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SNOHOMISH COUNTY CHILD HEALTH NOTES



Promoting early identification and partnerships between families, primary health care providers & the community.

Distributed by: Children with Special Health Care Needs and Snohomish County Early Intervention Program. This newsletter provides physicians, nurse practitioners, primary health care providers, public health centers and community partners with current information regarding identification and management of special health issues for children. This issue was written by Gwen Glew, MD, MPH, reviewed by Kathy TeKolste, MD, developmental pediatricians, and Kate Orville, MPH, UW Center on Human Development and Disability. Contributors include Maria Nardella, Marilyn Gisser and Tory Henderson of the Washington State Department of Health.

Early Brain and Child Development

Parents want to know what they can do to enhance brain development in their children during pregnancy and after birth. This Child Health Note is designed to bring you a sampling of the latest robust findings in brain science as it relates to children from the prenatal period to age 5. Keep the following five principles of brain development in mind as you advise parents. Starting in pregnancy and progressing through infancy, toddlerhood, and childhood, these five suggestions are some of what we now know about how parents can enhance brain development.

1

During PREGNANCY, weight, nutrition, stress, and exercise are things to balance. **WEIGHT:** Babies experiencing a critical lack of nutrition have fewer neurons, fewer and shorter connections between existing neurons, and less insulation all around them in the second trimester. For pregnant women who are underweight or of normal weight, 28-40 pounds weight gain is expected to optimize brain development. **NUTRITION:** Omega-3 fatty acids can fortify cell membranes of neurons and enhance neuronal function. **STRESS:** Keep stress under control during pregnancy. Moderate stress in small amounts appears to be good for infants while continuous, high levels of stress are suspected to alter brain development. Excess cortisol (stress hormone) from mom can make it hard for a baby to turn off his or her own stress hormones. **EXERCISE:** The American College of Obstetricians generally recommends 30 minutes or more of moderate, daily exercise for healthy women. Aerobic exercise, keeping heart rate below 70% of maximum (220 beats per minute minus one's age) and slowing things down toward the end of pregnancy is advised. Physical fitness in late pregnancy leads to a less painful, safer, and easier labor.

2

During INFANCY, parents can maximize their child's brain power in many wonderful ways. Breastfeeding and ample verbal interaction are like brain fertilizers, statistically shown to boost intellect. Breastfeeding enhances neuronal development and the immune system. Talking to a child frequently enhances verbal development. Young children naturally reach out for interaction through babbling, facial expressions, and gestures. Adults respond with the same kind of vocalizing and gesturing. In the absence of such response, or if the responses are unreliable or inappropriate, the brain's architecture can be negatively affected. Subsequently, learning and behavior can be adversely affected as well.

3

During the TODDLER years and beyond, it is important to maintain an environment that is without chronic stress. Occasional stresses can be educational, but research has shown that frequent emotional stress has huge, detrimental impact across society on children's ability to learn in school and on employees' productivity at work. Some stress can be helpful in life because it teaches children how to deal with adversity, but children living in primarily hostile environments are at greater risk for certain psychiatric disorders, such as depression and anxiety disorders. Such disorders can adversely impact cognitive processes important to successful academic performance. Marital stress at home can negatively affect academic performance in almost every way. One of the greatest predictors of performance in school turns out to be the emotional stability of the home. Primary care providers should be on the lookout for chronic stress and refer for marital and individual counseling as needed. In-home behavioral counseling can be helpful where available in helping parents manage problematic childhood behaviors.

