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UNIVERSITY OF NEW ZEALAND

NZ toxic contaminant levels halved - study shows

Blood samples taken by Massey researchers to measure the concentrations of toxic environmental contaminants, called persistent organic pollutants (or POPs), show their levels halved in the past 15 years among New Zealand's adult population.

While exposure to POPs is unavoidable through diet and inhalation, the study found that the level of contaminants was low when compared internationally.

The Ministry of Health-funded study, carried out by Massey's College of Health, took samples from 747 New Zealanders aged 19-64.

POPs are toxic, persist in the environment for a long time and accumulate through the food chain, with evidence of a range of health effects, including cancer, and disruption of the immune and reproductive systems in humans and animals.

The most well-known of these contaminants are PCBs (used in electrical equipment like transformers and capacitors), DDT (a pesticide used on New Zealand farms till it was banned in 1989) and dioxins (toxic by-products of combustion and incineration processes).

Researchers, including PhD candidate Jonathan Coakley from the College's Centre for Public Health Research on Massey's Wellington campus, grouped 63 pooled serum samples according to age group, gender, ethnicity and geographic region. The samples were then analysed at the laboratory for the presence of a range of POPS.

The study showed that for most POPs, there were no differences in serum concentrations between Māori and non-Māori or between geographic regions – though serum concentrations for most POPs were higher for older participants born between 1948 and 1962 than younger ones born in the late 1980s to early 1990s.

"The key message is that the concentrations of POPs are decreasing over time for all age groups, meaning people are less exposed to these toxic chemicals now compared to the past," Mr Coakley says.

The results of this study were also compared with serum concentrations determined in adult New Zealanders 15 years ago, showing a 50 per cent reduction in POPs blood levels over time.

"This is likely due to efforts in New Zealand and internationally to reduce the discharge of POPs to the environment, resulting in less POPs ending up in the food chain" Mr Coakley says.

New Zealand is a signatory to the 2004 Stockholm Convention that restricts the production and use of persistent organic pollutants. Activities to reduce the exposure of New Zealanders to POPs include phase-out and destructions of PCBs, national collection programmes for old agricultural chemicals, clean up of historic contaminated sites and National Environmental Standards for dioxin emissions.

The three-year survey also looked at other, less-studied POPs, such as brominated flame retardants (BFRs) and perfluorinated compounds (PFCs). The flame retardants are added to consumer articles such as computers, upholstery and building materials to control fire hazards, while the PFCs, that repel both water and oil, are used in a variety of consumer products including water repellent coatings, because of their unique chemical properties.

"For BFRs the age pattern was different in that younger people tend to have higher concentrations than older people. These results are consistent with those found in previous studies, and studies undertaken in other countries," Mr Coakley says.

"Future work will allow us to determine whether the concentrations of BFRs are reducing over time, like the other POPs chemicals."

After opening this link scroll to the bottom to find the report http://publichealth.massey.ac.nz/home/research/research-projects/serum-levels-of-persistent-organic-pollutants-pops-in-the-new-zealand-population-2/ (http://publichealth.massey.ac.nz/home/research/research-projects/serum-levels-of-persistent-organic-pollutants-pops-in-the-new-zealand-population-2/)

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Created: 21/11/2013 | Last updated: 21/11/2013