

How arthritis thrives

January 25 2010

The links between autoimmune diseases, infections, genetics and the environment are complex and mysterious. Why are people who live near airports more susceptible to autoimmune diseases like rheumatoid arthritis and lupus? How do hormones in meat trigger the onset of a disease?

Our immediate environment interacts with our genetic programming and can determine if we will succumb to an autoimmune disease, says rheumatologist Prof. Michael Ehrenfeld of Tel Aviv University's Sackler School of Medicine, who is seeking to unravel those mysteries. Prof. Ehrenfeld recently published a report in *Autoimmune Reviews* on how "Spondylo-arthropathies," a group of common inflammatory rheumatic disorders, appear to be triggered by environmental factors. He has also done research on how the dry-eye and mouth disease "Sjögren's syndrome" can be triggered by environmental influences.

"The onset of autoimmune diseases is a mixture of genetics, which you can't change, and environmental factors, which in some cases you can," says Prof. Ehrenfeld. While he cites pollution as a trigger in many [autoimmune disorders](#), "there are some [environmental factors](#) harder to avoid. For example, reactive arthritis is caused by a severe gastro-intestinal, urinary or sexual infection in some people," he says.

Afflicting more than 2 million Americans, [rheumatoid arthritis](#), is a chronic inflammatory autoimmune disease, three times more prevalent in women than men. The disorder causes the body's own immune system to attack its joints, leading to pain, deformities and a substantial loss of

mobility.

It is still impossible to tell which genes encode this disease and make some people more susceptible to autoimmune diseases, but there are some basic behaviors that may keep these disorders at bay. One root cause of arthritis is extreme stress, says Prof. Ehrenfeld, for which there are already therapeutic strategies. And some medications, such as the birth control pills, might be linked in some cases to the onset of lupus.

"You won't know if taking the pill or getting a certain virus will trigger arthritis, because we don't yet know the genes that encode the various autoimmune diseases," he says. "Obviously those people whose family members share a history of rheumatoid arthritis, or other autoimmune diseases including thyroid problems, should be more vigilant, because their chances are higher."

Triggers include hairspray and lipstick

Environmental pollution is also a cause for concern to those genetically predisposed to an autoimmune disease. Second-hand smoke, food chemicals or chemicals in the air, jet fuel fumes, UV exposure and other forms of environmental pollution are amongst the triggers considered to provoke the onset of autoimmune diseases.

Industrial regions, particularly in Northern Europe and North America, still exhibit the highest rates of most [autoimmune diseases](#). But on a much more local scale, Prof. Ehrenfeld also singles out hairspray as well as lipstick as known occasional triggers.

"Most people think arthritis has to do with old age," says Prof. Ehrenfeld. "This is false. There is only one major type of arthritis in older people: osteoarthritis, which is brought on by degenerative changes in the body. What you see in older adults is usually a non-inflammatory

and non-autoimmune type of arthritis.

"Most of the other kinds of arthritis we see in the clinic, the debilitating and inflammatory types, usually occur in young women between the ages of 20 and 40," Prof. Ehrenfeld says. "We hope that our research will lessen the occurrence and onset of these painful disorders."

Provided by Tel Aviv University

Citation: How arthritis thrives (2010, January 25) retrieved 10 April 2024 from <https://medicalxpress.com/news/2010-01-arthritis.html>

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