Dietary contaminant exposure affects plasma testosterone, but not thyroid hormones, vitamin A, and vitamin E, in male juvenile arctic foxes (Vulpes lagopus).

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Vitamin A
Vitamin E
Levels of persistent organic pollutants (POP), such as polychlorinated biphenyls (PCB), are high in many Arctic top predators, including the Arctic fox (Vulpes lagopus). The aim of this study was to examine possible endocrine-disruptive effects of dietary POP exposure in male juvenile Arctic foxes in a controlled exposure experiment. The study was conducted using domesticated farmed blue foxes (Vulpes lagopus) as a model species. Two groups of newly weaned male foxes received a diet supplemented with either minke whale (Balaenoptera acutorostrata) blubber that was naturally contaminated with POP (exposed group, n=75 or 21), or pork (Sus scrofa) fat (control group, n=75 or 21). When the foxes were 6 mo old and had received the 2 diets for approximately 4 mo (147 d), effects of the dietary exposure to POP on plasma concentrations of testosterone (T), thyroid hormones (TH), thyroid-stimulating hormone (TSH), retinol (vitamin A), and tocopherol (vitamin E) were examined. At sampling, the total body concentrations of 104 PCB congeners were 0.1 ± 0.03 µg/g lipid weight (l.w.; n=75) and 1.5 ± 0.17 µg/g l.w. (n=75) in the control and exposed groups, respectively. Plasma testosterone concentrations in the exposed male foxes were significantly lower than in the control males, being approximately 25% of that in the exposed foxes. There were no between-treatment differences for TH, TSH, retinol, or tocopherol. The results suggest that the high POP levels experienced by costal populations of Arctic foxes, such as in Svalbard and Iceland, may result in delayed masculine maturation during adolescence. Sex hormone disruption during puberty may thus have lifetime consequences on all aspects of reproductive function in adult male foxes.

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[Diet of six-year-old Icelandic children - National dietary survey 2011-2012].
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Abstract:
Knowledge of dietary habits makes the basis for public nutrition policy. The aim of this study was to assess dietary intake of Icelandic six-year-olds.

Subjects were randomly selected six-year-old children (n=162). Dietary intake was assessed by three-day-weighed food records. Food and nutrient intake was compared with the Icelandic food based dietary guidelines (FBDG) and recommended intake of vitamins and minerals.

Fruit and vegetable intake was on average 275±164 g/d, and less than 20% of the subjects consumed ≥400 g/day. Fish and cod liver oil intake was in line with the FBDG among approximately 25% of subjects. Most subjects (87%) consumed at least two portions of dairy products daily. Food with relatively low nutrient density (cakes, cookies, sugar sweetened drinks, sweets and ice-cream) provided up to 25% of total energy intake. The contribution of saturated fatty acids to total energy intake was 14.1%. Less than 20% of the children consumed dietary fibers in line with recommendations, and for saturated fat and salt only 5% consumed less than the recommended upper limits. Average intake of most vitamins and minerals, apart from vitamin-D, was higher than the recommended intake.

Although the vitamin and mineral density of the diet seems adequate, with the exception of vitamin-D, the contribution of low energy density food to total energy intake is high. Intake of vegetables, fruits, fish and cod liver oil is not in line with public recommendations. Strategies aiming at improving diet of young children are needed.
Abstract:
This chapter provides an introduction to the inhabitants of the Arctic. While there is insufficient space to explore the extent of information that exists in the written literature or in the oral traditions of indigenous cultures, the information given here is intended to help understand how contaminants may affect Arctic residents, and to encourage further investigation of these effects. The impacts that both contaminants and, more insidiously, the fear of contaminants have on, in particular, indigenous peoples and cultures demonstrate the need for effective communication and for preventing contamination that may lead to adverse effects on Arctic peoples.

Notes:
Book available in UAA/APU Consortium Library Alaskana Collection: TD190.5.A75 1998; and in ARLIS General Collection: TD190.5A46 1998

Online Resources
Stomach cancer in Iceland.

https://arctichealth.org/en/permalink/ahliterature28819

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