

Plutonium:a radioactive poison that accumulates in bone marrow.

Interestingly, this subject was initially investigated some 40 years ago by scientists at the School of Public Health at Harvard University. Working with physicians in the neighboring Harvard teaching hospitals, they were able to obtain lungs taken during autopsies of smokers who had died from lung cancer. The School of Public Health scientists carefully analyzed samples from selected areas of these lungs and found that they contained relatively high concentrations of ^{210}Po (polonium-210), a naturally occurring radionuclide that the International Commission on Radiological Protection considers to be one of the most hazardous of all radioactive materials. Of particular significance was that the Harvard studies showed that this radionuclide tended to concentrate in "hot spots" at *bifurcations of segmental bronchi* within the lungs, precisely the areas where lung cancer originates among cigarette smokers.

Armed with this information, studies were conducted to determine the source of the ^{210}Po . Although the initial assumption was that it was taken up by the tobacco plant from the soil, the investigations revealed that it was deposited on the leaves of the plants (which are large and sticky) from the air. Enhancing the adherence of ^{210}Po to the tobacco leaves is the fact that they are electrically charged and readily adhere to any surface with which they come into contact. When a smoker lights a cigarette, the ^{210}Po is volatilized and, when he/she inhales, it is deposited in the lungs.

Based on careful assessments of the concentrations of ^{210}Po in the lung tissues, it was estimated that the lung "hot spots" received an annual dose of about 160 millisievert (about 16,000 millirem), two of the more common units for expressing doses from ionizing radiation. To provide perspective, it is useful to compare this dose to the limit stipulated, for example, by the US Environmental Protection Agency for members of the US public. Making this difficult in this case, however, is that the annual dose limit for members of the public (1 millisievert, or 100 millirem) is expressed in terms of a dose to the whole body, whereas, as noted above, the dose to a smoker is limited to a very small portion of the body (the lungs). *Compare 16,000 millirem – smoker annually to 100 millirem – non-smoker annually.*

Nonetheless, in a report published in 1987, the National Council on Radiation Protection and Measurements (NCRP 1987) sought to make such a comparison, the tentative outcome of which suggested that the annual dose to a smoker (when converted into an equivalent dose to the whole body) was more than 10 times the annual dose limit for a member of the public.

In a similar manner the scientists at Harvard, while acknowledging that the dose to a smoker was high, were quick to recognize that ^{210}Po was only one of a multitude of carcinogenic compounds in cigarettes. Based on these considerations, their conclusion was that "we believe ^{210}Po may be an important factor in the initiation of bronchial carcinoma in humans". (*Little et al. 1965*) *Dade W. Moeller, CHP, PhD*

References

Little JB, Radford EP Jr, McCombs HL, Hunt VR. Distribution of Polonium²¹⁰ in pulmonary tissues of cigarette smokers. *New England Journal of Medicine* 273: 1343-1351; 16 December 1965.

National Council on Radiation Protection and Measurements. Radiation exposure of the US population from consumer products and miscellaneous sources. Bethesda, MD: NCRP; NCRP Report No. 95; 1987.

The Tobacco Prevention Center at the St. Louis University has finally answered the question as to how it could be plausible that a mere 30 minutes of exposure to secondhand smoke could be so deadly, as claimed by more than 80 anti-smoking groups and by the former United States Surgeon General.

The answer, it turns out, is quite simple: secondhand smoke contains plutonium.

The Rest of the Story

The presence of the chief raw material for nuclear weapons in secondhand smoke definitely provides a plausible explanation for how, as the Surgeon General claimed, even a brief exposure to secondhand smoke can cause lung cancer. Even micrograms of fine plutonium particles are known to cause lung cancer. Thus, even a brief exposure to secondhand smoke, with its plutonium, would be expected to cause lung cancer.

Now while many have thought they had reason to question even the claim that 30 minutes of secondhand smoke exposure causes heart attacks in people with existing heart disease, I suspect that there is a logical explanation for why it can break down the coronary arteries even of those who are perfectly healthy and strong.

In addition to *plutonium*, secondhand smoke contains *kryptonite* as well. This element has been documented to pose a danger even to the strongest and completely healthy cardiovascular systems.

This provides an obvious explanation for why just 5 minutes of exposure to secondhand smoke reduces the ability of the heart to pump, as claimed by many anti-smoking groups, even among the healthiest of individuals. Not only is there no safe level of exposure, but no one is safe.

There's good news on the horizon. Philip Morris, along with the Campaign for Tobacco-Free Kids, are supporting Congressional legislation that would ban red, gold, blue, and white kryptonite from tobacco, although it would still allow the most toxic form - green - to remain present in existing cigarettes already on the market. No green kryptonite would be allowed in newly manufactured cigarettes after the inception of the legislation.

Another important implication of the presence of plutonium and kryptonite in secondhand smoke is that it provides an alternative explanation for why cigarette companies might be adding *ammonia* to cigarettes (other than to enhance the addictiveness by increasing the presence of the more readily absorbed form of nicotine). Cigarette companies are aware that kryptonite easily breaks down in an acid environment, making it essential for these companies to maintain a higher pH (add ammonia).

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