

## Is there a medical test to show whether I have been exposed to radon?

Radon damage to human tissues is not detectable by routine medical testing. Also, there is no effective health screening test for lung cancer. Technologies such as CT screening also involve radiation exposure and are not indicated in this situation.

Further information is available from:  
World Health Organisation (WHO)  
[www.who.int/ionizing\\_radiation/env/radon/en/](http://www.who.int/ionizing_radiation/env/radon/en/)



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For information on smoking cessation services in your area see [www.quit.ie](http://www.quit.ie) or call the National Smokers' Quitline: Tel 1850 201 203.



**Radiological Protection Institute of Ireland**  
An Institiúid Éireannach um Chosaint Raideolaíoch

The Radiological Protection Institute of Ireland (RPII) is a state agency under the aegis of the Dept. Environment, Community and Local Government.

[www.rpii.ie](http://www.rpii.ie)  
Freefone: 1800 300 600

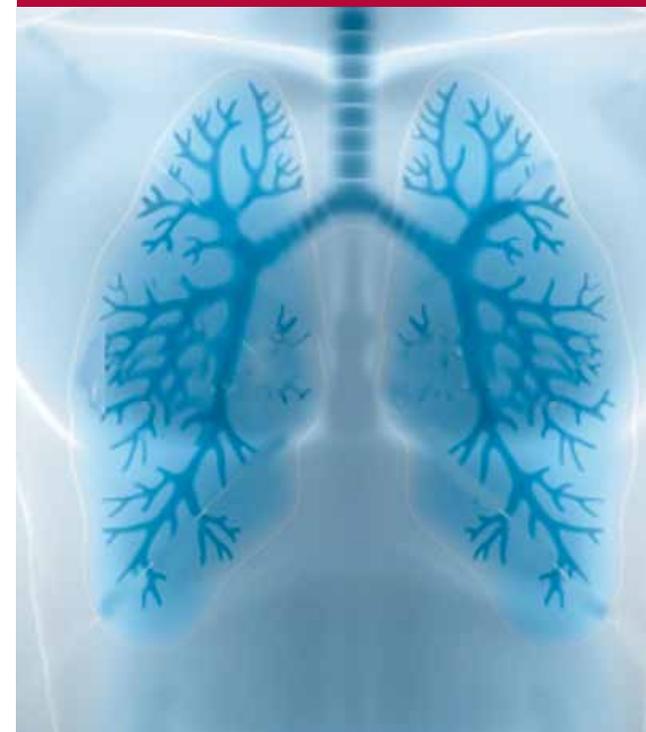
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# Radon and your health



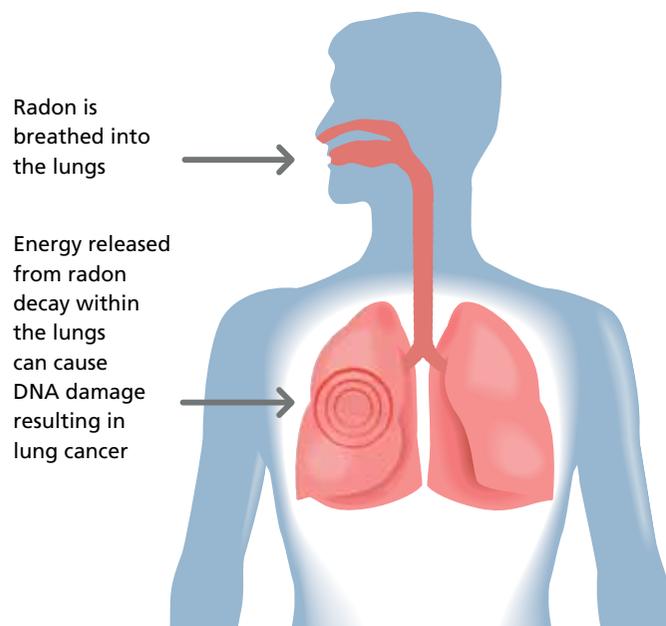
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Radon is a naturally occurring radioactive gas formed in the ground by the radioactive decay of uranium, which is present in all rocks and soils. You cannot smell it, see it or taste it and it can only be measured with special equipment. Outdoors, radon quickly dilutes to harmless levels, but when it enters a house or other building, it can sometimes accumulate to unacceptably high levels.

Long-term exposure to high levels of radon increases the risk of developing lung cancer. The size of the risk depends on the level of radon present, the length of exposure and also on smoking habits. Radon is a particular hazard for people who smoke. Radon is not irritating to the lungs in the conventional sense. It does not cause or increase the risk of asthma nor is it associated with other common respiratory disorders.



## How are we exposed to radon?

Most radon present in a home comes from the rocks and soil on which the home is built. The degree to which radon seeps into a home from these rocks and soil depends on a number of factors, including the type of underlying rocks and soil, the porosity of the soil, the composition and condition of the foundation materials and the ventilation rate in the rooms. Small cracks in the floors or foundation of homes or gaps around pipes or cables may allow high levels of radon to enter the home. The way radon enters each home is unique and, therefore, it is not possible to confidently estimate your radon risk based on a neighbour's test result. Individual measurements are needed.

## At what level of radon in a house should action be considered?

The Reference Level for long-term exposure to radon in a house in Ireland, above which the need for remedial action should be considered, is 200 becquerels per cubic metre (Bq/m<sup>3</sup>). The Becquerel is the unit of radioactivity. Measurement is made using two radon detectors placed in a bedroom and living room for at least three months. The average of the measurements for the two rooms is seasonally corrected to take account of the months of the year that the measurement was made and it is this average that is compared to the Reference Level.

The Reference Level is not a rigid boundary between safety and danger, but is rather a guideline as to when one should consider taking action to reduce the radon level.

## How likely is radon to cause lung cancer?

People exposed to high levels of radon have an increased risk of contracting lung cancer. The level of risk depends on how high a radon level a person is exposed to, for how long and whether or not a person smokes. It is estimated that, in Ireland, for the population as a whole, a lifetime exposure to radon in the home at the Reference Level of 200 Bq/m<sup>3</sup> carries a risk of about 1 in 50 of contracting lung cancer. However, the risk is much lower for non-smokers at about 1 in 700 and far greater than this average value for active smokers at about 1 in 30.

Non Smoker, little radon exposure - LEAST RISK

Non Smoker, some radon exposure - SOME RISK

Smoker, little radon exposure - INCREASED RISK

Smoker with radon exposure - GREATEST RISK

Radon is a risk factor for lung damage due to its direct local effect on the lung. Cigarettes also have direct effects on the lung. There is no way of telling whether an individual lung cancer case is linked to radon or smoking.

Reducing the radon level and/or quitting smoking will immediately reduce the risk of lung cancer.

- If you smoke – quit smoking now
- If your radon level is above 200 Bq/m<sup>3</sup> - reduce it. Work to reduce radon levels should be carried out as soon as is practical and should reduce radon levels to significantly less than 200 Bq/m<sup>3</sup>. A range of remediation methods are detailed in the RPII booklet: "Understanding Radon Remediation. A Householders Guide".