IFPA's Statement on Lavender Oil and Oestrogenic Effects

Three isolated cases of gynecomastia have been reported (Henley et al 2007) in prepubertal boys who used topical products alleged to contain either lavender or tea tree essential oil. The products were not identified. The study has been criticised on a number of grounds, including that insufficient essential oil would penetrate the skin from wash-off products to cause such an effect and that no controls were introduced to exclude potential environmental chemicals such as phthalates. A 2013 study (Politano et al) using female rats showed that lavender had no oestrogenic effects, even at concentrations up to 30,000 times higher than the typical exposure from personal care products containing lavender essential oil.

Despite the above reservations, this older study was quoted in a 2018 study (Ramsey et al). This was an in vitro study using cancer cells, not a case study like the earlier work. When this study was evaluated by other researchers there were a number of concerns that came to light that should be taken into account when interpreting the results, these include:

- An in vitro study that tests cells in a test tube is a long way from demonstrating cause and effect in the human body. Are we expected to assume that these in vitro studies would be replicated in the body?
- The tests were conducted using cancer cells. Are cancer cells a true representation of the cells in normal breast tissue?
- The study isolated eight chemicals from the hundreds that make up essential oils. Is the effect of an individual constituent the same as when that constituent is part of the whole essential oil?

In his comments about the above study, Dr Rod Mitchell, a paediatric endocrinologist at the Queen's Medical Research Institute in Edinburgh, said the following:

"The concentration (dose) to which the cells are exposed may not be equivalent to exposure in humans. There is a complex relationship between oestrogen, testosterone and other hormones in the body, that cannot be replicated in these experiments."

"At present, there is insufficient evidence to support the concept that exposure to lavender and tea tree oil-containing products cause gynecomastia in children, and further epidemiological and experimental studies are required."

Here's a useful internet quote, "Think for yourself. Be careful who you listen to. Go back and critically read the original research. Do not get caught up in sensationalised headlines."

References:

Henley D et al 2007 Prepubertal gynecomastia linked to lavender and tea tree oils. *The New England Journal of Medicine*, 356(5), p479-485.

Politano V, Hoberman A, Api AM 2013 Uterotrophic assay of percutaneous lavender oil in immature female rats. *International Journal of Toxicology*, Jan doi 10.1177/1091581812472209

Ramsey JT, et al 2018 OR22-6. Chemicals in lavender and tea tree oil appear to be hormone disruptors. *The Endocrine Society Annual Meeting*; 17-20 March 2018: Chicago.

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