



How much air will I breathe in my lifetime?

There is more than one reasonable answer to this question.

It will change from person to person and from day to day. However, we can make a reasonable estimate and show how we worked it out.



I guess that a breath holds about a small balloon full of air.

This is roughly a sphere/ball of radius **5** cm, which is the same as **0.05** m.

The formula for the volume of a sphere is: $V = \frac{4}{3}\pi r^3$

So, using π as 3.14, a breath of air has a volume of roughly $4 \times 3.14 \times 0.05 \times 0.05 \times 0.05 \div 3 = 0.00052333$ m³ - roughly **0.0005** cubic metres, or $\frac{1}{2}$ litre.

If someone takes **12** breaths a minute, this is $12 \times 60 = 720$ breaths an hour.

This is $720 \times 24 = 17,280$ a day, and $17,280 \times 365 = 6,307,200$ breaths a year.

If someone lives to be **80** years old, that would be:

$6,307,200 \times 80 = 504,576,000$ breaths in a lifetime.

$504,576,000 \times 0.0005 = 252,288$ cubic metres of air.

This comes to about **250,000** cubic metres of air.

Can you work out something like this – perhaps for a child / large man? Or estimate how many roomfuls of air this is? Or estimate how many words you speak in a day / a year / a lifetime?



Health question

Are deep or shallow breaths better for your health?

Answer: People often take shallow, rapid breaths if they are feeling stressed. Controlled deeper breaths can help reduce feelings of stress – and help you feel more relaxed.

Count how many times in a minute you breathe in, taking normal breaths. Then try taking slower, deeper breaths.