast milk, infant formula, and later cow's milk provide a basic platform. Nutrient-rich first foods make the infant and toddler's dietary pattern strong enough to support their spectacular growth spurt. Anything less will fail to bring out their best.