

The Distribution Of Lead In Human Hair

by
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"Lead is being extruded into the environment from the tail pipes of motor vehicles at a yearly rate of about two kilograms (4.4 lbs) per car. It lingers long. It is breathed by drivers, passengers, and people living in cities and near heavy traffic, who absorb it through their lungs. It accumulates in the body with age. It is a protoplasmic poison, not a very strong one in small amounts, but there is so much around that it has an effect on everyone exposed to present environmental concentrations—a measurable effect."¹ In addition, there are many industrial sources of lead pollution. Together with automotive emissions, they have literally polluted the entire earth.

A score of reports, ranging in sample size from 10 to 2,000 subjects, has been published which describes the epidemiology of lead in hair. This paper presents data on the largest sample ever studied, derived from the data bank of MineraLab, Incorporated (22455 Maple Court, Hayward, California 94540) which currently comprises 34504 subjects studied by emission spectroscopy.²

From the accompanying table, five points are worthy of special mention. First, in the male and female categories separately as well as in the total sample, the lead levels are relatively high in the

very youngest age group (0-4 years). This observation has been previously noted³ and relates in part to the higher lead concentrations in the air near the ground. Second, in the succeeding young groups, the lead levels are then lower. Third, in general, with advancing age, there is an increase in hair lead levels. Fourth, the lead values are higher in the males in every age group. However, the male values are about threefold higher in the older age groups. This is in keeping with other studies.⁴ Finally, if one considers the toxic delineating point to be 2.0 mgm.% (20 ppm), as has been mentioned⁵, then a sizeable segment of this large sample might well be demonstrating excessively high lead levels. This last point will be considered in more detail in a report to follow.⁶

References

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per cent distribution of lead (expressed
in mgm%) as determined by hair analysis
in 34504 subjects

age groups	males		females		total sample	
	sample size	mean lead	sample size	mean lead	sample size	mean lead
0-4	199	2.1	143	2.0	342	2.0
5-12	912	1.6	558	1.4	1470	1.5
13-20	991	1.6	1181	1.2	2172	1.4
21-30	2439	1.7	4587	1.3	7026	1.5
31-40	2428	1.8	4597	1.3	7025	1.5
41-50	1952	3.1	3468	1.4	5420	2.0
51-60	1969	4.1	3871	1.5	5840	2.4
61-70	1280	5.0	1083	1.6	1598	2.9
totals	12685	2.8	21819	1.4	34504	1.9