

Preschool bolsters early childhood immunity, reduces risk of Young Adult Hodgkin's Lymphoma [US] ^[1]

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EXCERPTS

Children who attend day care or nursery school for at least one year before going to kindergarten are about 36 percent less likely than those not in preschool to develop Hodgkin's lymphoma as young adults, according to scientists reporting in this month's edition of the journal *Cancer Epidemiology, Biomarkers & Prevention*.

Earlier research indicated that higher childhood socioeconomic status and delayed infection with the prevalent Epstein-Barr virus were important predictors of Hodgkin's lymphoma in young adulthood. Because attending nursery school or day care favors earlier exposure to common childhood infections, the study supports the hypothesis that delayed infection increases the risk of young-adult Hodgkin's lymphoma, but fails to uphold the link to socioeconomic factors. The research also shows that Hodgkin's lymphoma among adults aged 55 and over is associated with lower socioeconomic status, but not preschool attendance, indicating the existence of a separate mechanism for the development of Hodgkin's lymphoma in the two age groups.

"Years of epidemiological evidence have linked the risk of Hodgkin's lymphoma among young adults to high maternal education, few siblings, low housing density, and other aspects of higher childhood socioeconomic status," noted lead author Ellen T. Chang, Sc.D., of the Harvard School of Public Health. "It has been believed that these characteristics postpone childhood exposure to common pathogens, including the usually harmless Epstein-Barr virus, which can cause infectious mononucleosis when infection is delayed until adolescence. Infectious mononucleosis is a demonstrated risk factor for Hodgkin's lymphoma. However, we found no association between any of these factors and Hodgkin's lymphoma risk."

Chang went on to explain that how and when a child's immune system matures, as well as changes in the social environment of preschool aged children in the United States, account primarily for the differences in her team's results from those of their predecessors.

"At birth," she said, "infants are skewed toward type 2 helper T-cell immunity & or Th2 & which is characterized by the B-cell antibody-mediated response to infections by parasites, helminths or nematodes."

"In contrast, the phagocyte-dependent, inflammatory Th1 immune response matures with age, and does so in response to exposure to such Th1-stimulatory antigens as intracellular bacteria and viruses. These include but are not limited to Epstein-Barr virus."

"Children who are sheltered from contact with Th1-type antigens continue to be biased toward Th2 immunity, which promotes the development of asthma and other atopic conditions."

The team, which includes researchers from Yale University and the Johns Hopkins Medical Institute along with Chang, analyzed data for 565 cases of Hodgkin's lymphoma and 679 healthy controls among residents of the Boston area and Connecticut. They were prompted to undertake the research in part to test the hypothesis that demographic changes in the United States in recent years might have modified previously reported associations between Hodgkin's lymphoma and childhood social factors. Enrollment in nursery school, for example, has risen from five percent in 1964 to 50 percent between 1995 and 1999. Advances in women's education, increases in the number of single-parent and two-working parent household and reductions overall in family sizes all contribute to this dramatic rise in nursery school and day care enrollment.

"As parents of young children know well, the rate of exposure to childhood infections is high when groups of children spend time in close proximity, as is the case in day care and nursery school settings," added Chang. "This frequent contact appears to prime the immune system toward a more mature type 1 response than is found among children of the same age who have less social interaction with their peers. It also promotes earlier exposure to common childhood infections, such as the Epstein-Barr virus."

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Further, Chang and her colleagues found that the incidence of Hodgkin's lymphoma among young adults in Boston and Connecticut appears to have dropped between 1997 and 2000, another trend that could be attributable to higher preschool attendance.

- reprinted from Science Daily

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