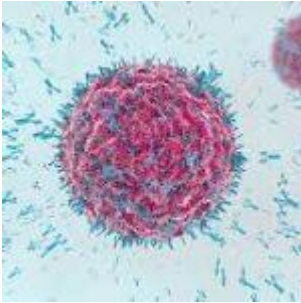


Is salt bad for you? Starving immune regulators of energy



Regulatory T cells make sure that immunological responses take place in a regulated manner. Researchers have recently demonstrated that consuming too much salt impairs the energy supply of these cells, making them temporarily dysfunctional. This could influence autoimmunity.

Consuming excessive amounts of salt, which is widespread in many Western nations, can have [negative effects on the immune system](#) in addition to raising blood pressure and taxing the heart and blood vessels. According to a global study team, salt can interfere with the energy metabolism of regulatory T cells, which are important immune regulators. The discoveries could open up fresh perspectives on how autoimmune and cardiovascular illnesses arise.

Researchers discovered a few years ago that eating too much salt might impair the metabolic and energy balance of some types of innate immune cells called monocytes and macrophages, preventing them from functioning correctly. They also demonstrated that salt causes the mitochondria, our cells' power factories, to malfunction. These results led the study teams to consider if consuming too much salt would cause a similar issue in regulatory T cells and other adaptive immune cells.

[Tregs](#), sometimes referred to as regulatory T cells, are a crucial component of the adaptive immune system. They are in

charge of preserving the equilibrium between desired, healthy inflammation and undesirable, excessive function. Researchers think that the emergence of autoimmune conditions like multiple sclerosis is associated with the dysregulation of Tregs. According to earlier studies, too much salt can affect Treg function by causing an autoimmune-like phenotype. In other words, excessive salt makes Treg cells resemble those in autoimmune diseases. However, the precise mechanism by which salt affects Treg function was yet unknown.

This study discovered that salt alters cellular metabolism by interfering with mitochondrial energy production, which is how Treg function is disrupted. This mitochondrial issue appears to be the first stage in the modification of Treg function by salt, as evidenced by alterations in gene expression that resembled those of defective Tregs in autoimmune diseases. This work is significant because it advances our knowledge of the variables and underlying biological processes that contribute to Treg dysfunction in autoimmunity.

Journal article: Beatriz F. CR., et al., 2023. [Sodium perturbs mitochondrial respiration and induces dysfunctional Tregs.](#) *Cell Metabolism*.

Summary by Stefan Botha