# “Intentionally dumping Fukushima’s Radiation into the Sea as a “safe” Solution”

## Low Level Radiation: Deadly … Or Harmless?

By Global Research News
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Cutting through the Misinformation

In response to the news that mass quantities of highly-radioactive water are flowing from Fukushima into the Pacific Ocean – and that the radioactivity is spreading to North America – the usual suspects are saying that that low-level radiation won’t hurt anyone.

Indeed, some are advocating *intentionally* dumping all of Fukushima’s radiation into the sea as a “safe” solution.

(And some folks are pretending that a little radiation is *good for you*.)

The truth is quite different.

### Even *Miniscule* Amounts of Radiation Can Be Dangerous

A major 2012 scientific study proves that low-level radiation can cause huge health problems. Science Daily reports:

> Even the very lowest levels of radiation are harmful to life, scientists have concluded in the Cambridge Philosophical Society’s journal Biological Reviews. Reporting the results of a wide-ranging analysis of 46 peer-reviewed studies published over the past 40 years, researchers from the University of South Carolina and the University of Paris-Sud found that variation in low-level, natural background radiation was found to have small, but highly statistically significant, negative effects on DNA as well as several measures of health.
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> The review is a meta-analysis of studies of locations around the globe …. “Pooling across multiple studies, in multiple areas, and in a rigorous statistical manner provides a tool to really get at these questions about low-level radiation.”
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> Mousseau and co-author Anders Møller of the University of Paris-Sud combed the scientific literature, examining more than 5,000 papers involving natural background radiation that were narrowed to 46 for quantitative comparison. The selected studies all examined both a control group and a more highly irradiated population and quantified the size of the radiation levels for each. Each paper also reported test statistics that allowed direct comparison between the studies.
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> The organisms studied included plants and animals, but had a large preponderance of human subjects. Each study examined one or more possible effects of radiation, such as DNA damage measured in the lab, prevalence of a disease such as Down’s Syndrome, or the sex ratio produced in offspring. For

> each effect, a statistical algorithm was used to generate a single value, the effect size, which could be compared across all the studies.
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> The scientists reported significant negative effects in a range of categories, including immunology, physiology, mutation and disease occurrence. The frequency of negative effects was beyond that of random chance.
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> "When you do the meta-analysis, you do see significant negative effects."
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> "It also provides evidence that there is no threshold below which there are no effects of radiation," he added. "A theory that has been batted around a lot over the last couple of decades is the idea that is there a threshold of exposure below which there are no negative consequences. These data provide fairly strong evidence that there is no threshold — radiation effects are measurable as far down as you can go, given the statistical power you have at hand."
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> Mousseau hopes their results, which are consistent with the "linear-no-threshold" model for radiation effects, will better inform the debate about exposure risks. "With the levels of contamination that we have seen as a result of nuclear power plants, especially in the past, and even as a result of Chernobyl and Fukushima and related accidents, there's an attempt in the industry to downplay the doses that the populations are getting, because maybe it's only one or two times beyond what is thought to be the natural background level," he said. "But they're assuming the natural background levels are fine."
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> "And the truth is, if we see effects at these low levels, then we have to be thinking differently about how we develop regulations for exposures, and especially intentional exposures to populations, like the emissions from nuclear power plants, medical procedures, and even some x-ray machines at airports."

Physicians for Social Responsibility notes:

> According to the National Academy of Sciences, there are no safe doses of radiation. Decades of research show clearly that any dose of radiation increases an individual's risk for the development of cancer.
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> "There is no safe level of radionuclide exposure, whether from food, water or other sources. Period," said Jeff Patterson, DO, immediate past president of Physicians for Social Responsibility. "Exposure to radionuclides, such as iodine-131 and cesium-137, increases the incidence of cancer. For this reason, every effort must be taken to minimize the radionuclide content in food and water."
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> "Consuming food containing radionuclides is particularly dangerous. If an individual ingests or inhales a radioactive particle, it continues to irradiate the body as long as it remains radioactive and stays in the body,"said Alan H. Lockwood, MD, a member of the Board of Physicians for Social Responsibility.
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> Radiation can be concentrated many times in the food chain and any consumption adds to the cumulative risk of cancer and other diseases.

John LaForge writes:

> The National Council on Radiation Protection says, "… every increment of radiation exposure produces an incremental increase in the risk of cancer." The Environmental Protection Agency says, "… any exposure to radiation poses some risk, i.e. there is no level below which we can say an exposure poses no risk." The Department of Energy says about "low levels of radiation" that "… the major effect is a very slight increase in cancer risk." The Nuclear Regulatory Commission says, "any amount of radiation may pose some risk for causing cancer … any increase in dose, no matter how small, results in an incremental increase in risk." The National Academy of Sciences, in its "Biological Effects of Ionizing Radiation VII," says, "… it is unlikely that a threshold exists for the induction of cancers …."
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> Long story short, "One can no longer speak of a 'safe' dose level," as Dr. Ian Fairlie and Dr. Marvin Resnikoff said in their report "No dose too low," in the Bulletin of the Atomic Scientists.

Japan Times reports:

> Protracted exposure to low-level radiation is associated with a significant increase in the risk of leukemia, according to a long-term study published Thursday in a U.S. research journal.
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> The study released in the monthly Environmental Health Perspectives was based on a 20-year survey of around 110,000 workers who engaged in cleanup work related to the Chernobyl nuclear plant disaster in 1986.
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> Scientists from the University of California, San Francisco, the U.S. National Cancer Institute and the National Research Center for Radiation Medicine in Ukraine were among those who participated in the research.
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> Keigo Endo, a radiologist and president of Kyoto College of Medical Science, pointed to previous data showing an increased risk of leukemia with cumulative radiation exposure of as low as 120 millisieverts.
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> "The latest finding underlines the importance of long-term followup surveys. Further details of the survey should be examined to confirm specific dose levels that could cause leukemia," Endo said.

Indeed, the *overwhelming* consensus among radiation experts is that repeated exposure to low doses of radiation can cause cancer, genetic mutations, heart disease, stroke and other serious illness (and see this.)

The top U.S. government radiation experts – like Karl Morgan, John Goffman and Arthur Tamplin – and scientific luminaries such as Ernest Sternglass and Alice Stewart, concluded that low level radiation can cause serious health effects.

A military briefing written by the U.S. Army for commanders in Iraq states:

> Hazards from low level radiation are long-term, not acute effects… Every exposure increases risk of cancer.

(Military briefings for commanders often contain less propaganda than literature aimed at civilians, as the commanders have to know the basic facts to be able to assess risk to their soldiers.)

The briefing states that doses are cumulative, citing the following military studies and reports:

- ACE Directive 80-63, ACE Policy for Defensive Measures against Low Level Radiological Hazards during Military Operations, 2 AUG 96
- AR 11-9, The Army Radiation Program, 28 MAY 99
- FM 4-02.283, Treatment of Nuclear and Radiological Casualties, 20 DEC 01
- JP 3-11, Joint Doctrine for Operations in NBC Environments, 11 JUL 00
- NATO STANAG 2473, Command Guidance on Low Level Radiation Exposure in Military Operations, 3 MAY 00
- USACHPPM TG 244, The NBC Battle Book, AUG 02

Many studies have shown that repeated exposures to low levels of ionizing radiation from CT scans and x-rays can cause cancer. See this, this, this. this, this, this, this, this, this and this.

Research from the University of Iowa concluded:

> Cumulative radon exposure is a significant risk factor for lung cancer in women.

And see these studies on the health effects cumulative doses of radioactive cesium.

As the European Committee on Radiation Risk notes:

> Cumulative impacts of chronic irradiation in low doses are … important for the comprehension, assessment and prognosis of the late effects of irradiation on human beings ….

And see this.

The New York Times' Matthew Wald reported in May:

> The Bulletin of the Atomic Scientists['] May-June issue carries seven articles and an editorial on the subject of low-dose radiation, a problem that has thus far defied scientific consensus but has assumed renewed importance since the meltdown of the Fukushima Daiichi reactors in Japan in March 2011.
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> This month a guest editor, Jan Beyea [who received a PhD in nuclear physics from Columbia and has served on a number of committees at the National

Research Council of the National Academies of Science] and worked on epidemiological studies at Three Mile Island, takes a hard look at the power industry.

The bulletin's Web site is generally subscription-only, but this issue can be read at no charge.

Dr. Beyea challenges a concept adopted by American safety regulators about small doses of radiation. The prevailing theory is that the relationship between dose and effect is linear – that is, that if a big dose is bad for you, half that dose is half that bad, and a quarter of that dose is one-quarter as bad, and a millionth of that dose is one-millionth as bad, with no level being harmless.

The idea is known as the "linear no-threshold hypothesis,'' and while most scientists say there is no way to measure its validity at the lower end, applying it constitutes a conservative approach to public safety.

Some radiation professionals disagree, arguing that there is no reason to protect against supposed effects that cannot be measured. But Dr. Beyea contends that small doses could actually be disproportionately worse.

Radiation experts have formed a consensus that if a given dose of radiation delivered over a short period poses a given hazard, that hazard will be smaller if the dose is spread out. To use an imprecise analogy, if swallowing an entire bottle of aspirin at one sitting could kill you, consuming it over a few days might merely make you sick.

In radiation studies, this is called a dose rate effectiveness factor. Generally, a spread-out dose is judged to be half as harmful as a dose given all at once.

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Dr. Beyea, however, proposes that doses spread out over time might be more dangerous than doses given all at once. [Background] He suggests two reasons: first, some effects may result from genetic damage that manifests itself only after several generations of cells have been exposed, and, second, a "bystander effect," in which a cell absorbs radiation and seems unhurt but communicates damage to a neighboring cell, which can lead to cancer.

One problem in the radiation field is that little of the data on hand addresses the problem of protracted exposure. Most of the health data used to estimate the health effects of radiation exposure comes from survivors of the Hiroshima and Nagasaki bombings of 1945. That was mostly a one-time exposure.

Scientists who say that this data leads to the underestimation of radiation risks cite another problem: it does not include some people who died from radiation exposure immediately after the bombings. The notion here is that the people studied in ensuing decades to learn about the dose effect may have been stronger and healthier, which could have played a role in their survival.

Still, the idea that the bomb survivor data is biased, or that stretched-out doses are more dangerous than instant ones, is a minority position among radiation scientists.

Dr. Beyea writes:

Three recent epidemiologic studies suggest that the risk from protracted exposure is no lower, and in fact may be higher, than from single exposures.

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Conventional wisdom was upset in 2005, when an international study, which focused on a large population of exposed nuclear workers, presented results that shocked the radiation protection community—and foreshadowed a sequence of research results over the following years.

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It all started when epidemiologist Elaine Cardis and 46 colleagues surveyed some 400,000 nuclear workers from 15 countries in North America, Europe, and Asia—workers who had experienced chronic exposures, with doses measured on radiation badges (Cardis et al., 2005).

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This study revealed a higher incidence for protracted exposure than found in the atomic-bomb data, representing a dramatic contradiction to expectations based on expert opinion.

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A second major occupational study appeared a few years later, delivering another blow to the theory that protracted doses were not so bad. This 2009 report looked at 175,000 radiation workers in the United Kingdom ….

After the UK update was published, scientists combined results from 12 post-2002 occupational studies, including the two mentioned above, concluding that protracted radiation was 20 percent more effective in increasing cancer rates than acute exposures (Jacob et al., 2009). The study's authors saw this result as a challenge to the cancer-risk values currently assumed for occupational radiation exposures. That is, they wrote that the radiation risk values used for workers should be increased over the atomic-bomb-derived values, not lowered by a factor of two or more.

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In 2007, one study—the first of its size—looked at low-dose radiation risk in a large, chronically exposed civilian population; among the epidemiological community, this data set is known as the "Techa River cohort." From 1949 to 1956 in the Soviet Union, while the Mayak weapons complex dumped some 76 million cubic meters of radioactive waste water into the river, approximately 30,000 of the off-site population—from some 40 villages along the river—were exposed to chronic releases of radiation; residual contamination on riverbanks still produced doses for years after 1956.

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Here was a study of citizens exposed to radiation much like that which would be experienced following a reactor accident. About 17,000 members of the cohort have been studied in an international effort (Krestinina et al., 2007), largely funded by the US Energy Department; and to many in the department, this study was meant to definitively prove that protracted exposures were low in risk. The results were unexpected. The slope of the LNT fit turned out to be higher than predicted by the atomic-bomb data, providing additional evidence that protracted exposure does not reduce risk.

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In a 2012 study on atomic-bomb survivor mortality data (Ozasa et al., 2012),

> low-dose analysis revealed unexpectedly strong evidence for the applicability of the supralinear theory. From 1950 to 2003, more than 80,000 people studied revealed high risks per unit dose in the low-dose range, from 0.01 to 0.1 Sv.

A major 2012 study of atomic bomb data by the official joint U.S.-Japanese government study of the Hiroshima and Nagasaki survivors found that low dose radiation causes cancer and genetic damage:

Dr. Peter Karamoskos notes:

> The most comprehensive study of nuclear workers by the IARC, involving 600,000 workers exposed to an average cumulative dose of 19mSv, showed a cancer risk consistent with that of the A-bomb survivors.

American physician Brian Moench writes:

> The idea that a threshold exists or there is a safe level of radiation for human exposure began unraveling in the 1950s when research showed one pelvic x-ray in a pregnant woman could double the rate of childhood leukemia in an exposed baby. Furthermore, the risk was ten times higher if it occurred in the first three months of pregnancy than near the end. This became the stepping-stone to the understanding that the timing of exposure was even more critical than the dose. The earlier in embryonic development it occurred, the greater the risk.
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> A new medical concept has emerged, increasingly supported by the latest research, called "fetal origins of disease," that centers on the evidence that a multitude of chronic diseases, including cancer, often have their origins in the first few weeks after conception by environmental insults disturbing normal embryonic development. It is now established medical advice that pregnant women should avoid any exposure to x-rays, medicines or chemicals when not absolutely necessary, no matter how small the dose, especially in the first three months.
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> "Epigenetics" is a term integral to fetal origins of disease, referring to chemical attachments to genes that turn them on or off inappropriately and have impacts functionally similar to broken genetic bonds. Epigenetic changes can be caused by unimaginably small doses – parts per trillion – be it chemicals, air pollution, cigarette smoke or radiation. Furthermore, these epigenetic changes can occur within minutes after exposure and may be passed on to subsequent generations.
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> The Endocrine Society, 14,000 researchers and medical specialists in more than 100 countries, warned that "even infinitesimally low levels of exposure to endocrine-disrupting chemicals, indeed, any level of exposure at all, may cause endocrine or reproductive abnormalities, particularly if exposure occurs during a critical developmental window. Surprisingly, low doses may even exert more potent effects than higher doses." If hormone-mimicking chemicals at any level are not safe for a fetus, then the concept is likely to be equally true of the even more intensely toxic radioactive elements drifting over from Japan, some of which may also act as endocrine disruptors.
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> Many epidemiologic studies show that extremely low doses of radiation increase the incidence of childhood cancers, low birth-weight babies, premature births, infant mortality, birth defects and even diminished

> intelligence. Just two abdominal x-rays delivered to a male can slightly increase the chance of his future children developing leukemia. By damaging proteins anywhere in a living cell, radiation can accelerate the aging process and diminish the function of any organ. Cells can repair themselves, but the rapidly growing cells in a fetus may divide before repair can occur, negating the body's defense mechanism and replicating the damage.
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> Comforting statements about the safety of low radiation are not even accurate for adults. Small increases in risk per individual have immense consequences in the aggregate. When low risk is accepted for billions of people, there will still be millions of victims. New research on risks of x-rays illustrate the point.
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> Radiation from CT coronary scans is considered low, but, statistically, it causes cancer in one of every 270 40-year-old women who receive the scan. Twenty year olds will have double that rate. Annually, 29,000 cancers are caused by the 70 million CT scans done in the US. Common, low-dose dental x-rays more than double the rate of thyroid cancer. Those exposed to repeated dental x-rays have an even higher risk of thyroid cancer.

It's not just humans: scientists have found that animals receiving low doses of radiation from Chernobyl are sick as well.

## Most "Background Radiation" Didn't Exist Before Nuclear Weapons Testing and Nuclear Reactors

Nuclear apologists pretend that we get a higher exposure from background radiation (when we fly, for example) or x-rays then we get from nuclear accidents.

In fact, there was exactly *zero* background radioactive cesium or iodine before above-ground nuclear testing and nuclear accidents started.

Wikipedia provides some details on the distribution of cesium-137 due to human activities:

> Small amounts of caesium-134 and caesium-137 were released into the environment during nearly all nuclear weapon tests and some nuclear accidents, most notably the Chernobyl disaster.
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> Caesium-137 is unique in that it is totally anthropogenic. Unlike most other radioisotopes, caesium-137 is not produced from its non-radioactive isotope, but from uranium. It did not occur in nature before nuclear weapons testing began. By observing the characteristic gamma rays emitted by this isotope, it is possible to determine whether the contents of a given sealed container were made before or after the advent of atomic bomb explosions. This procedure has been used by researchers to check the authenticity of certain rare wines, most notably the purported "Jefferson bottles".

As the EPA notes:

> Cesium-133 is the only naturally occurring isotope and is non-radioactive; all other isotopes, including cesium-137, are produced by human activity.

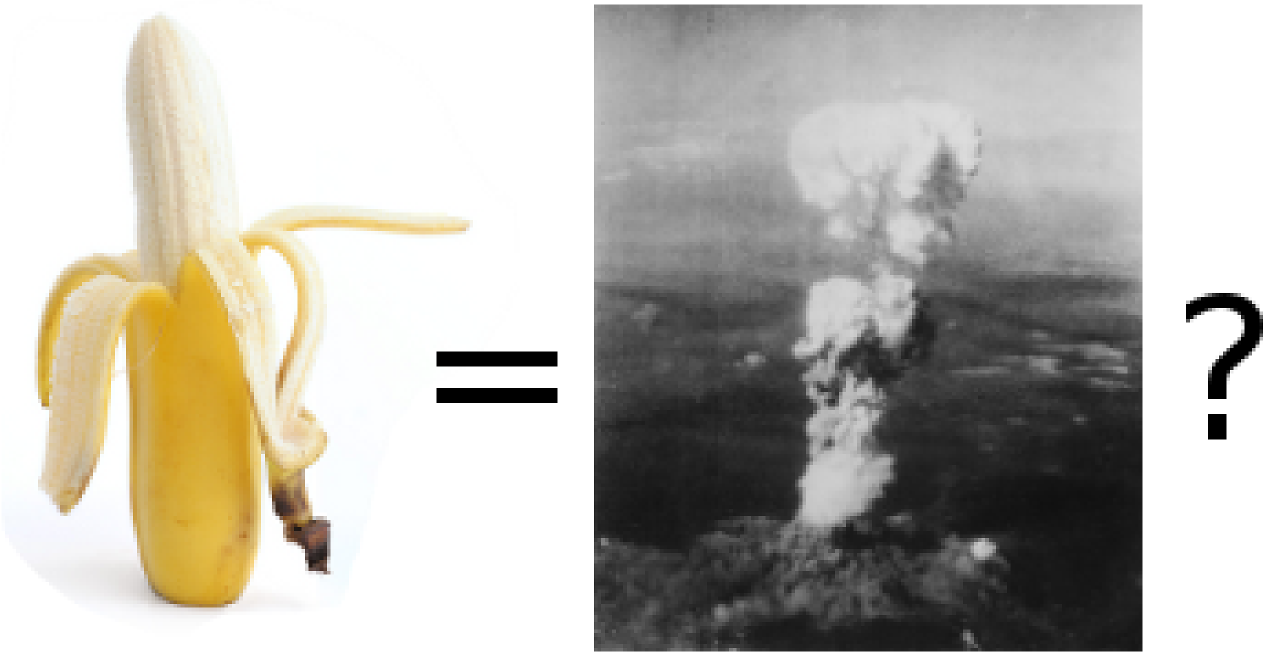
Similarly, iodine-131 is *not* a naturally occurring isotope. As the Encyclopedia Britannica notes:

> The only naturally occurring isotope of iodine is stable iodine-127. An exceptionally useful radioactive isotope is iodine-131…

(Fukushima has spewed much more radioactive cesium and iodine than Chernobyl. The amount of radioactive cesium released by Fukushima was some 20-30 times higher than initially admitted. Japanese experts say that Fukushima is currently releasing up to 93 billion becquerels of radioactive cesium into the ocean *each day*. And the cesium levels hitting the west coast of North America will keep *increasing* for several years. Fukushima is spewing more and more radiation into the environment, and the amount of radioactive fuel at Fukushima dwarfs Chernobyl.)

As such, the concept of "background radiation" is largely a misnomer. Most of the radiation we encounter today – especially the most dangerous types – did not even exist in nature before we started tinkering with nuclear weapons and reactors. In a sense, we are all guinea pigs.

## Nuclear Energy Apologists Are Going Bananas



Nuclear apologists pretend that people are exposed to more radiation from bananas than from Fukushima.

But unlike low-levels of radioactive potassium found in bananas – which our bodies have adapted to over many years – cesium-137 and iodine 131 are brand new, extremely dangerous substances.

The EPA explains:

> The human body is born with potassium-40 [the type of radiation found in bananas] in its tissues and it is the most common radionuclide in human

tissues and in food. We evolved in the presence of potassium-40 and our bodies have well-developed repair mechanisms to respond to its effects. The concentration of potassium-40 in the human body is constant and not affected by concentrations in the environment.

Wikipedia notes:

> The amount of potassium (and therefore of $^{40}K$) in the human body is fairly constant because of homeostatsis, so that any excess absorbed from food is quickly compensated by the elimination of an equal amount.
>
> It follows that the additional radiation exposure due to eating a banana lasts only for a few hours after ingestion, namely the time it takes for the normal potassium contents of the body to be restored by the kidneys.

BoingBoing reports:

> A lot of things you might not suspect of being radioactive are, including Brazil nuts, and your own body. And this fact is sometimes used to downplay the impact of exposure to radiation via medical treatments or accidental intake.
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> I contacted Geoff Meggitt—a retired health physicist, and former editor of the Journal of Radiological Protection—to find out more.
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> Meggitt worked for the United Kingdom Atomic Energy Authority and its later commercial offshoots for 25 years. He says there's an enormous variation in the risks associated with swallowing the same amount of different radioactive materials—and even some difference between the same dose, of the same material, but in different chemical forms.
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> It all depends on two factors:
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> 1) The physical characteristics of the radioactivity—i.e, What's its half-life? Is the radiation emitted alpha, beta or gamma?
>
> 2) The way the the radioactivity travels around and is taken up by the body—i.e., How much is absorbed by the blood stream? What tissues does this specific isotope tend to accumulate in?
>
> The Potassium-40 in bananas is a particularly poor model isotope to use, Meggitt says, because the potassium content of our bodies seems to be under homeostatic control. When you eat a banana, your body's level of Potassium-40 doesn't increase. You just get rid of some excess Potassium-40. The net dose of a banana is zero.
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> And that's the difference between a useful educational tool and propaganda. (And I say this as somebody who is emphatically not against nuclear energy.) Bananas aren't really going to give anyone "a more realistic assessment of actual risk", they're just going to further distort the picture.

## Mixing Apples (External) and Oranges (Internal)

Moreover, radioactive particles which end up inside of our lungs or gastrointestinal track, as opposed to radiation which comes to us from outside of our skin are *much* more dangerous than general exposures to radiation.

The National Research Council's Committee to Assess the Scientific Information for the Radiation Exposure Screening and Education Program explains:

> Radioactivity generates radiation by emitting particles. Radioactive materials outside the the body are called external emitters, and radioactive materials located within the body are called internal emitters.

Internal emitters are much more dangerous than external emitters. Specifically, one is only exposed to radiation as long as he or she is near the external emitter.

For example, when you get an x-ray, an external emitter is turned on for an instant, and then switched back off.

But internal emitters steadily and continuously emit radiation for as long as the particle remains radioactive, or until the person dies – whichever occurs first. As such, they are much more dangerous.

As the head of a Tokyo-area medical clinic – Dr. Junro Fuse, Internist and head of Kosugi Medical Clinic – said:

Risk from internal exposure is 200-600 times greater than risk from external exposure.

See this, this, this and this.

By way of analogy, external emitters are like dodgeballs being thrown at you. If you get hit, it might hurt. But it's unlikely you'll get hit again in the same spot.

Internal emitters – on the other hand – are like a black belt martial artist moving in really close and hammering you again and again and again in the exact same spot. That can do *real* damage.

There are few *natural* high-dose internal emitters. Bananas, brazil nuts and some other foods contain radioactive potassium-40, but in *extremely low* doses. And – as explained above – our bodies have adapted to handle this type of radiation.

True, some parts of the country are at higher risk of exposure to naturally-occurring radium than others.

But the cesium which was scattered all over the place by above-ground nuclear tests and the Chernobyl and Fukushima accidents has a much longer half life, and can easily contaminate food and water supplies. As the New York Times notes:

> Over the long term, the big threat to human health is cesium-137, which has a half-life of 30 years.
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> At that rate of disintegration, John Emsley wrote in "Nature's Building Blocks" (Oxford, 2001), "it takes over 200 years to reduce it to 1 percent of its former level."
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> It is cesium-137 that still contaminates much of the land in Ukraine around the

> Chernobyl reactor.
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> Cesium-137 mixes easily with water and is chemically similar to potassium. It thus mimics how potassium gets metabolized in the body and can enter through many foods, including milk.

As the EPA notes in a discussion entitled " What can I do to protect myself and my family from cesium-137?":

> Cesium-137 that is dispersed in the environment, like that from atmospheric testing, is impossible to avoid.

Radioactive iodine can also become a potent internal emitter. As the Times notes:

> Iodine-131 has a half-life of eight days and is quite dangerous to human health. If absorbed through contaminated food, especially milk and milk products, it will accumulate in the thyroid and cause cancer.

(In addition to spewing massive amounts of radioactive iodine 131, Fukushima also pumped out huge amounts of radioactive iodine 129 – which has a half-life of 15.7 *million* years. Fukushima has also dumped up to 900 *trillion* becquerels of radioactive strontium-90 – which is a powerful internal emitter which mimics calcium and collects in our bones – into the ocean.).

The bottom line is that there is some naturally-occurring background radiation, which can – at times – pose a health hazard (especially in parts of the country with high levels of radioactive radon or radium).

But cesium-137 and radioactive iodine – the two main radioactive substances being spewed by the leaking Japanese nuclear plants – are not naturally-occurring substances, and can become powerful internal emitters which can cause tremendous damage to the health of people who are unfortunate enough to breathe in even a particle of the substances, or ingest them in food or water.

Unlike low-levels of radioactive potassium found in bananas – which our bodies have adapted to over many years – cesium-137 and iodine 131 are brand new, extremely dangerous substances.

And unlike naturally-occurring internal emitters like radon and radium – whose distribution is largely concentrated in certain areas of the country – radioactive cesium and iodine, as well as strontium and other dangerous radionuclides, are being distributed globally through weapons testing and nuclear accidents.

## Cumulative and Synergistic Damage

As noted above, a military briefing written by the U.S. Army for commanders in Iraq points out:

> Hazards from low level radiation are long-term, not acute effects… Every exposure increases risk of cancer.

In other words, doses are cumulative: the more times someone is exposed, the greater the potential damage.

In addition, exposure to different radioactive particles may increase the damage. Specifically, the International Commissionon Radiological Protection notes:

> It has been shown that in some cases a synergistic effect results when several organs of the body are irradiated simultaneously.

("Synergistic" means that the whole is greater than the sum of the parts.)

Because different radionuclides accumulate in different parts of the body – e.g. cesium in the muscles, kidneys, heart and liver, iodine in the thyroid, and strontium in the bones – the exposure to *many* types of radiation may be more dangerous than exposure just to one or two types.

As such, adding new radioactive compounds like cesium and iodine into the environment may cause synergistic damage to our health.

### Politics Versus Science

Ever since nuclear weapons were first developed 68 years ago, the U.S. and other governments have been covering up the dangers of radiation.

Even though the science is clear that even tiny doses of radiation may be dangerous, political decisions have been made to allow low-level radiation. See this and this.

Brian Moench, MD writes:

> Administration spokespeople continuously claim "no threat" from the radiation reaching the US from Japan, just as they did with oil hemorrhaging into the Gulf [background]. Perhaps we should all whistle "Don't worry, be happy" in unison.