Nuking it Out

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Often called the energy factories inside cells, mitochondria may suffer damage from nucleoside analogs, new research by a Dutch investigator suggests. According to Kees Brinkman, MD, PhD, this may explain many of the nukes' side effects--neuropahty, myopathy (muscle damage), pancreatitis, lowered blood counts and lactic acidosis, a dangerous buildup of lactic acid in the blood. As if that's not enough, Brinkman theorizes that mitochondrial toxicity could also play a key role in lipodysotrophy, which has recently been linked to nuke usage (see *POZ*, Big Science, August 1999). Test-tube studies showed that the level of toxicity is, in descending order, ddC, d4T, and then AZT and ddl in a tie. Adrefovir, a nucleotide analog, also damaged the mitochondria. Only 3TC appearde to leave them unscathed.

Brinkman plans to study the possibility of preventing or reversing nuke side side effects, including lipodystrpohy, with nutrients that have been shown to sometimes help reserve hereditary mitochondria dysfunction: L-cartine, the amino acid shown in earrlier research to treat AZT-induced myopathy, riboflavin (a B vitamin), coenzyme Q-10 (an accessory nutrient) and possibly vitamin E and other antioxidants.