

ASK AHSC

ANSWERS TO HEALTH QUESTIONS

From The University of Arizona Health Sciences Center (AHSC) in Tucson

Q My kids got a pet hamster as a gift but someone told me not to handle it if I get pregnant because I can get a disease from it that can harm the baby. Is this true?

A Pregnant women should be cautious about contact with pet hamsters, or wild or laboratory mice as well.

When pregnant women come in contact with rodents carrying a disease called Lymphocytic Choriomeningitis Virus (LCMV), it can damage the developing fetus.

When a healthy adult or pregnant woman contracts LCMV, it may be completely without symptoms or it may manifest as a mild flu. The real risk with this infection is in the transmission to the unborn baby.

More than 49 infants worldwide have been diagnosed with LCMV, including three cases of congenital LCMV in Arizona.

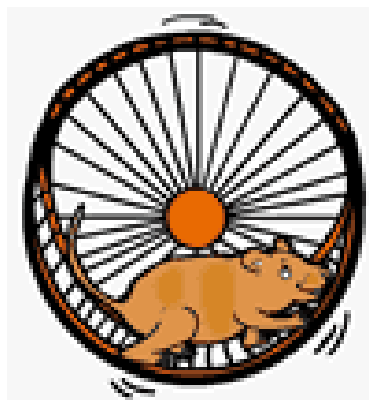
In one instance, twin girls from Cochise County were born to a mother who unknowingly contracted LCMV during pregnancy. One girl has vision problems; the other is severely developmentally delayed and has seizures.

These are isolated cases and certainly not every mouse or hamster carries this virus. But pregnant women deserve to have this information to avoid unneces-

sary risks during pregnancy.

More than 90 percent of the babies who have been identified as contracting LCMV in utero had adverse outcomes, with vision problems being the most common. More than 80 percent had neurological problems such as cerebral palsy, mental retardation and seizures, as well as decreased visual acuity.

Mice and hamsters are the primary sources of LCMV



infections. Humans acquire this virus by direct contact with infected rodents or by inhaling the virus once it has been aerosolized.

LCMV is not a new disease. It was first identified in 1933 in a woman who was thought to have a form of encephalitis. In 1955, it was first recognized in the U.K. as a virus that could cause congenital disease. A mother with symptomatic LCMV infection delivered a baby who developed the disease a week later and died

shortly thereafter. During the ensuing years, individual cases of congenital LCMV infection have been identified in Germany, France, Lithuania and the U.S.

We really don't know with certainty how many infants have been affected by LCMV while in utero because we don't routinely look at LCMV as a possible cause of congenital blindness or retardation.

The public and the medical profession should be made aware of the hazard that wild, pet and laboratory rodents pose to pregnant women. The message to pregnant women is similar to the warning they receive about toxoplasmosis -- the parasite that can be present in cat litter and undercooked meat -- which causes ocular and neurologic problems in the infected newborn.

We don't advise pregnant women to get rid of their pet cat to prevent congenital toxoplasmosis. They just should find someone else to change the cat litter during their pregnancy.

Some simple precautions can probably protect pregnant women from contracting LCMV. If you have a pet hamster, have someone else take care of it while you are pregnant. If you are cleaning up after wild mice, wear gloves and spray the area with water to avoid the possibility of aerosolizing the virus. If you work with mice in a laboratory setting, the mice should be tested for LCMV.

If you are pregnant and have concerns about possible exposure to LCMV, call the Pregnancy Risk Line, 1-888-285-3410 (or 626-3410 in Tucson).

—Leslie Barton, MD, professor, UA Department of Pediatrics, UA College of Medicine, Tucson

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ASK AHSC

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Q I quit smoking for the New Year but my spouse didn't. Can taking antioxidants like vitamin E help reduce the damage to my health from his smoke?

A Your concern about your spouse's cigarette smoke affecting your health is valid. Studies have shown that sidestream — or direct — cigarette smoke is considered more toxic than second-hand smoke that already has been inhaled and exhaled.

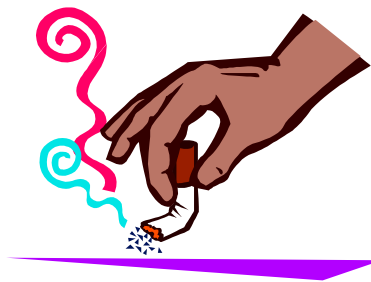
Dietary antioxidants have long been promoted as a defense against many diseases, including cancer, cardiovascular disease and diseases of the immune system. But as the old saying goes, "an ounce of prevention is worth a pound of cure." Reducing exposure to cigarette smoke is much more protective than taking some vitamins. You might start by asking your spouse not to smoke in the house.

If that doesn't work, taking antioxidants may help lessen the harmful effects of sidestream cigarette smoke. A recent study at the UA College of Public Health for the first time explored cellular responses to sidestream cigarette smoke and whether antioxidants lessen negative effects.

Cigarette smoke is among the greatest external sources of "free radicals" (agents of tissue damage that are highly reactive and usually short-lived molecular fragments with unpaired elec-

trons). It does much of its damage internally via free radicals that cause the body to produce reactive oxygen species (oxygen-containing radicals responsible for bacterial killing as well as for incidental damage to surrounding tissue).

Reactive oxygen species can overwhelm the cell's antioxidant defenses and increase damage inside cells, leading to the formation of lipid peroxide by the liver, which can cause a variety of toxic effects in the body. The



species also can start the cellular chain reaction that leads to inflammation and causes an immune response by the spleen, which produces interleukin-6, a protein closely linked to cardiovascular disease.

Based on earlier studies, we hoped to find that multiple antioxidants, rather than a single one, may help prevent the damaging oxidation and inflammation caused by sidestream smoke. The study looked at 11 antioxidants: beta carotene (which the body converts to vitamin A),

bioflavonoids, coenzyme Q10, d-alpha tocopherol, L-ascorbic acid (vitamin C), L-carnitine (sometimes referred to as Vitamin Bt or Vitamin B7), magnesium, N-acetylcystein, retinol, selenium and zinc.

Our research found that exposure to sidestream smoke from a burning cigarette for 30 minutes a day, five days a week, for four months increased harmful oxidation in mice, promoted the production of interleukin-6, and depleted vitamin E, itself a powerful antioxidant.

The study showed that multiple antioxidants given as dietary supplements turned these effects around and prevented these changes. Antioxidant supplements significantly lowered production of interleukin-6 and lipid peroxide production, and significantly raised vitamin E levels.

Hopefully multiple antioxidants may similarly benefit humans.

For many public health reasons, eating fruits and vegetables are great ways to increase antioxidants while reducing the risks of cancers and heart disease due to smoking. If one doesn't eat five servings per day, then antioxidants as supplements would be valuable.

—**Ronald R. Watson, PhD,**
professor, UA College of
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