

Plastic linked to heart disease and diabetes

THE dispute over the dangers posed by bisphenol A (BPA), a chemical found in common plastics, has taken a new turn. Two US government bodies have previously issued conflicting advice about its safety, but now an epidemiological study suggests it raises the risk of heart disease and type 2 diabetes.

More than 2 million tonnes BPA are produced worldwide every year. The chemical is found in the plastic lining of food and drink cans and in plastic baby-milk bottles. More than 93 per cent of Americans have traces of it in their urine.

Previous investigations into the possible dangers of BPA were carried out in animals, which metabolise the chemical more slowly than humans, so the implications for people were unclear. Now David Melzer at the Peninsula Medical School in Exeter, UK, and colleagues have analysed data from 1455 American adults who took part in the US National Health and Nutrition Examination Survey in 2003 and 2004.

Overall, 79 volunteers had heart disease and 136 had type 2 diabetes – and both diseases were more common among those with high BPA concentrations. After adjusting for age and sex, the quarter of subjects with the highest concentration of BPA were almost three times as likely to have cardiovascular disease and more than twice as likely to have diabetes as those in the lowest quartile (*Journal of the American Medical Association*, vol 300, p 1303).

Tamara Galloway, a researcher on the study, points out that urine samples give an indication of exposure only in the week before the sample was taken, rather than prior to contracting disease or over a lifetime: "This is just a snapshot."

Nonetheless Nira Ben-Jonathan of the University of Cincinnati in Ohio says the findings complement her own research. She found that BPA, when applied to human fat tissue at levels found in the environment,

suppresses adiponectin, a hormone that regulates insulin sensitivity. This could explain how BPA might predispose someone to diabetes. Csaba Leranth of Yale University, who led the first study of BPA in primates, finds the results "very convincing".

Will the new research inform policy? On 16 September, the US Food and Drug Administration held a public hearing into the safety of the chemical at which the new study was

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presented. As *New Scientist* went to press, the FDA's conclusions were not known. But last month, it said in a draft report that current exposure levels posed no danger. Then, just a few weeks later, the US National Toxicology Program (NTP), a government-funded body charged with evaluating chemicals that may pose a health risk, concluded in its final report that current levels were cause for concern.

When making its decision, the FDA chose not to take into account several studies that the NTP used, apparently because of restrictions imposed by the FDA's procedural guidelines. Anila Jacob at the non-profit Environmental Working Group in Washington DC says that this difference explains the discrepancy between the two bodies.

John Bucher of the NTP says that animals are affected by BPA when exposed to comparable levels to those found in humans. The new study confirms that animal studies are relevant to humans, according to Sarah Vogel at the Chemical Heritage Foundation in Philadelphia, Pennsylvania. "We can rely on these animal models," she says. "We shouldn't be waiting decades for unequivocal epidemiological studies before we act." Alison Motluk