

Cow's milk not linked to early diabetes

New parents from diabetes-prone families take note: A study has found that feeding cow's milk to your infant may not raise his or her risk of diabetes after all.

The new study casts doubt on a flurry of recent reports indicating that cow's milk increases a child's chances of suffering from diabetes later in life—but only when fed to infants less than 3 months old who have a family history of the disease.

Jill M. Norris of the University of Colorado School of Medicine in Denver and her colleagues say they were surprised to find that their findings contradicted those of earlier studies. Their report appears in the Aug. 28 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

Norris and her team approached the problem in a novel way. Rather than studying children diagnosed with diabetes, they tested 253 asymptomatic children for beta-cell autoimmunity, an early predictor of the disease. The children, age 9 months to 7 years, came from 171 diabetes-prone families. By selecting one child from each family years before the disease was likely to emerge, the researchers hoped to obtain fresher recollections of infant feedings.

Beta-cell autoimmunity results when a person's normally protective immune system goes awry, unleashing renegade antibodies that attack insulin-producing beta cells in the pancreas. Over the years, this onslaught destroys beta cells. Without insulin, the body can no longer supply glucose to energy-starved cells, so diabetics become dependent on daily injections of insulin for survival.

The researchers detected beta-cell autoimmunity in 18 of the children they tested. They then queried the children's parents about what they had fed the infants from birth to age 6 months. Their responses were compared to those of parents of the remaining 153 children, who did not have the autoimmune disorder.

The two groups of children did not differ significantly in their early feedings, the study found. This suggests that cow's milk "is not associated with beta-cell autoimmunity," the researchers say, adding that the result "calls into question the importance of cow's milk avoidance as a preventive measure for insulin-dependent diabetes mellitus."

Their assertion runs counter to a recommendation put forth 2 years ago by a working group of the American Academy of Pediatrics. The pediatricians were prompted to act by a study showing that a group of Finnish children with newly diagnosed diabetes all had antibodies to a protein found in cow's milk. No such antibodies were found in nondiabetic children.

That study, however, did not establish that early exposure to cow's milk causes diabetes in infants thought to be susceptible to the disease, say Desmond A. Schatz and Noel K. Maclaren of the University of Florida College of Medicine in Gainesville in a commentary accompanying the new report. Contrary to the academy's view, they argue, the evidence is "insufficient" to "recommend changes in infant feeding practices."

Indeed, Schatz and Maclaren note, alternative diets that lack cow's milk have led to a growing number of malnourished children, a trend that last year prompted Danish pediatricians to warn

mothers against withholding milk from their babies.

Only by determining what triggers childhood diabetes and how this process works can doctors offer parents sound advice, Schatz and Maclaren say. Answering this question also offers incalculable public health benefits and cost savings, they add.

Insulin-dependent diabetes afflicts an estimated 1 of every 300 people worldwide. The disease typically erodes blood vessels, retinas, and kidneys, causing disability and even death. Moreover, since people with diabetes run up an estimated \$100 billion in medical bills annually, eliminating sources of risk would save money as well as lives.

—S. Sternberg

Infants tune up to music's core qualities

Babies may not know the difference between Beethoven and Boys II Men, but don't underestimate their musical judgment. Infants perceive pairs of musical tones just as adults do, finding certain acoustic duos pleasant and others jarring, a new study finds.

People may possess innate brain mechanisms that consistently endow specific combinations of musical tones with either a dulcet or a distasteful sound, assert psychologists Marcel R. Zentner of the University of Geneva and Jerome A. Kagan of Harvard University.

Certain pairs of musical tones differ in frequency, or number of sound waves per second, in such a way as to prove likable, or consonant, to adult ears when played together. Disparities between the frequencies of other pairs of tones are perceived as harsh, or dissonant.

At 4 months of age, babies mirror the musical tastes of their elders by showing a clear fondness for consonant sounds and an abiding dislike for dissonant sounds, according to Zentner and Kagan's study.

"The human infant may possess a biological preparedness that makes consonance perceptually more attractive than dissonance," the researchers contend in the Sept. 5 *NATURE*.

Research conducted in the past several years by other scientists indicates that the ability to discriminate consonant from dissonant pairs of tones emerges by age 6 months.

"But this appears to be the first evidence suggesting that infants actually prefer consonance to dissonance," holds psychologist Laurel J. Trainor of McMaster University in Hamilton, Ontario.

Zentner and Kagan studied 32 babies, all 4 months old, selected from white, middle-class families. During testing, each infant reclined in a flexible seat placed on a table and listened to music originating from a nearby speaker emblazoned with an eye-catching bull's-eye pattern.

Infants heard 35-second segments adapted from two European folk songs, neither of which they had heard at home. Each segment consisted of pairs of notes played simultaneously by a music synthesizer.

The researchers produced a consonant and a dissonant rendition of each tune. The versions were identical in tempo, rhythm, and all other respects except the frequency differences between the pairs of tones.

Infants looked substantially longer at the bull's-eye pattern on the speaker, made fewer movements, and exhibited less fussiness while hearing the consonant melodies than when listening to the dissonant versions of the same tunes, Zentner and Kagan contend. This suggests that the babies preferred consonant melodies and experienced physiological arousal during the dissonant counterparts.

Moreover, eight infants turned away from the speaker or emitted sounds of distress, such as whining, only during the dissonant versions. None of the infants reacted in these ways only to consonant renditions.

"These new findings are interesting, but they build on previous work pointing to an innate basis for musical perception," says psychologist Carol L. Krumhansl of Cornell University.

For instance, Krumhansl and Peter W. Jusczyk of the State University of New York at Buffalo have found that by the age of 4 1/2 months, babies listen longer to Mozart minuets that have short pauses inserted between phrases, which musicians treat as "natural" segments of the musical flow, than to the same minuets with pauses placed in the middle of phrases.

Other investigations indicate that 6-month-old infants prefer listening to musical scales sampled from a variety of cultures rather than to scales composed of randomly chosen notes (*SN*: 7/21/90, p. 46).

—B. Bower