

Radiation Hormesis, Cancer, and Freedom in American Medicine

Arthur B. Robinson, Ph.D.

Radiation hormesis has been the subject of research for many decades. This has been discussed in the newsletter *Access to Energy* for almost 40 years. Radiation hormesis involves positive effects on health from low doses of radiation.

Radiation hormesis is a very large health issue that is not being pursued by the government-industrial-medical monopoly, to the detriment of Americans' health. It is also important because it belies the radiation fear propaganda through which Americans have been misled to tolerate government stoppage of progress in nuclear power development during the past 30 years. It has also impeded development of beneficial medical interventions that use ionizing radiation.

The Taiwan Experience

In 1983, a group of apartment buildings was completed in Taipei City, Taiwan. Recycled steel contaminated with cobalt-60 was accidentally used in the construction materials. Cobalt-60 is radioactive, with a half-life of 5.3 years.

People lived in these buildings for between 9 and 20 years. As of 2011, many still did. In 1992, a higher-than-normal radiation level was discovered in some of the apartments. Over the period between 1992 and 1998, higher-than-normal radiation was found in increasing numbers of structures until buildings used by 10,000 people were found to be involved.

As would be expected, Taiwanese officials scrambled to test for cancer and birth defects in the people living in these apartments. The government of Taiwan was very embarrassed by these events and even more distressed by the medical results,¹ which are summarized in Figure 1. This figure shows the cancer mortality between 1993 and 2002 for these apartment dwellers and for the general population in Taiwan.

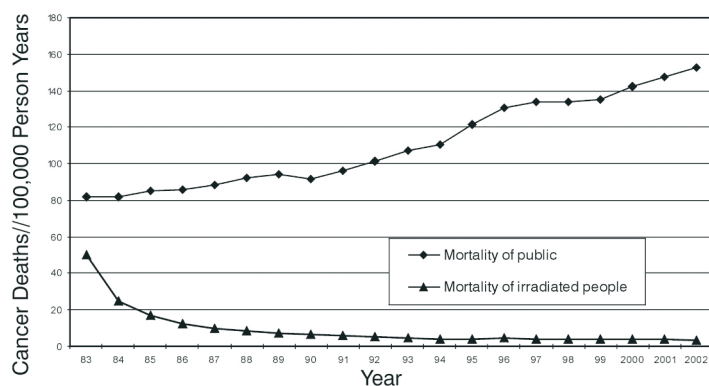


Figure 1. Cancer Mortality of the General Population and of the Exposed Population¹

Radiation doses varied with apartment and duration of residence. Owing to the short cobalt-60 half-life, the doses significantly diminished with time. On average, these people received estimated radiation doses of 40 millisieverts per year, mSv/y. This astonishing graph shows that the cancer death rate for people living in these apartments steadily decreased until it was essentially zero. Over the entire time period, deaths from cancer averaged 3.5 per 100,000 person-years for the irradiated population, as compared with 116 per 100,000 person-years for the general population of Taiwan—an apparent 33-fold suppression of cancer deaths.

The government of Taiwan did not cooperate by giving sufficient data about these 10,000 people to allow investigators to match the control population to the irradiated population, so they made a comparison to the general population of the country. The 1983 values, however, of 82 for the control population and 50 for the irradiated, allow a rough adjustment to be made, which may reflect differences in age distribution. With this adjustment, the cancer death suppression effect is 20-fold.

Another approach is to use the irradiated population as its own control. In that case, using the value of 50 deaths per 100,000 person-years in 1983 and the value of about 2 in 2002 gives a suppression rate of more than 25-fold—"more than" because cancer incidence increases logarithmically with age, so the death rate should have increased with time, rather than decreasing. Since people moved in and out of the apartments and did not live there for 19 years, this too is an approximation.

Moreover, congenital defects in children born to parents living in the apartments were also reduced from an expected 46 in the general population over the 19 years to only 3 in the irradiated population—a 15-fold reduction.

While this study¹ was savaged by some because of its publication in the *Journal of American Physicians and Surgeons*, the journal of an organization of American physicians who work against socialized medicine, the qualifications of the 14 authors should overwhelm the lovers of credentials. They are:

- W.L. Chen, director, Department of Medical Radiation Technology, National Yang-Ming University; head, Radiation Protection Department of the Atomic Energy Council (AEC); and former head, Health Physics Division of the Institute of Nuclear Energy Research (INER);
- Y.C. Luan, senior scientist and manager of radiation protection, Nuclear Science and Technology Association (NuSTA); consultant to NBC Society; former manager, Radioactive Waste Management Plant; and manager, Cobalt-60 Irradiation Plant of INER, AEC;
- M.C. Shieh, general secretary, NuSTA; professor, National Chung-Kung University; and former manager, Uranium Conversion Project of INER, AEC;
- S.T. Chen, senior scientist and head, Nuclear Reactor Engineering, NuSTA, and former director, Nuclear Engineering Division of INER, AEC;

- H.T. Kung, senior scientist and nuclear material manager, NuSTA, and former manager, Nuclear Fuel Fabrication Plant of INER, AEC;
- K.L. Soong, senior scientist, NuSTA, and former senior scientist and leading scientist, Geology and Mineralogy Research Project of INER, AEC;
- Y.C. Yeh, secretary general, Chinese Nuclear Society; senior scientist, NuSTA; and former director, Analysis Center of INER, AEC.
- T.S. Chou, Head, Radiation Research Group, NBC Society; professor, Feng Chia University; and former head, Chemical Engineering Division of INER, AEC;
- S.H. Mong, head, Protection Research Group, NBC Society; former NBC consultant to Saudi Arabia; and commandant, Army NBC School, Taiwan;
- J.T. Wu, biology consultant, NBC Protection Society, Taiwan; professor of pathology, School of Medicine, University of Utah, U.S.A.; and medical director, Special Chemistry and Reagent Development Laboratory at ARUP;
- C.P. Sun, board member, NBC Protection Society, and assistant professor of risk analysis, National Chiao Tung University;
- W.P. Deng, associate professor, Biological Material Institute, Taipei Medical University, and former associate professor, Graduate Institute of Biomedical Materials, Harvard University, U.S.A.;
- M.F. Wu, professor of pathology and director, Animal Testing Center, College of Medicine, National Taiwan University, Taipei; and
- M.L. Shen, professor, Biometry Division, Department of Agronomy, National Taiwan University, Taipei.

These startling results deserved an intense follow-up by public health authorities, but this has not occurred.

This Taiwanese event was the subject of a paper by health physicists at Oregon State University.² These authors calculated on the basis of the linear no-threshold hypothesis of radiation damage that the children in the contaminated school buildings would experience between 1.4×10^{-4} to 7.42×10^{-4} excess fatal cancers per lifetime. On this basis, the authors warned about a "public health concern," but failed to mention that the actual observational data from the human subjects in this event invalidates their calculation. They fail to mention that a very vigorous study of the health effects of the cobalt-60 in these buildings had already been underway for 9 years when their paper was published.³

Other Studies

There are an estimated 2,000 research publications on the subject of radiation hormesis, showing hormetic effects in a wide range of species from fruit flies to human beings. This body of literature disproves the linear no-threshold hypothesis of radiation damage to living things, which underpins the claim that any amount of radiation is dangerous to good health.

This failed hypothesis underlies the profession of "radiation health physics." While many health physicists do useful things, many derive their income from steadfast professional endorsement of public fear of radiation, which the members track to the last gamma ray in every plant and animal they can find to study.

The best American study is that of the late Bernard Cohen of the University of Pittsburgh. Cohen was appointed head

of a project by the U.S. Environmental Protection Agency to determine EPA limits for radon levels in American homes. Radioactive radon (an elemental gas under ambient conditions) is naturally produced in varying amounts throughout the world. It is ubiquitous in the air we breathe. Gathering lung cancer data for counties throughout the U.S. and also radon levels in homes throughout the U.S., Cohen calculated the correlation between lung cancer and radon levels. He found, to his surprise, that lung cancer mortality decreases from about 68 per 100,000 person-years to about 37, as the radon concentration increases from 0 to 6 pCi/l—a decrease of 46 percent. The decrease in lung cancer death is the equivalent of smoking one pack of cigarettes per day for about 6 years, except in the opposite direction. Cohen has previously summarized theoretical and experimental considerations related to radiation hormesis in this journal.⁴

Investigators in this field have estimated that the optimum radiation hormesis level is about 100 mSv/y. This is shown in Figure 2.¹

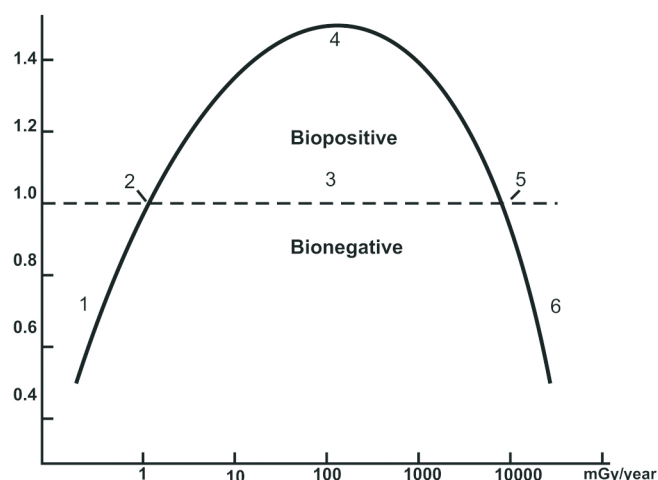


Figure 2. Idealized Dose-Response Curve.¹ The ordinate indicates approximate responses compared with the controls. The abscissa suggests mammalian whole-body exposures as mGy/y. The numbered areas are (1) deficient, (2) ambient, (3) hormetic, (4) optimum, (5) zero equivalent point, and (6) harmful.

Americans receive about 3.3 mSv/y in natural background radiation. Including medical tests, Americans receive about 6.2 mSv/y.³ Americans would have to receive four whole body CT scans per year with typical equipment to receive the average radiation doses of the Taiwan apartment dwellers, and 10 whole body scans per year for the estimated optimum hormetic dose. To truly replicate the daily Taiwanese dose conditions, cobalt-60-containing materials would need to be present in their homes.

Implications

Since about 20 percent of Americans die from cancer, the potential health benefits of ionizing radiation are enormous, from a prevention standpoint alone, leaving aside potential treatments of existing cancers with low-dose total body radiation.⁵

Using standards based on the discredited linear no-threshold hypothesis of radiation damage, the EPA is effectively killing Americans with cancer. The spreading fear of radiation and strict governmental controls on possession of low-level

radioactive materials may qualify for consideration as actions of technological genocide. This is similar to the killing of millions of African children by means of DDT-preventable malaria by depriving them of DDT.

There is, of course, much more to be known about this phenomenon. It will likely be generations in the future before the precise effects of ionizing radiation on human well-being are definitively known. The answer to this, however, must not be that we cannot expose ourselves to life-enhancing ionizing radiation until all is understood.

There are 300 million Americans living now. These people may all be dead before radiation hormesis becomes a fully exact science. It is wrong to say to these people, "You are not permitted to determine from existing knowledge the radiation dose you prefer to receive. This will not be permitted until the government decides, far in the future, what dose Americans will be permitted to receive."

Radiation hormesis is a well-established phenomenon. The potential rewards from an optimum radiation dose are very great—many additional years of healthy life. Hormetic doses of ionizing radiation can be provided by materials with such a low level of enhanced radioactivity that their possession and transport within the community is entirely safe. Yet an individual is not allowed to purchase low-level radioactive materials for installation in his bedroom.

Persons with knowledge about radiation hormesis are in an ethical dilemma. What can we do if someone who wants to have the benefits of radiation hormesis asks some practical questions about how to receive it? If one were to encourage such a person and tell him how to construct a crude working gamma-ray source for human hormesis, one could be sent to prison, as well as having his life's work destroyed. If one refuses to provide information, and a person figures out a way on his own, that person may be in greater danger of overdose and health damage because he does it alone without help.

Status of American Medicine

Ultimately, Americans are receiving the medical care they deserve from the medical monopoly, in return for electing a corrupt Congress that ignores its oath to uphold the Constitution. The voters have done this in response to fear—fear of just about everything, spread by government apparatchiks and their fellow travelers in media. Voters are told that the only answer to their fears is government protection.

While fear is a powerful motivator, our "leaders" have not ignored greed either—greed being the second most powerful negative motivator of human beings. Voters are told that they will receive wealth from the government—wealth the government will confiscate from their fellow citizens. Wealth that they will not have to earn, but will receive in return for their votes. The irony is that the casting of these votes has not mitigated the things voters really have to fear and has not brought them wealth. It has only brought them involuntary servitude to those who control them through greed and fear. Yet, as recent elections show, the majority are still willing to cast aside the great blessings of their Constitution and give power to the purveyors of fear and greed—authorizing corrupt politicians to do things "for" them, such as stealing from their neighbors, that most people would never do themselves.

Despite opposition from the medical monopoly, medical science, including hormesis, has moved forward. Voters,

however, do not receive the benefits. Just recently, they have supported by their votes the originators of "ObamaCare." This construct promises that it will give them free (paid for by others) access to medical care that is 50 years out of date, at least until they are old enough to be victims of the death panels.

One of the voters' fears is cancer. The monopoly feeds on this fear. It doesn't ever let itself be caught looking as though it wants deaths from cancer to continue, but it surely doesn't act as though this is a war that it wants to win.

When, in 1993, my colleagues and I drafted a report of our findings that the growth rate of squamous cell carcinoma can be reduced 10-fold below control and varied over a range of 20-fold in mice by means of diet alone, three very famous scientists, including one with a Nobel prize, submitted our paper to the *Proceedings of the National Academy of Sciences (PNAS)*, with the strong recommendation to publish. *PNAS* rules made publication mandatory based on their recommendations alone. There is, however, a tentacle of the monopoly that has insinuated itself into the Academy. A special "medical" committee at *PNAS* must approve all papers with implications for human health. This committee blackballed the paper. It was then published in another prestigious journal.⁵

In summary, we have scientists in Taiwan who have reported a lowering of human cancer incidence 33-fold by means of hormetic radiation of well people, scientists in the U.S. who lowered the cancer growth rate in mice 10-fold by dietary means, and scientists more than 50 years ago who showed that the period of cancer-free life can be extended for eight years per pack of cigarettes per day not smoked.

Implemented together, even allowing for variations in the experimental systems, these three approaches might assure that very few Americans die of cancer.

What has the monopoly done? It has created a huge cancer research program—excluding hormesis and nutrition—and has attached a large tax to cigarettes, payable to projects for "the children" and to the government, which runs the program. What will "the children" do if people stop smoking?

Conclusion

The discovery of radiation hormesis is equivalent, in the field of health physics, to the discovery of relativity and quantum mechanics in physics. It may be the greatest medical advance of this century. However, in collusion with the medical monopoly, government is depriving Americans of access to potentially revolutionary advances in health.

Arthur B. Robinson, Ph.D., is founder of the Oregon Institute of Science and Medicine. Contact: OISM, Box 1279, Cave Junction, OR 97523.

REFERENCES

1. Chen WL, Luan YC, Shieh MC, et al. Is chronic radiation an effective prophylaxis against cancer? *J Am Phys Surg* 2004;9:6-10.
2. Brock KM, Neumann CM, Higley KA, Chang WP, Rossignol AM. A dose reconstruction of ⁶⁰Co-contaminated window frames in a Taiwanese school. *Health Phys* 2001;81:3-7.
3. Robinson AB. *Access to Energy* 2011;38(10):4.
4. Cohen BL. The linear no-threshold theory of radiation carcinogenesis should be rejected. *J Am Phys Surg* 2008;13:70-76.
5. Robinson AB, Hunsberger A, Westall FC. Suppression of squamous cell carcinoma in hairless mice by dietary nutrient variation. *Mech Ageing Dev* 1994;76:201-214. Available at: www.nutritionandcancer.org. Accessed Aug 5, 2013.