The breakthrough of our century

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An Oxford University Mathematics and Sciences Research Team (OUMSRT) article published yesterday revealed to the world the strange correlation between mathematics and medicine.

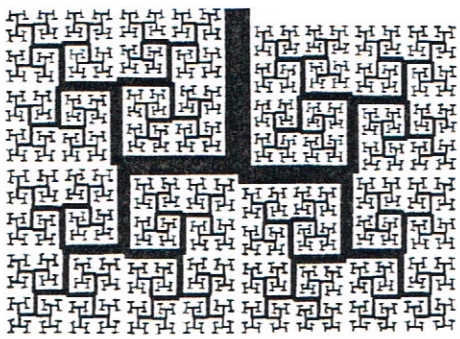
Fractals are supposed to be the link between the organization of the lungs and their size. In effect, a lung's internal surface is about 150 meter squared (which is the surface of a tennis court) while it is only 40 by 20 centimeters.

And here come fractals: it defines a never-ending, geometrical pattern that follows the self-similarity principle. In a nutshell, fractals can be understood as the representation of infinity in our world: it's not just a complex mathematical idea, it rules our everyday life more than you may think it does.

The fresh leaves of a fern, the box of your favorite French cream-cheese and even the images your computer compresses for you, all of these regular elements of your life are somehow linked to fractals.

But let's get back to medicine. Lungs are part of the inner respiratory structure: it makes them an even more important organ of our body. Nobody really dives deep into this subject – except pulmonologists – and even without using complex words, it is easy to explain the link between this regular body functionality and fractals.

Fractals are known to be able to maximize a surface in a limited space – that is one of its numerous benefits. Knowing that, it is easy to understand that lungs used it in order to have a larger exchanging surface with blood (to optimize CO_2 exchanges, of course).



Let's use mathematics and numbers to establish a model for our bronchial tubes. We start with one bronchial tube. At each step of this model, one given bronchial tube is being divided in two new smaller bronchial tubes. By repeating this process multiple times, you'll roughly get up to 30 000 bronchioles! How magnificent is that?