Give your baby a better chance at prenatal brain development with an enriched auditory environment

From the moment we see a positive result on a pregnancy test, we begin to navigate the complicated world of being a parent. Almost immediately, the barrage of advertising messages and opinions from well-meaning friends and family can often cause confusion about what is best for our baby. I am doing what I did throughout my first two pregnancies; getting educated about what will make a difference and then going with my gut! Pregnancy (though it seems to drag on forever) is a relatively short period in your baby's long life of learning and development. Take the time to look at the latest research about early cognition and prenatal brain development. We know so much more now about prenatal brain development than ever before. It's really exciting to be armed with powerful information about things like DHA for better prenatal brain development and the importance of an enriched prenatal auditory environment. No matter how you choose to communicate with your baby, after week 18 he'll be listening and likely hungry for more. Babies with an enriched nurturing auditory environment often show an increased ability to self-soothe and are more responsive at birth. Later, parents of these same children report to have improved school readiness and longer attention spans.

Fetal Brain Development

Experience is an essential component of prenatal brain development. A prenatal child's specific experiences determine which **connections** are strengthened and expanded, and which connections are eliminated.

- Connections that are used repeatedly become stronger.
- Connections that are not used are eventually lost to **pruning**.
- Repetition is important because it provides the child with multiple opportunities to strengthen connections and enhance prenatal brain development.

It also is important that experiences be enriching. A prenatal child should have regular opportunities to experience sounds that are new and different. These experiences should be challenging, but not overwhelming, just a step beyond what he can already do. Your womb truly is the perfect classroom! A developmentally appropriate set of

sounds that introduce patterns of rhythm to the baby similar to the maternal heartbeat are most likely to make the biggest impact on his/her prenatal brain development.. As a baby discriminates the simple rhythmic sounds from those of his mother, auditory learning begins.

The human brain begins forming very early in prenatal life (just three weeks after conception), but in many ways, brain development is a lifelong project. That is because the same events that shape the brain during development are also responsible for storing information—new skills and memories—throughout life. The major difference between prenatal brain development in the womb versus learning at a later age is a matter of degree: the brain is far more impressionable (neuroscientists use the term plastic) in early life than in maturity. This plasticity has both a positive and a negative side. On the positive side, it means that young children's brains are more open to learning and enriching influences.

Bilingualism in Babies Starts in the Womb

A recent joint study from Canadian and French researchers finds infants born to bilingual mothers exhibit different language preferences than infants born to moms who speak only one language. Bilingualism has been linked to a variety of positive cognitive benefits, including early ready, better critical think skills and longer attention spans. Now we know what the baby experiences in his prenatal environment truly matters to the prenatal brain development in this small window of opportunity. The study was published in the January 29, 2010, journal *Psychological Science*. Many expectant parents are not bilingual or have a preference for only one language thus never exposing baby to this important auditory enrichment. The one consistently heard sound in the prenatal environment 24 hours 7 days a week is the moms heart beat. Based on more than 23 years of scientific research the BabyPlus Prenatal Education System provides a patented curriculum that introduces a developing baby to learning in the only true and consistent language of the prenatal environment, a language based on the maternal heartbeat. Studies show that a fetus does recognize the maternal heartbeat and can differentiate progressive versions of that sound. Much like early language immersion, the simple, naturally derived lessons are the most effective at strengthening a lifetime of strong learning. This early advantage during prenatal brain development means children will be able to absorb and appreciate far more of their environment than if they had not received this prenatal enrichment. This might also be a fabulous time to turn your car into a "university on wheels" and begin a language course. I am a big fan of Rosetta Stone but there are many great options on the market.

When it comes to IQ environment matters

You have probably heard the phrase nature versus nurture. It tends to pop up whenever we gain some new insight into prenatal brain development. Has some aspect of personality or intelligence come about as a result of genes and part of our inborn nature?

Or because of the influence of parents, teachers, or other aspects of the environment that nurtured us? The answer is both.

In a study published in 2008 UCLA researchers found about 85 percent of the variation in white matter in the parietal lobe, which is involved in mathematics, logic, and visual-spatial skills, can be attributed to genetics. Only about 45 percent of the variation in the temporal lobe, which plays a central role in learning and memory, appears to be inherited. This is the same part of the brain most impacted by an enriched auditory environment early in prenatal brain development. Being armed with this knowledge is empowering to expectant parents all over the world. A well-organized brain has well-functioning myelin, in which water can be seen clearly moving along specific paths. "Diffusion imaging gives a picture of how intact your brain connections are," says Paul Thompson, a neuroscientist at the University of California, Los Angeles, who lead the study.

Fetal Response to outside stimuli

Another important study came from the Department of Obstetrics and Gynecology, Hua Chiew Hospital in Bankok, Thailand. The study focused on the fetal response to outside stimuli and assessed the capacity of the fetus' memory and learning in various senses. Researchers trained 120 pregnant mothers to practice the prenatal activity of auditory enrichment. They used a heartbeat sound, music and rhythmic patting and rocking. The below results provide further reinforcement that giving baby an enriched auditory environment before birth really can make a difference in prenatal brain development:

The clinical data and the evaluation sheet for analysis of fetal response and learning to prenatal activity were assessed in term of always, frequent, sometime, seldom and never response. The outcome of these samples demonstrated that 87.5% of experimental infants can recognize maternal voice and 70% recognize to prenatal music. They calm down significantly when giving a prenatal music, heart beat sound, rhythmic patting and rocking pattern which they ever received during in utero. This suggests that fetus can learn variety of sensory stimuli even before birth and these previous experiences they received in utero during this important prenatal brain development period may influence postnatal learning and perception. Experimental infants have a capacity of turning to voice only at 4.6 days in average while the general population turn to voice at 3.2 month. This means that they have a faster auditory development and learning than general population. In addition, they can be conditioned by kicking back when they were pat in 64.9%. The results confirm our belief that fetus have a capacity of conditional learning during the prenatal brain development stage. The study also showed better performance in relation between mother and child after participated the prenatal activity. These findings suggest that prenatal activity here may be introduced to routine prenatal care and may be an effective way to enhance mother and child attachment, as well as promote infant's intelligent and emotional development.

Dr. Susan Ludington-Hoe states in her book How to Have a Smarter Baby, "Infant stimulation accelerates a baby's mental ability and increases a child's skills in finding ways to stimulate himself."

More Evidence prenatal brain development can be impacted by environment

In a study designed to create an enriched environment for prenates by minimizing environmental stressors and substituting a positive, stimulating milieu, researchers designed a program that would reduce maternal stress with visualization and relaxation exercises, encourage mother-child bonding through prenatal communication and interaction exercises, and pleasantly stimulate prenatal auditory, tactile, visual and vestibular processes. Results from 150 pregnant women in the enrichment program compared to 100 pregnant women in a control group showed that infant head circumference, as an analog of prenatal brain development in the enriched group was significantly larger than that of the control group. Moreover, most dimensions on the Denver assessment scales showed earlier acquisition of gross and fine motor skills, language, and personal-social development by the enriched group compared to sample norms of Bangkok children. Dr. Panthuraamphorn's research in creating positive and stimulating prenatal environments spans a number of studies with colleagues Dawiep Dookchitra and Manit Sanmaneechai who were co-researchers in a 1995 study focusing on auditory stimulation

DHA in Pregnancy: Should you Supplement?

DHA (or docosahexaenoic acid) an omega-3 fatty acid found in fish oil helps build your baby's brain, nervous system, and eyes. "Omega -3s are a specific type of fate that our body needs but cannot make," says Melinda Johnson, RD, a spokesperson for the American Dietic Association. A baby in utero needs to get these fats from its mother for better prenatal brain development. Researchers at the School of Pediatrics and Child Health at the University of Western Australia found that two years after birth, the children whose mothers had received a high dose of fish oil in the 2nd half of pregnancy , one of the important stages in prenatal brain development, had higher scores in tests of their hand-eye coordination. Another interesting study from the University of Oslo in Norway, found four year olds scored better on IQ tests if their mothers took DHA supplements during pregnancy. .

How much DHA do you need?

Your brain is made up of about 60% omega 3 fatty acids found in fish oil. And your baby's brain is about 70% of these acids. But studies show, you're probably deficient in them. In fact, most Westerners don't get enough of these important nutrients. According to the Journal of Perinatal Medicine, pregnant or lactating women need 200 mg of DHA a day. Researchers are still evaluating the best possible sources for DHA. Readily

available sources are salmon, sardines, walnuts, eggs and milk. If you would rather take a DHA supplement many researchers suggest you go for the one derived from algae rather than fish oil. (Then you will be getting your DHA just as the fish do; their source is marine algae.) Look for high levels of DHA. This is the "building block" of your child's prenatal brain development and is found in omega 3 fatty acids. Nevertheless, not all fish oil blends have a high amount of this important nutrient. The bottle will tell you how much DHA is in the product. Remember always consult with your obstetrician before making any changes to your prenatal routine.

Prenatal auditory enrichment and DHA ; a winning combination for prenatal brain development

Prenatal learning and auditory enrichment is as vital to prenatal brain development as a prenatal vitamin is to enriching a baby's physical development. The BabyPlus Prenatal Education system offers developmental benefits that last a lifetime. Moms everywhere are singing the praises of this prenatal system. Celebrity moms like Nicole Richie and Gwen Stefani just to name a few have worn BabyPlus Prenatal Systems during pregnancy. It is universal when a mom finds something that works for her she tells all of her friends. It is the one thing women from every corner of the world have in common; we all want what is best for our children. The BabyPlus Prenatal Education System is the only product of its kind on the market. The system offers parents the opportunity to give their baby a head start while at the same time bonding with baby in a meaningful way.

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A recent survey shows BabyPlus babies reach cognitive and developmental milestones ahead of recorded averages. A survey of more than 350 BabyPlus parents indicates the majority of BabyPlus babies are calm and alert at birth. The survey also shows babies of parents who used the BabyPlus educational system during pregnancy sleep through the night, say their first words and take their first steps earlier than recorded averages for those milestones. In this first formal survey of BabyPlus parents, 84 percent of respondents said their baby was calm at birth and 96 percent said their baby was alert at birth. In reaching their earliest developmental milestones, 68 percent of respondents said their children were sleeping more than six ours in a row by the age of three months compared to a four month average for infants; 48 percent reported their child said their first word by the age of six months compared to an average

age of nine months; and 76 percent said their children took first steps before the age of 12 months compared to the a 12-15 month average. In addition 98 percent of respondents described their baby as having an overall good disposition.