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The sex ratio of offspring sired by men exposed to wood preservatives contaminated by dioxin

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There is strong evidence that the sexes of mammalian (including human) offspring are partially dependent on parental hormone levels around the time of conception (1). Egeland et al (2) reported significantly low testosterone and high gonadotrophin levels for men exposed to dioxin. Accordingly I predicted that they would sire an excess of daughters (3). A recent report from Seveso (the scene of widespread pollution by dioxin in 1976) strongly confirmed this prediction (4). Dimich-Ward et al (5) have reported on the offspring sired by a sample of men after exposure to chlorophenate wood preservatives. These substances are contaminated with dioxin; therefore, although these men were obviously not so severely affected, on the average, as those in Seveso, it would nevertheless be reasonable to expect some slight bias in the sex ratio of their offspring.

Dimich-Ward et al (5) report that, of the 19 675 offspring, 48.6% were boys and 51.4% were girls. An expected Caucasian live birth sex ratio (proportion male) is of the order of 0.514 (6). The difference between this and the observed value yields a chi-square value of 62, which is significant at a value well beyond tabled levels. This result is not dependent on the assumption of a high expected sex ratio. The observed sex ratio is highly significant even when tested against an expected value of 0.5 [which is lower than any value ever recorded in the vital statistics of any Caucasian society (7)].

In short, men exposed to dioxin-contaminated wood preservatives sire an excess of daughters. Low offspring sex ratios have been reported in the aftermath of several adverse occupational exposures to men (8). The present result is a further example of how offspring sex ratios

can serve as indicators of reproductive hazards to men. It is yet not clear whether such exposures to women are followed by biased offspring sex ratios.

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