

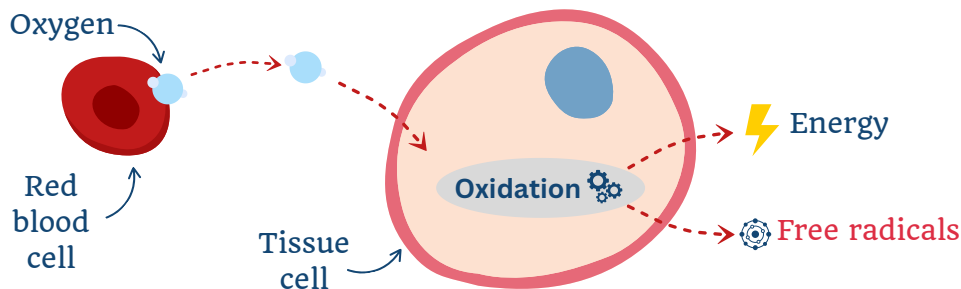


Relevant Image

What is Oxidative Stress?

What is oxidation?

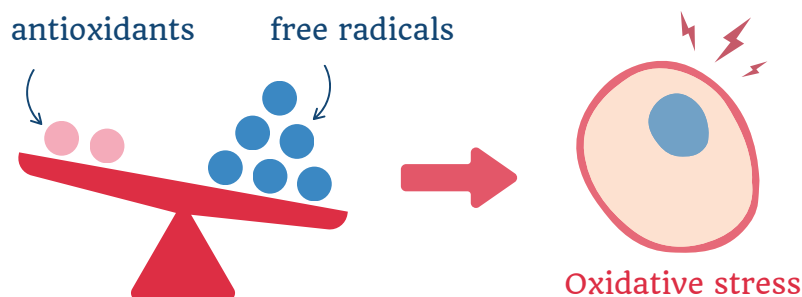
With every breath we take, about 20% of what we inhale is oxygen. Oxygen is an essential molecule that moves from the air in our lungs to our red blood cells. Our red blood cells then deliver oxygen all throughout our body and tissues to help cells function. This process is called oxidation, and we could not live without it.



The process of oxidation naturally creates **free radicals** as a byproduct in our cells. Other factors, such as air pollution, can also increase free radicals in our body. These very small molecules can interfere with the function of essential parts of our cells. If there are too many free radicals in our cells, they cause damage.¹ Luckily, **antioxidants** in our body reduce the amount of free radicals to protect cells from damage.²

What is oxidative stress?

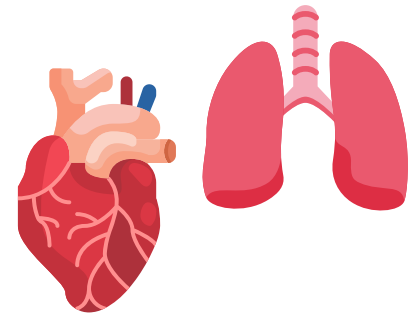
Oxidative stress occurs when there is an imbalance in our cells due to an increase in free radicals or a decrease in antioxidants.¹ Over time this disruption can injure our tissues.²





How is oxidative stress linked to my health?

Oxidative stress has been linked to a number of illnesses, including some forms of cancer, cardiovascular disease, obesity, diabetes, Alzheimer's disease, eye diseases, Lupus, and other illnesses.^{1 2} Consuming foods that are rich in antioxidants can inactivate free oxygen radicals and reduce the harmful effects of free radicals.^{3 4 5}



How is smoking and air pollution linked to oxidative stress?



One of the reasons why smoking causes negative health impacts is because of oxidative stress. When people inhale smoke and other forms of air pollution, it creates free radicals that damage health.^{2 6}

What does this mean for me and my community?

If you live, work or attend school in a place with high levels of outdoor or indoor air pollutants, or if you have high levels of stress in your life, you may be at a higher risk of oxidative stress. Here are some actions you can take to lower your risk, and the risk of others in your community:

- Support regulations that lower exposure to air pollutants from cars and trucks or from industrial sources.
- Encourage regulations that improve indoor air quality, such as smoking bans in public places and indoor air filtration systems in schools and workplaces.
- Carpool, use public transit and walk or ride bikes when possible.
- Eat more antioxidant-rich foods such as nuts, berries and dark green leafy vegetables.
- Avoid cigarette smoke and other environmental pollutants.
- Exercise regularly.

Please see http://mleead.umich.edu/Coec_Fact_Sheets.php for the citations included in this factsheet. This research was supported by the National Institute of Environmental Health Sciences (NIEHS) (#R01ES022616, #R01ES032389) and the Fred A. and Barbara M. Erb Family Foundation, with additional support provided by the Michigan Center on Lifestage Environmental Exposures and Disease (M-LEEaD) (NIEHS #P30ES017885).