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Our October 2024 Newsletter for Healthy Living

Healthy For Life

Eating a healthy diet early in life can set the stage for a lifetime of optimal brain function. A study involving 3,059 people, spanning more than seven decades, revealed that eating a high-quality diet as a child and even into middle age leads to better cognitive function later in life, including potentially warding off dementia.

The study, presented at NUTRITION 2024, the American Society for Nutrition's annual meeting, began tracking participants at the young age of 4 and continued until they reached 70. This comprehensive lifespan perspective allowed researchers to identify potential links between diet and cognitive ability that may begin much earlier in life than previously thought — and reinforces the importance of eating nutritious foods right from the start.

Study participants were members of the 1946 British Birth Cohort, which has provided a wealth of information through questionnaires and tests over more than 75 years, offering researchers a unique opportunity to analyze dietary intakes at five distinct timepoints, comparing them to cognitive ability at seven differing points in time. One of the most striking findings of the study was the close link between dietary quality and general, or "global," cognitive ability.

The researchers observed that only about 8% of individuals with low-quality diets managed to sustain high cognitive ability over time. Meanwhile, among those with high-quality diets,

only 7% had sustained low cognitive ability compared to their peers. "These initial findings generally support current public health guidance that it is important to establish healthy dietary patterns early in life in order to support and maintain health throughout life," study author Kelly Cara, Ph.D., said in a news release.

The implications of cognitive ability on quality of life and independ-

tive effects of diet over time are linked with the progression of our global cognitive abilities," Cara said. In other words, cognitive health is not solely determined by factors in later life but is influenced by dietary choices made throughout the lifespan. This perspective shifts the focus of cognitive health interventions from later life to a whole-life approach, emphasizing the importance of establishing healthy dietary habits from child-

“...the cumulative effects of diet over time are linked with the progression of our global cognitive abilities.”

ence in later years are significant. At ages 68 to 70, people with the highest cognitive abilities higher had much better retention of working memory, processing speed and general cognitive performance compared to those in the lowest cognitive group. Further, close to one-quarter of those in the lowest cognitive group had signs of dementia, compared to none of those in the highest cognitive group.

As for which foods were healthiest, those who maintained the highest cognitive abilities over time consumed more whole or less processed plant foods, including whole fruits, beans, whole grains and leafy green vegetables, and less highly processed foods with added sugars and refined grains. Even slight dietary differences in early life seemed to influence dietary preferences later in life, underscoring the importance of establishing healthy eating habits from a young age.

“This suggests that early life dietary intakes may influence our dietary decisions later in life, and the cumula-

tion and maintaining them throughout adulthood. However, there's hope for those who may not have had the healthiest diets in their youth. "Our findings also provide new evidence suggesting that improvements to dietary patterns up to midlife may influence cognitive performance and help mitigate, or lessen, cognitive decline in later years," Cara added.

Complex carbohydrates have traditionally been viewed as beneficial for gut health, while simple sugars are associated with accelerated aging. The featured study also found that foods like whole fruits, beans, whole grains and leafy green vegetables are best for protecting cognitive function as you age. However, the impact of complex carbs on gut health and overall health isn't straightforward, particularly if your digestive system is already compromised. Research indicates that complex carbohydrates, including plant cell wall polysaccharides like cellulose, nourish beneficial gut bacteria, especially in the large intestine. These fibers are fermented by gut microbiota,

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PFAS and Pregnancy

Polyfluoroalkyl or perfluoroalkyl chemicals, collectively known as PFAS or "forever chemicals," are so widespread in our environment, food and drinking water, that it's no longer surprising that 98% of Americans today have detectable levels of these chemicals in their blood. However, did you know that exposure starts very early in life — even before a child is born? A recent

and PFOA, which necessitates further attention," the study authors conclude.

Moreover, PFAS can bind to transport proteins, which explains how they can transfer and spread more easily in the body. In an article in Medical Xpress, Yaqi Xu, study lead author, comments: *"Our findings are crucial for developing strategies to protect infants from the potentially harmful effects of*

PFAS in newborns. Led by researchers from Emory University, the study looked at blood samples from 267 newborns between 2016 and 2020 and discovered that infants who had been exposed to large amounts of PFAS had a higher risk of being born early.

According to a news article from Emory University: *"For the first time, the study found that measurable levels of PFAS chemicals were present in blood samples from newborns shortly after birth. Because PFAS are human-made chemicals, this means the babies were exposed to PFAS while they were still in utero."* The researchers also analyzed the biological signals from the newborns' blood upon birth and highlighted that PFAS can obstruct the balance of certain processes in the newborns' body, including hormone function and tissue growth. This puts them at high risk of early or preterm birth, which is now among the top five causes of infant mortality, according to the U.S. Centers for Disease Control and Prevention (CDC).

Donghai Liang, Ph.D., assistant professor in the Gangarosa Department of Environmental Health at Emory University's Rollins School of Public Health and senior author of the study, commented: *"When babies are born, we would all like to think of them as a blank slate, not yet impacted by any of the negative and scary things in the world. But in this*

study, we found that the babies were already exposed to 'forever chemicals' before they were born."

PFAS have been used in consumer products since the 1950s, and while two of the specific chemicals noted in the Shanghai study — PFOAs and



PFOS — have been phased out in the United States, many countries still use and manufacture them. Still, there's no shortage of other PFAS in the U.S. According to the U.S. Environmental Protection Agency's (EPA) CompTox Chemicals Dashboard, there are now nearly 15,000 types of PFAS in existence. These manmade chemicals are used for a variety of applications due to their ability to repel and resist water, grease and oil. Non stick cookware,

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"PFAS were detectable in most of the serum and colostrum samples in mother-child pairs.?"

study sheds light on how mothers can pass PFAS onto their unborn children, further attesting just how pervasive these chemicals are.

Conducted in May 2024 at the School of Public Health at Fudan University in Shanghai, China, the research team investigated the presence of PFAS during pregnancy and lactation, particularly these chemicals' transfer mechanisms from a mother to her unborn child. Their research provides valuable insights into the pervasiveness of PFAS before, during and after childbirth. Published in the journal *Eco-Environment and Health*, the study analyzed 16 types of PFAS and their concentrations in the blood and breastmilk of mothers, as well as the umbilical cord blood of infants.

Samples were taken from 1,076 mother-child pairs and tested using liquid chromatography-tandem mass spectrometry to determine their levels of forever chemicals. The researchers found that the transfer efficiency of PFAS from the mothers' bloodstream to the placenta was higher, meaning these chemicals were more easily transferred to the fetus through the placenta during pregnancy, as compared to breastfeeding. This proves that even before child-

birth, PFAS can already accumulate in an unborn child.

"PFAS were detectable in most of the serum and colostrum samples in mother-child pairs, with

the highest level of PFOS [perfluorooctane sulfonate] in maternal serum and the highest level of PFOA [perfluorooctanoic acid] detected in cord serum and breast milk. The placental and breastfeeding transfer efficiencies of PFAS are influenced by carbon chain length. Infants can be exposed to PFAS through breastfeeding, particularly increasing the health risks of PFOS

PFAS exposure. Understanding the pathways and risks associated with these chemicals can lead to better regulatory policies and protective measures for the most susceptible among us."

The researchers also assessed the potential health risk of consuming PFAS from breastmilk. They looked at the estimated daily intakes (EDIs) of PFAS among breastfeeding babies from different age groups, and then used the hazard quotient (HQ) to determine their risk. They found that "the EDIs of PFAS in breastfeeding infants surpass those reported for adult dietary intake by over one order of magnitude, underscoring breastfeeding as a significant exposure route for infants."

To put it simply, if you compare the amount of PFAS an infant is getting from breastmilk to what a typical adult is getting from their food, the infant is getting 10 times more. *"The highest EDIs were identified in infants aged less than one month old. This implies a potential heightened susceptibility to adverse health outcomes linked to PFAS exposure within this specific age range,"* the authors report.

Breastmilk is your baby's first food and is the most nutritious food they could receive during their first years. Breastfeeding also offers myriad health benefits to both mother and child. But along with breastmilk's many nutrients, you could be passing on forever chemicals too, thanks to the growing toxic burden in our modern world.

While the featured study provides more insight into how PFAS can be transferred from a mother to her child, it isn't the first to look at how these toxic chemicals can impact pregnancy and fetal development. A 2023 study published in *Nature Communications* claimed to be the first to detect



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chemical cleaners, food packaging, water-repellent clothing and personal care items such as cosmetics are just some examples of products that use PFAS.

The chemicals can leach out from these products during the manufacturing process and while they're being

lower risk of becoming overweight or obese, as well as a lower risk of Type 2 diabetes, high blood pressure and heart disease.

According to a 2023 study published in the BMC Public Health: "[E]xclusive breastfeeding for at least 90

"[E]xclusive breastfeeding for at least 90 days is associated with protection against childhood morbidity."

used, migrating into the soil, water and air, harming the environment and wildlife. According to the website PFAS Free: "We can't see molecules of PFAS spreading throughout our environment, but they are there. We don't see them wrapping themselves around marine life and we don't see them spilling out of the stomachs of sea birds, but PFAS are there and they are causing harm."

PFAS are also absorbed by your body, and because they do not break down (hence the moniker "forever"), they can build up inside you with repeat exposure. And so far, there's no known good way to eliminate PFAS from the body — you only get rid of them by passing them on to another person.



From a nutritional science point of view, there's simply no dispute that breast milk is the optimal food for newborns and young infants. For one, breastfeeding has been associ-

ated with a lower risk of being overweight and obese. Exclusively breastfeeding also prevents the early introduction of foods that may trigger weight gain, and establishes a healthy gut microbiome, which is key for lifelong health. Adults who were breastfed during infancy were found to have a 26%

days is associated with protection against childhood morbidity and is also significantly associated with reduced health resource use in the form of hospital admission and reduced length of hospital stay." In an article published by The Hill, Linda Birnbaum, former head of the National Institute of Environmental Health Sciences and the National Toxicology Program, acknowledges the concern regarding PFAS in breastmilk, but believes that in this scenario, the benefits outweigh the risks. "I'm always stressing to people 'breast is best,' even if there's contamination," she said.

Despite the risk of passing on PFAS in breastmilk, it is the ultimate health food that will provide natural lifelong immunity and other significant health benefits to your child. Instead, the best thing to do is to significantly reduce your exposure to these synthetic chemicals to lower your toxic burden and reduce the PFAS in your breastmilk.

Make it a point to only buy food from a source you know and trust, one using safe, nontoxic organic or biodynamic farming methods. Eating mostly fresh, whole foods will also help you cut down on exposure to these chemicals in food packaging. Since PFAS have no taste or smell, you can't detect it in consumer goods. Filtering your drinking water using a high-quality carbon filtration system is important to avoid this common route of exposure. To ensure

you're getting the purest water you can, filter the water both at the point of entry and at the point of use.

Below are several items you need to avoid to lower your PFAS exposure. You can find additional helpful tips in the Environmental Working Group's (EWG) "Guide to Avoiding PFAS". When you take steps to lower your exposure to forever chemicals, you are also voting with your pocketbook and mak-

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Porterhouse & T-Bone Steaks only \$19.99/lb

ing it clear that you don't want the following products that can harm your family in your home: Items that have been pre-treated with stain repellents; Water- and/or stain-repellent clothing; Items treated with flame retardant chemicals; Fast food and carry-out foods; Microwave popcorn; Nonstick cookware, and any personal care products containing PTFE or "fluoro" or "perfluoro"

Reference: Harvard T.H. Chan, "Understanding the risks of forever chemicals". *Eco-Environment and Health*, May 2024. *Medical Xpress*, June 24, 2024. Emory News Center, Sept 14, 2023. U.S. CDC, *Infant Mortality*. U.S. EPA CompTox Chemicals Dashboard v2 4.1. PFAS Free, *What are PFAS? BMC Pediatrics*, 2022; 22347). Global Breastfeeding Collective, *Breastfeeding Advocacy Brief*. *BMC Public Health*, 2023; 23(10). *The Hill*, April 9, 2024. EWG's Guide to Avoiding PFAS Chemicals.

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promoting a healthy microbial balance.

This aligns with the childhood diet study, which found that early consumption of fruits, vegetables, and whole grains — all sources of complex carbohydrates — correlated with better cognitive function in later years. It underscores the truth in the adage "you are what you eat," emphasizing the profound and lasting impact of dietary choices on overall health and cognitive function throughout life.

The state of your health is not solely determined by your own lifestyle choices, but is also influenced by the

dietary habits of your ancestors. This complex relationship is explained by the field of epigenetics, which studies how gene expression can be modified without altering the underlying DNA sequence. These modifications can be inherited by future generations.



Within this field, nutritional epigenetics focuses on how the eating patterns of one generation can impact the health of their descendants. A prime example of this is the effect a mother's diet during pregnancy can have on her unborn child. The nutri-

tional choices she makes can leave epigenetic marks on her fetus, potentially influencing not only the immediate health of her child but also that of subsequent generations. This understanding highlights the far-reaching consequences of our dietary choices, extending beyond our own lifespan and potentially shaping the health trajectories of our children and grandchildren. It underscores the importance of nutrition not just for individual well-being, but as a factor in the long-term health of family lineages.

Reference: *EurekAlert!*, July 1, 2024. *Nutrients*, 2022 September; 14 (18):3809 Gut and Carbohydrates.