

## Toxic 'fats' in preemie supplement

As neonatologists have helped ever tinier babies survive, they have unwittingly fostered certain epidemics: notably, retinopathy of prematurity (a blinding eye disorder) and bronchopulmonary dysplasia (an emphysema-like scarring of preemies' lungs). Because oxygen-spawned reactions can initiate both, physicians no longer bathe premature babies in oxygen.

So why haven't these disorders all but disappeared?

The answer, a team of researchers now suggests, may lie in the high-calorie emulsions that pediatricians prescribe to spur the tiny babies' growth. These supplements harbor potentially toxic levels of oxidized lipids (fats) and their breakdown products, Harold J. Helbock and his colleagues at the University of California, Berkeley, report in the January PEDIATRICS.

The scientists chemically analyzed one of the most widely prescribed lipid emulsions used to fortify premature infants. Its vegetable-oil-derived unsaturated fatty acids are highly susceptible to oxidation, a class of harmful, often oxygen-mediated reactions. Once inside the body, the resulting peroxides and their breakdown products may propagate further peroxidation — eventually damaging biologically important lipids even in distant organs, such as the eyes or lungs.

While others had observed signs of possible lipid peroxidation in this supplement, Helbock says his team was the first to directly measure their minute levels. The 15 samples they tested, representing three production batches, contained an average of 290 micromoles of peroxides per liter of supplement — or more than 10,000 times the normal peroxide concentrations in blood. "We know of no data to suggest that intravenous administration of lipid peroxides in the concentrations found in our study is safe or beneficial," Helbock's team writes. "Quite

to the contrary, we speculate that [they] produce toxicity."

The good news? Helbock says the emulsion's manufacturer is hard at work to reduce the previously unknown contamination.

## Warning about those very-low-cal diets

Many obese patients have elected to slim down using physician-supervised, commercial, semi-starvation diet plans — programs offering participants just 400 to 600 calories daily for a period of months. The very-low-cal meals' relatively high protein content helps a dieter's body shed fat rather than muscle. But because many adverse side effects — including at least 67 deaths — have been reported among participants in such programs, a Canadian team of researchers decided to analyze meticulously the nutrients available in prepackaged meals offered through four of these diet plans.

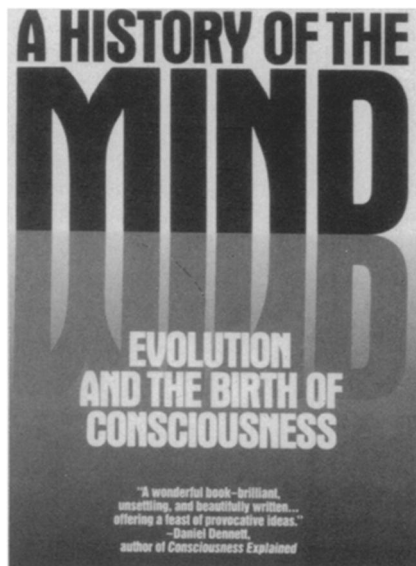
Constantinos G. Zarkadas of Royal Victoria Hospital in Montreal and his colleagues now report that diets based on some of the five meals they analyzed could indeed prove "life-threatening" without strict medical supervision. The problem, they say, traces to the source and digestibility of a meal's protein — milk in one mix, soybeans in another, and collagen (connective tissue) in the remaining three.

Only analyzed meal mixes using a milk- or soybean-based protein contained all the essential amino acids required for human nutrition, they report in the recently issued November JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY. Overall, essential amino acid values of those mixes exceeded by about 37 percent the minimum recommended by the World Health Organization; the collagen-based meals, by contrast, fell 16 to 29 percent below that minimum.

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