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## **Is Nearsightedness in Children Linked to Night Light Exposure During Sleep Before Age Two?**

### **Original Study**

Children who sleep with a light on in their bedrooms at night before the age of 2 may be at significantly higher risk of developing myopia - nearsightedness - when they become older than children who sleep as infants in the dark at night, according to a collaborative study by researchers at the University of Pennsylvania Medical Center and The Children's Hospital of Philadelphia. A report on the findings appeared in the May 13, 1999 issue of *Nature*, a prominent journal that publishes scientific studies.

The study's results showed that, of children aged 2 to 16 who had slept in darkness before age two, 10 percent were myopic at the time of the study. Of children who had slept with a night light on before age 2, 34 percent were myopic. And of children who had slept at night with a room light on before age 2, 55 percent were myopic – more than a five-fold increase over the children who slept in darkness during early childhood. The study was conducted using a survey. The parents of 479 children aged 2 to 16 were asked whether their children slept with room lighting, with a night light, or in darkness before the age of 2. They were also asked to report on the current nighttime lighting conditions for the same children. Other questions addressed the lighting in various rooms of the home, in day care or school settings, and in the geographical region in which the child lived. The researchers chose the cut-off age of 2 years because the eye grows particularly rapidly before this.

According to the researchers, the study does not establish that nighttime lighting during early childhood is a direct cause of myopia, and there are undoubtedly other risk factors. Still, many believed that it would be a good idea if parents of children under the age of two stopped using night lights in their children's rooms until further research could evaluate all the implications of the study's results.

### **Follow-up Studies**

The March 9, 2000 issue of *Nature* reported that two groups of researchers have found no association between nighttime light exposure during sleep in the first two years of life and the subsequent development of nearsightedness, or myopia. These two studies were conducted as a follow-up to the previous study, reported in the May 13, 1999 issue of *Nature*, where researchers in Pennsylvania reported an association between nighttime ambient light exposure during sleep in the first two years of life and the subsequent development of nearsightedness.

A research team from the New England College of Optometry in Boston and a separate team from Ohio State University reported similar percentages of myopia in children who had slept with and without nighttime lighting before age two. The teams worked independently and used separate data; both found no link between nighttime nursery lighting and the development of myopia.

## Nearsightedness in Children

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The Ohio research team collected data from 1,220 children whose average age was 10. Of these, 20 percent who slept in the dark before age 2 were myopic, compared with 17 percent who slept with a night light and 22 percent who slept with room lights on. The Ohio study did find that myopic parents were more likely to use night lights in a baby's room.

The Boston study of 213 children and parents also found no connection between the use of night lights and myopia. Like the Ohio study, it also found that nearsighted parents were more likely to use night lights to help them see and that myopic children were more likely to have myopic parents.

The lead investigators from both teams suggested that failure to take into account the fact that myopic parents were more likely to use night lights may have affected the results of the earlier study. That is important because a child with nearsighted parents is much more likely to become myopic than a child whose parents are not nearsighted.

### What Does It Mean?

Based on the articles above and on what you have learned in this lesson, write a one-paragraph answer in response to the following questions:

- Describe the main differences in the procedures used by the researchers in Pennsylvania and the researchers in Ohio and Boston. For example, how many subjects were involved in each study? Did they ask the same questions?
- Would you describe the differences in the findings as significant or insignificant? Explain your answer.
- What do you think should happen now? Do you think that three studies are enough to definitely answer the question of whether or not night lights before the age of two contribute to nearsightedness in children? Why, or why not?