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## **Prenatal vitamins may reduce risk of brain tumors in children**

Women who take multivitamins early in pregnancy may reduce the risk that their child will develop some types of brain tumors.

Public health agencies already urge pregnant women to take multivitamins that contain folic acid early in pregnancy to reduce their fetus's risk of developing a neural tube defect such as spina bifida. "This current study suggests another possible protective effect for the vitamins," said study leader Greta R. Bunin, Ph.D., of The Children's Hospital of Philadelphia. She added, "Children whose mothers took multivitamins close to the time of conception seemed less likely to suffer medulloblastoma and primitive neuroectodermal tumors of the brain."

While childhood brain tumors are, fortunately, relatively rare, medulloblastoma is the second most common brain tumor in children. Occurring in one in 20,000 children under age six, it appears in the cerebellum, the lower portion of the brain, and the area of the brain that coordinates movement. Primitive neuroectodermal tumors of the brain (PNET) are similar to medulloblastoma but occur in other parts of the central nervous system.

Dr. Bunin led a study comparing 315 children diagnosed with those tumors before age six to 315 randomly chosen healthy children. The children with cancer, all of whom were diagnosed between 1991 and 1997, were registered in the Children's Oncology Group, a multicenter collaborative organization of pediatric cancer programs in the U.S. and Canada.

The researchers questioned the mothers in a telephone survey. The study appears in the September issue of *Cancer Epidemiology Biomarkers and Prevention*.

The protective effect of the multivitamins taken early in pregnancy was weakly significant, but because it was similar to previous, more statistically significant findings by Dr. Bunin's team in 1993, the authors conclude the apparent benefit is unlikely to have occurred by chance.

The researchers found that taking multivitamins later in pregnancy did not significantly reduce the child's risk of medulloblastoma and PNET. "Our findings suggest that the time close to conception may be a critical period in the development of these tumors," said Dr. Bunin. "However, most women do not yet know they are pregnant at this very early stage. That is why women of reproductive age are advised to take multivitamins to prevent neural tube defects even if they are not trying to get pregnant."

In terms of a possible risk factor, the researchers also questioned mothers about how frequently they ate cured meats, such as ham, hot dogs, lunch meat, sausages and smoked fish. Although those foods contain compounds shown to cause nervous system tumors in animals, Dr. Bunin's team found no increased risk of brain tumors in children whose mothers frequently ate those meats while pregnant.

"Taking multivitamins in the first few weeks of pregnancy definitely helps prevent neural tube defects," concluded Dr. Bunin. "While more research remains to be done, our findings suggest that multivitamins may prevent some brain tumors as well."

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research. Dr. Bunin's co-authors were Paul R. Gallagher, Lucy B. Rorke-Adams, M.D., and Avital Cnaan, Ph.D., all of The Children's Hospital of Philadelphia, as well as Leslie R. Robison, Ph.D., of St. Jude's Children's Research Hospital, Memphis, Tenn. Drs. Bunin and Cnaan also are faculty members of the University of Pennsylvania School of Medicine.

About The Children's Hospital of Philadelphia: The Children's Hospital of Philadelphia was founded in 1855 as the nation's first pediatric hospital. Through its long-standing commitment to providing exceptional patient care, training new generations of pediatric healthcare professionals and pioneering major research initiatives, Children's Hospital has fostered many discoveries that have benefited children worldwide. Its pediatric research program is among the largest in the country, ranking third in National Institutes of Health funding. In addition, its unique family-centered care and public service programs have brought the 430-bed hospital recognition as a leading advocate for children and adolescents. For more information, visit <http://www.chop.edu>.

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