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Effect of season and temperature on childhood plumbism.

It is thought that lead poisoning in children has a marked seasonal distribution with almost all of the cases occurring between the months of May and October. This seasonal distribution has been found to be true in Cincinnati, Baltimore, St. Louis, New York, Philadelphia, and Chicago. This increase in lead poisoning in children in the warm weather months has been attributed to various factors. Exposure to the more intense ultraviolet radiation from the sun in the summer and the resulting increase in Vitamin D has been the factor most prominently implicated. This is suggested on the basis that Vitamin D increases the absorption of lead from the intestines. The inter-relationships among calcium, lead, and phosphorus levels in the blood play a role here also, details of which need not be considered at this time. It is known that U.V. light "sensitizes" circulating porphyrins. Some investigators feel that this sensitization of the circulating porphyrins is one explanation of the sudden onset of symptoms of plumbism during the warm months of the year. The other important environmental condition which has been suggested is the increase in environmental temperature during the summer months. Some experimental work in animals has shown that rabbits, who were subjected to 37°C following a seven-week period of subcutaneous injections of lead, died within 102 hours, whereas those similarly injected but kept at room temperature survived, as did control rabbits at 37°C.

An examination of Dr. Hugo Smith's data on childhood plumbism in Cincinnati since 1950 shows this seasonal incidence of lead poisoning. All cases in his series fall between the months of May and October. However, there is no direct correlation between a given temperature and onset of symptoms, nor hours of solar radiation and onset of symptoms. All that can be said at present is that there is a seasonal incidence of childhood plumbism and how temperature and solar radiation affects this - is not known. In regard to this, I am interested in seeing if there is a seasonal incidence of this disease in Los Angeles. Dr. Smith does not know of any reports on the incidence of childhood plumbism from either Los Angeles or Miami, but has given me names of pediatricians whom I can contact in these two areas.