

LICEGUARD™ Robi-Comb Electronic Head Lice Detector & Remover Summary of Laboratory and Clinical Studies

Robi-Comb is now used by over 3000 school nurses in the US nationwide to detect and treat head lice. It has been well received by consumers as well, particularly by those who have been unable to end lice infestations using traditional chemically based pesticide shampoos.

Developed in Israel about 8 years ago, Robi-Comb was evaluated there prior to being marketed. A study was performed by the clinical epidemiology unit of the Beilinson Medical Center, Tel-Aviv University, Sackler School of Medicine. This study found that the Robi-Comb (in 1991 when the study was performed) was nearly as effective as permethrin, the leading pesticide treatment, at treating the initial infestation, and possibly more effective at preventing a reinfestation, though the difference was not statistically significant. It is our opinion that if the study were to be repeated today, the results would more strongly favor the Robi-Comb versus permethrin for the following reasons:

- 1) The study recommended some minor design changes to the Robi-Comb, since implemented, which make cleaning of the metal teeth easier. A major reason for non-compliance with the Robi-Comb treatment protocol among those who didn't get complete results in the study had to do with difficulty removing the metal teeth for cleaning.
- 2) Because the study was conducted in Israel, no treatment was performed on the Jewish Sabbath. The Robi-Comb is very effective at detecting and killing lice, including nymphs which have recently hatched, though not as effective on eggs. The treatment protocol is to comb every day for 5 minutes for 10 days, which is the gestation period of the eggs. At the end of 10 days, there are no eggs left to hatch, and no lice left to lay eggs, effectively ending the infestation. Because in the Israeli study, treatment was interrupted for at least two and possibly more days of the 10 day period (depending upon whether treatment was provided Friday morning or not), this would have a negative effect, in our opinion, on the results observed, although it is difficult to say to what extent.
- 3) Since 1991, there have been increasing reports, both scientific and anecdotal, regarding increased lice resistance to permethrin. Since the Robi-Comb is an electro-mechanical device, there presumably would not be a resistance problem. Anecdotal reports from school nurses and parents who were unable to end infestations with chemical products and then succeeded with the Robi-Comb seem to bear out this thought.

Concerning side-effects of the Robi-Comb, none were observed in the study, and there have been no adverse events reported during its several years on the market. We do place a warning on the product that it should not be used by persons suffering seizure disorders, heart disease, or persons utilizing a pacemaker or other neural stimulators. Robi-Comb operates on a single AA battery, less than most toys. An evaluation from the Technion Israel Institute of Technology stated that the voltage and current utilized by the Robi-Comb is well below anything known medically to cause any issues, and a letter from the medical director of the epilepsy foundation in England stated the same. However, we have decided to print this warning in order to be doubly cautious, as head lice, after all, are only an annoyance compared to these other medical issues.

The second study on the Robi-Comb was a laboratory study, not a clinical study. It was performed at the Medical Entomology Centre at the University of Cambridge, England, and showed in a laboratory setting the effectiveness of the Robi-Comb at detecting and killing head lice, including nymphs.