

Re: Henley DV, Lipson N, Korach KS, Bloch CA. "Prepubertal gynecomastia linked to lavender and tea tree oils." *New England Journal of Medicine*. 2007;365(5):479-485.

To the Editor:

I commend Henley et al for their well-conceived laboratory research suggesting a mild estrogen receptor agonism and mild androgen receptor antagonism in selectively modified breast cancer cells. While I understand the basis of the postulation to perform the study of lavender and tea tree oils, there remains a huge cavern of variables that prevent the conclusion of any legitimate "link" between the in vitro findings and the in vivo observations of some astute health care providers.

After centuries of clinical use of these oils in Europe and Australia, it is curious that such findings have not previously been noted and correlated with their use. Furthermore, physicians in France have prescribed these oils internally as well as externally for years without noting such effects. Jean-Claude Lapraz M.D. and Christian Duraffourd M.D. are two such physicians. They have developed an approach to medical practice over the past 36 years that entails extremely methodical and detailed scrutiny of patients with attention to subtle signs and symptoms of endocrine disturbances (see references below). It is highly unlikely they would have overlooked gynecomastia in prepubescent boys. Another consideration is that lavender farms in France, where generations of families are exposed to lavender for many hours on a daily basis for years, have not brought forth such a concern in their prepubescent boys.

While the details of the in vitro aspects of the study could be scrutinized with regard to choice of cells (breast cancer cells do not represent the normal cell when it comes to genetic behavior), the concentration and duration of oil applied to the cells, and the effect of combining the oils with DMSO, discussion of such details could proceed ad infinitum. The real issue is related to the Evil Knevil-style propulsion across the abyss between in vitro findings and in vivo observations. The authors provide little data about the actual composition of the products that were being applied topically. Anyone looking at this report critically would be compelled to ask many questions about the putatively offending products: Were they essential oils in their natural form, chemically modified essential oils, or synthetic fragrance materials? What were the other ingredients? Did they contain traces of endocrine-disrupting pesticides? It is peculiar that fraternal twins had a difference in manifestation when they were both using the form of skin product that would provide for longer duration contact and better penetration. Even if the soap was not completely rinsed within minutes of exposure, the essential oils would have dissipated rapidly. It is assumed that the effect is systemic if hair gel (presumably applied to the scalp as well as the hair) caused gynecomastia. Systemic effects of this nature should certainly have been identified by the cosmetic industry as a potential adverse effect and then possibly by the pharmaceutical industry for marketing to young women who seek non-surgical breast enhancement.

It is quite possible, even probable, that the idiopathic prepubescent gynecomastia is just that – idiopathic. Until in vivo studies are performed and they result in suggestive and/or conclusive outcomes, it is reckless to claim a "link" between either tea tree oil or lavender oil and gynecomastia. However, we do support the implication from the article that physicians should be alert to a history of topical applications of any and all substances whenever any idiopathic condition presents itself.

Sincerely,

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