0:00:00.000,0:00:06.690

Quick what's the molecule you need every

moment of your life and is the thing

0:00:06.690,0:00:12.980

that's going to make you get old and

wrinkly. It’s oxygen. Oxygen is the

0:00:12.980,0:00:17.760

molecule that organisms like us are

built around, Think about it. We've got

0:00:17.760,0:00:26.010

lungs, we've got heart, circulatory system

in large part there to deliver oxygen to

0:00:26.010,0:00:31.689

our cells. What's the oxygen doing

inside yourself well inside your cells

0:00:31.689,0:00:37.130

you have mitochondria, the powerhouse of

the cell, and it's there that this

0:00:37.130,0:00:45.430

electron magnetism that oxygen has is

put to work in extracting the energy

0:00:45.430,0:00:52.610

from food. It sits at the end of a chain

of molecules and through drawing the

0:00:52.610,0:00:59.399

electrons to it. it allows the process to

produce ATP and that's the energy

0:00:59.399,0:01:10.170

currency of our cells. Oxygen pulls

electrons to it and hence is vital but

0:01:10.170,0:01:16.549

that same property is the thing that's

going to make us get wrinkly and old. How

0:01:16.549,0:01:22.670

is that? Will you remember from the last

video that electrons are the things that

0:01:22.670,0:01:29.729

hold atoms together. And that in holding

atoms together the molecule has a

0:01:29.729,0:01:38.119

particular shape and hence of particular

function. Oxygen and its related species

0:01:38.119,0:01:47.079

like peroxide and superoxide can steal

electrons from molecules and in stealing

0:01:47.079,0:01:52.110

electrons it breaks bonds by breaking

bonds it changes the shape of molecules

0:01:52.110,0:01:56.720

and the shape change means that they

don't work the same way anymore.

0:01:56.720,0:02:04.920

Perhaps you've had an aging pet I had

a dog that had a cloudy eye and that

0:02:04.920,0:02:11.430

cloudiness was in part because it was

old and the proteins in the lens had

0:02:11.430,0:02:16.880

been partly degraded by oxygen compounds

over the years. So they were no longer

0:02:16.880,0:02:24.300

the right shape and hence weren't clear

anymore. So oxygen is that crucial

0:02:24.300,0:02:30.340

molecule, that thing that we need every

moment of our life but in the long term

0:02:30.340,0:02:32.430

it's going to make us wrinkly.