

## CBA 2 Science in Society Investigation

### **Research Report:**

#### **Do the benefits of x-rays outweigh the negatives?**

##### **Benefits:**

There are a lot of benefits to getting x-rays. X-rays are a useful diagnostic tool because they can provide a clear picture of many internal structures. Different types of x-rays used consists of a non-invasive x-ray, this can help diagnose a medical issue or monitor treatment progression without the need to physically enter and examine a patient. An x-ray can also help guide medical professionals as they insert catheters, stents, or other devices inside the patient. They can also help in the treatment of tumors and remove blood clots or other similar blockages.

X-rays can sometimes show up a feature that is different from the initial reasoning for the imaging.

Because they are quick and easily performed tests, x-rays are good for situations, such as emergency room visits, where speed is important.

From talking about the positives of X-rays it leads us into talking about the negatives and how they can impact you.

##### **Negatives:**

X-rays can cause mutations in our DNA and, therefore, might lead to cancer later in life.

The list below shows some of the more common imaging procedures and compares the radiation dose to the normal background radiation that all people encounter on a daily basis.

Chest X-rays: Equivalent to 2.4 days of natural background radiation.

Skull X-ray: Equivalent to 12 days of natural background radiation.

1. Research question given..

2. Impact of the topic on health is referred to but lacks detail. No references made in the report to the to articles researched.

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Lumbar spine: Equivalent to 182 days of natural background radiation. These radiation figures are for adults. Children are more susceptible to the radioactive effects of X-rays

### **My Opinion:**

By evaluating the articles I've come to the conclusion that the benefits of x-rays outweighs the risks. I feel like the benefits of getting an x-ray are more helpful as it can tell the person giving the x-ray what needs to be done. The negatives either happen or they don't and more so don't so the benefits do outweigh the negatives.

### **Research**

<https://www.medicalnewstoday.com/articles/219970.php>  
This article is a reliable source. I know this because the author Tim Newman has a neuroscience degree from the university of Manchester. He was the only author writing this. This article does include reliable data as it was reviewed by Dr William Morrison, MD he is an orthopaedic surgeon with over 35 years of experience. He graduated from the University of Michigan Medical School in Ann Arbor, Michigan. It is not published in a journal. It is not biased as it tells us the risks and benefits of using x-rays.

3. Provides information on both sides of the argument.

4. Gives a personal opinion with some explanation.

5. Finds some useful sources of information about the topic and gives some references.

6. Presents the information in a structured way using some relevant scientific terminology.

7. Gives some consideration to the reliability and bias of the sources.

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<http://www.radiology.ie/wp-content/uploads/2012/01/X-Rays-Benefits-and-Risks.pdf>

This article is a reliable source. I know this because it is written by the National radiological protection board. This website lists the sources they found the information from and uses scientific language. It is not published in a journal and it is not biased as it shows both the risks and benefits of x-rays.

<https://healthfully.com/pros-cons-xrays-5479613.html>

This article is a reliable source. I know this because they have mentioned the author and tells you about the author. Holly Roberts the name of the author is an award-winning health and fitness writer whose work has appeared in health, lifestyle and fitness magazines. She uses lots of scientific language and is not biased as she talked about the pros and cons. It is published in a journal as she writes medical journals.

<https://getrevising.co.uk/grids/x-ray-pros-and-cons>

This article is not a reliable source. I know this because it does not state any information about the creator of the website and it doesn't use any scientific language. There is a comments section which is biased. This is not published as a journal because it's only a website.

<https://www.fda.gov/radiation-emittingproducts/radiationemittingproductsandprocedures/medicalimaging/medicalx-rays/default.htm>

This article is a reliable source. I know this because it is written by a health and medical website. It lists the sources

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of where they got their information and isn't biased as it talks about the benefits and risks. It does use scientific language and gives the definitions beside words.

<https://www.mayoclinic.org/tests-procedures/x-ray/about/pac-2039530>

This article is a reliable source. It is made by the Mayo Clinic. It is not biased as it talks about the benefits and risks of x-rays and uses scientific language. It is not published in a journal. It also tells you the results of an x-ray after it is done.

OVERALL JUDGEMENT



IN LINE WITH EXPECTATIONS