

Welcome to RadPy!

Ionizing radiation is a part of our daily life and it comes from both natural and artificial sources. The latter in particular can depend on our lifestyle, our health conditions, where we live…

RadPy will give you the tools to calculate a personalized estimate of the effective dose you are subjected to each year.

Let’s jump right in!

Are you: //the options are clickable

* Part of the public and don’t work with ionizing radiation;

//first draft of RadPy will only be applicable to the public category

* I’m a category B worker.
* Im a category A worker.

(the limit dose of the public is 1 mSv/y, for cat B is 6 mSv/y, for cat A is 20 mSv/y. Depending on what option the person chooses, the max limit at the end will be different)

Section one: Where do you live?

Select the altitude at which you reside:

* At sea level;
* At altitude lower than 300m;
* At an altitude between 300-600m;
* At an altitude between 600-1200m.

(Here I would like to insert data about the average dose in different countries. Data is yet to be found)

Do you live in a stone, brick, or concrete building?

* Yes
* No

(an option about tuft would be nice. Also maybe granite floors)

Do you live under 80km from the power plant?

* Yes
* No

(If the person answers yes, then show the next question. Otherwise, skip to the paragraph after it)

Is it a…

* Coal-fired power plant;
* Nuclear power plant;
* Neither.

You’ve made it to checkpoint number 1: do you want to see how many doses you have accumulated just by where you live, or do you want to keep going?

* I’m curious, show me now!
* Let’s keep going, please…

(If they answer the first option, here I would show the cumulative dose in a graph where the max dose is the dose relative to the category the test-taker belongs to (public, A, B). With that, I would print “You’re in the clear, the dose is still super low in comparison to the limit. Let’s see how much that can change in the next section”, and then go to the next section, by clicking a button.

If they answer the second option, go directly to the next section)

Section two: food, water and air, and Earth

(here I would like to see the difference in a diet that is:

* Omnivore;
* Pescatarian;
* Vegetarian;
* Vegan.

Data are yet to be found)

(Otherwise, just add the average values for radon in food.)

Potassium and Radon are present in many types of food. The values that are here: <https://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives.html> are interesting but they represent an activity concentration and not a dose. Further data must be found)

Every year you breathe around 3 million of liters of air (needs to be checked if correct). Air contains Radon, which is naturally present especially under the surface of the Earth, meaning in caves, mines… but also in your basement! But don’t worry, the dose relative to it is very little…

(now show the graph keeping in mind average values for radon in air and food)

Some of the biggest radiation sources are actually natural: cosmic radiation coming from our Sun and universe, background radiation coming from Earth itself and the materials that compose it, and our body itself!

We don’t want to spoil how much this big chunk really is, just wait until the end of this quiz.

Third section: Travel

Travel is something we all love to do, but many people don’t know that traveling by plane is one of the biggest sources of radiation exposure. This is because the peak of the amount of particles produced by cosmic rays in our atmosphere coincides with the height at which planes might fly.

Do you happen to travel by intercontinental at least once a year?

* Yes
* No

(if they answer yes show the next question, otherwise ship to the paragraph after)

Which is the route you take, or the route most similar to the one you take (mileage-wise)?

(must find data, since the ones I have in the database appear to be TOO high)

Fourth section: Health

Health is always at the forefront of our priorities, and this shows also in the usage of ionizing radiation fields for diagnostic or therapeutic aims, even up to really high dosages. The motto one can think of is “the aim justifies the means”. And don’t worry, their usage is under the strict supervision of radiation protection experts, radiologists, medical physicists, and many more!

In the last year, did you have health issues that required radiation in the diagnosis or treatment process?

* Not at all;
* Yes, just diagnostic;
* Yes, just therapeutic.
* Yes, either diagnostic or therapeutic.

………..go on with the health part. Then it’s missing the lifestyle part.

You’ve reached the end of our quiz, get ready for the results!

Now show the graph of just the natural sources, saying “This is the graph representing the effective dose of just natural radiation. To give you an idea of how it compares to the other sources you selected, let’s see them now all together in a big final reveal”

Now show the graph of all of the doses coming from all of the inputs the person gave plus natural sources. Then print “ As you can see the natural dose is the biggest chunk of the dose we are subjected to. It represents the \*insert percentage of natural dose compared to the 1mSv/yr limit for the public\* as opposed to the \*insert percentage of all other doses\*. “Print a sheet marking each section’s cumulative dose and its percentage to the cumulative dose of all sources from each section+natural.

If you want to play around, you can now go and change the answers to some questions to see how (if at all) the percentages changes. A fun game would be to try to make the “worst possible scenario” and see if the limits that the scientist chose to protect you still hold.

Now I would like to offer the possibility to go back to one or more section to change the results