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- Night time work environment contributes to increased cancer risk for workers
- Danish girls found to be starting puberty earlier
- Male monkey behaviour feminised by pre-natal BPA exposure

Night time work environment contributes to increased cancer risk for workers

Research into correlations between night shift work and susceptibility to an array of illnesses (most notably breast and prostate cancer) has become overwhelming enough to form the basis of compensation claims based on elevated risk in working conditions.

In Denmark, 40 women diagnosed with breast cancer have now made successful legal claims for compensation against their employers. Although these are as yet the only claims made, any connection between night work and elevated cancer incidence could substantially increase the disease burden.

In the UK, census figures indicate that roughly 3.6 million workers are employed on night shifts. Roughly 400,000 of these are women. Based on the United States Census Press Release, of the US's 81.2 million men and 69.8 million women registered as employed, 3% (4.35 million) represent night shift workers.

Of Germany's 41 million employed and France's 27 million, figures of those working in excess of forty hours per week are estimated at 43.7% (17.9 million) and 21.4% (5.8 million) respectively. This places 31.7 million workers at increased potential health risk as a consequence of their work schedules.

The World Health Organisation lists night shift work as a 'probable' cause of cancer and based on the findings of the medical team of Ahmet Korkmaz (University of Texas Science Centre) and Hiroshi Tamura (Yamaguchi University) there is evidence of negative impact of night shift work in other sectors.

Korkmaz writes that the key mechanism is a disruption in homeostasis due to depletion of melatonin. He concludes, "we are humans experiencing the conflict between the unchanged human genome and an enormously altered environment".

The Danish government began compensating women after the International Agency for Research on Cancer (IARC) classified night work as a probable cancer risk.



An unaltered genome in an altered world. The way we have evolved has not necessarily prepared us for the rapid changes which have taken place in the environments in which we live and work.

Critics of these studies state that far too many variables, such as the effects of fluorescent lighting and individual predisposition to cancer exist to allow pinpointing of a disturbance in biological rhythms as the major factor in increased susceptibility.

However, as Professor Rory O'Neill (Stirling University) observes, "all the other hazards are of course very real, but we can't let the complexity of causation detract from a welcome move by some authorities to recognise formally at least some of those causes".

Dr. David Ray, formerly a professor of Political Science of Massachusetts' Boston College, predicts that in the coming decades demand within the health care industry will rise as more and more of the disproportionately large 'Baby Boom' generation enter their geriatric years.

This then translates to a smaller work force of caregivers providing for an ever-escalating number of patients most of whom will require twenty-four hour care. It is thus a growing concern that those charged with this responsibility are likewise to be at increased risk of cancer should this trend continue unchecked.

By Adam Brummitt

MALE MONKEY BEHAVIOUR FEMINISED BY PRE-NATAL BPA EXPOSURE

Researchers examining social behaviours between infants and mothers during the suckling period have found that male monkeys exhibit feminised behaviours, including less clinging to their mothers and a greatly reduced degree of social exploration, when exposed pre-natally to bisphenol A (BPA).

Normally, male and female monkeys would show distinct behaviour differences. That they did not, and that female monkeys also showed some changes in behaviour such as increased outward attention, indicate that gestational exposure to BPA interferes with behavioural sexual differentiation.

This is one of the first studies of the effects of gestational BPA exposure in monkeys. The levels of BPA in the monkeys' blood is similar to that found in the blood plasma of human mothers at the moment of delivery.

Other animal experiments have shown differences in behaviour, though mostly at earlier equivalent periods during gestation. In humans, research has suggested that PCBs, another group of endocrine-disrupting chemical common in the environment, have the ability to alter childhood play behaviour.

- Monkey study: <http://is.gd/Jnj8>
- Prenatal BPA levels: <http://is.gd/JnRH>
- PCBs and play behaviour: <http://is.gd/Jo20>

Danish girls found to be starting puberty earlier

Danish girls are developing breasts one year earlier than they would have done fifteen years ago and regardless of obesity, a research team at Kingdom Hospital, Denmark, has found.

On average, girls in the study were developing breast tissue at the average age of 9.86 years in 2006, compared with 10.88 years for girls in 1991. The difference remained significant even after adjusting for body mass index (BMI).

The study was designed to address issues of poor comparability in recent publications which have shown unexpectedly early breast development in American girls.

The researchers also found that girls are beginning to menstruate about three months earlier: estimated ages at menarche were 13.42 and 13.13 years in the 1991 and 2006 cohorts, respectively.

Since the results took into account BMI and levels of follicle-stimulating hormone and luteinizing hormone did not differ between the two cohorts at any age interval, the research strongly suggests that other factors are coming into play, with external influences mimicking the effect of hormones in the body.



- Danish study: <http://is.gd/Jht1>

Image: trubluboy

RECENT NEWS AND SCIENCE ABOUT THE ENVIRONMENT AND HEALTH

Bisphenol A silences genes to slow frog development (EHS): A new study reveals that by interfering with thyroid hormone, exposure to low levels of bisphenol A slows the rate at which tadpoles develop into frogs. <http://is.gd/Th4z>

Incidence of co-morbidities related to obesity reviewed (study): Obesity is associated with multiple co-morbidities including type II diabetes, cancer and cardiovascular diseases, but why this is so needs investigating. <http://is.gd/Th7X>

Quality of Israeli sperm down 40% in past decade (Haaretz): The quality of Israeli sperm has declined alarmingly in the last decade, according to recent research conducted at Jerusalem's Hadassah University Hospital, Mount Scopus. <http://is.gd/Thpq>

Faculty Champions Initiatives integrate env. health into paediatric care (study): Faculty Champions Initiatives are an effective way to prepare medical staff for preventing, and treating environmental exposure-related diseases. <http://is.gd/ThHg>

Xenoestrogens affect dopamine patterning and DAT trafficking (study): The way in which low levels of environmental estrogens affect cellular mechanisms could help explain the disruption of physiologic neurotransmitter function and the increased prevalence of neurodegenerative disorders. <http://is.gd/ThSm>

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