

## WANT TO TALK RESISTANCE?

Any parent can agree that head lice treatment is SO FRUSTRATING. It steals a family's time and energy, not to mention: POURING PESTICIDES (toxic chemicals) ON A CHILD'S HEAD IS A BAD IDEA! Stronger pesticides are NOT the answer.

### WHY THEN SHOULD ANYONE USE OTC PESTICIDE PRODUCTS WHEN HEAD LICE ALL OVER THE US HAVE A GENETIC MUTATION CAUSING PERMETHRIN RESISTANCE?

#### RESISTANCE?



Excerpts from The Journal of American Entomology 2014:

- "In 2013, lice were collected from 32 locations in Canada and the United States"
- "DNA was extracted to detect the *kdr*-type T917I (TI) mutation that results in the *kdr* phenotype and **permethrin resistance**"
- "Overall, the TI frequency in U.S. lice was 84.4% from 1999 to 2009, increased to 99.6% from 2007 to 2009"

**99.6% of lice have a mutation which causes  
Resistance to Permethrin, the #1 prescribed lice treatment?**

<http://www.bioone.org/doi/abs/10.1603/ME13139>

### SO THE AMERICAN ACADEMY OF PEDIATRICS ADVISES OTC PYRETHRINS/PERMETRINS AS THE #1 TREATMENT???

A statement in November, 2015 by the American Academy of Pediatrics:

**“Unless resistance has been seen in the community, pediatricians and parents should consider using over-the-counter medications containing 1 percent permethrin or pyrethrins as a first choice of treatment for active lice infestations.”**

<https://healthychildren.org/English/news/Pages/AAP-Updates-Treatments-for-Head-Lice.aspx>

**SO, LET'S LOOK AT THE  
#1 RECOMMENDED LICE TREATMENT  
THAT 99.6% OF LICE ARE RESISTANT TO...**

**Permethrin 1%  
#1 Prescribed Treatment  
Over-the-Counter**

Contains a warning on the label:

"This product should not be left on hair for more than 10 minutes"

CDC states:

"Pyrethrins generally should not be used by persons who are allergic to chrysanthemums or ragweed. Pyrethrin is approved for use on children 2 years of age and older."

<http://www.cdc.gov/parasites/lice/head/treatment.html>

**From National Institutes of Health**

**Pyrethrins with Piperonyl Butoxide**

- **Pesticide – ingredients found in medications to kill lice**
- **Poisoning occurs when someone swallows the products or too much of the product touches the skin**

<https://medlineplus.gov/ency/article/002589.htm>

**From Environmental Protection Agency**

**Permethrin (1%) / Permethrin 5%**

- 1. Pesticide**
- 2. "Likely to be carcinogenic to humans" by oral route**
- 3. Alters nerve function by modifying ... nerve membrane sodium channels**
- 4. Highly toxic to honeybees and freshwater organisms**

[www.EPA.gov](http://www.EPA.gov)