

BPA and testosterone levels: First evidence for small changes in men

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An international group of researchers led by the Peninsula Medical School and the University of Exeter have for the first time identified changes in sex hormones associated with BPA exposure in men, in a large population study. The study results are published in the latest issue of *Environmental Health Perspectives*.

Researchers analysed data from the InCHIANTI study, an Italian population sample. The team measured the amount of BPA excreted per day in urine samples. 715 adults aged between 20 and 74 years were studied. The study aimed to measure the daily BPA loads excreted by adults, and to examine statistical associations between the amount of BPA exposure and serum [oestrogen](#) and [testosterone](#) concentrations.

The average BPA daily exposure level in this European study population (over 5 micrograms per day) was slightly higher than recent comparable estimates for the USA population. The study found that higher BPA exposure was statistically associated with endocrine changes in men, specifically small increases in levels of testosterone in the blood.

BPA has a similar molecular structure to oestrogen and does cause some disruption of sex hormone signalling in laboratory animals, but this is the first large human study to suggest that it may have similar effects in adults at 'background' exposure levels.

Professor David Melzer, Professor of Epidemiology and Public Health at the Peninsula Medical School (Exeter, UK), commented: "This is the

first big study of BPA from a European country and confirms that 'routine' exposures in the population are not negligible. It also shows that higher exposure to BPA is statistically associated with modest changes in levels of testosterone in men. This finding is consistent with the evidence from laboratory experiments. However, this is just the first step in proving that at 'ordinary' exposure levels, BPA might be active in the human body. This new evidence does justify proper human safety studies to clarify the effects of BPA in people."

BPA is a controversial chemical commonly used in food and drink containers. It has previously caused concerns over health risks to babies, as it is present in some baby's bottles. Several nations have moved to ban BPA from the manufacture of baby's bottles and other feeding equipment. The US Food and Drug administration has committed itself to reducing BPA residues in food. BPA has never undergone formal human safety studies: nearly all the safety experiments have been on laboratory mice or rats, and these may be misleading as BPA is metabolised differently in the human body.

The main source of BPA in people is thought to be from residues in food, leaching out of certain types of polycarbonate and resin packaging. The new study therefore used statistical models adjusted for factors including measures of obesity, to exclude misleading associations in people who consume more food.

BPA has also been associated with thyroid hormone disruption, altered pancreatic beta-cell function, cardiovascular disease and obesity.

[BPA](#) is used in polycarbonate plastic products such as refillable drinks containers, some plastic eating utensils and many other products in everyday use. It is one of the world's highest production volume chemicals, with over 2.2 million tonnes (6.4 billion pounds) produced annually. It is detectable in the bodies of more than 90% of the

population.

Provided by The Peninsula College of Medicine and Dentistry

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