

Naturopath **Tania Flack** explains what goes wrong to cause autoimmune disease, and how you can reduce your risk.

The silent saboteur

Autoimmune diseases (AD) are a group of incredibly diverse conditions that have one important factor in common: they are all driven by a confused immune system that identifies the body's own tissues as a foreign invader and launches a defensive inflammatory attack to try and neutralise the 'threat'. Unfortunately, when this occurs we become the victims because instead of protecting the body, the immune system can actually cause significant damage, and in extreme cases can become life-threatening. It really is sabotage from within.

Autoimmune disease is a silent epidemic that affects approximately five percent of Australians with numbers steadily growing each year. There are as many as 80 distinctly separate autoimmune diseases. Common ones include:

Gliadin, found in gluten, may drive autoimmune disease by causing a leaky gut, which allows under-digested foods to be attacked by the immune system.

rheumatoid arthritis (affecting the joints), multiple sclerosis (nervous system), Hashimoto's or Graves disease (thyroid), type I diabetes (pancreas), and ulcerative colitis, Crohn's and coeliac diseases (bowel). Prognosis differs due to individual genetic and environmental factors. Tests which may be used to determine an autoimmune disorder include: C-reactive protein (CRP) (inflammation), erythrocyte sedimentation rate (ESR) (inflammation), antinuclear antibody test (ANA) (measures autoantibody levels and indicates an attack on the nuclei of the cells), specific autoantibody tests (identifies the types of tissue being damaged), and white cell count (assesses immune system function). Autoimmune disease may go through cycles of exacerbation and remission, go into lengthy or permanent remission or continue on a destructive path.

What causes autoimmunity is one of modern medicine's most intriguing questions. Although we know that the autoimmune process is triggered and perpetuated by a complex interaction between genes, environment, and hormones, we have few definitive answers; this makes treatment very difficult. Modern medical treatment is aimed at attempting to control the symptoms and progression of the disease, modulate the immune system and limit tissue damage. Natural medicine has a lot to offer people suffering from autoimmune disease; it can address some of the underlying drivers, reduce inflammation and modulate the immune system. In the hands of an experienced practitioner, natural medicines can be used in conjunction with medical treatment where necessary, to get the best results.

Pinpointing causes

While the exact cause of autoimmune disease is unknown, several potential contributing factors have been identified. Epidemiological data indicates that there has been an alarming increase in autoimmune diseases in the past three decades, particularly in the developed world; this may be due to:

- **The cleanliness factor:** Playing in the dirt, romping with a family pet and having everyday exposure to germs from an early age seems to act as a protective measure, helping to train an immature immune system to properly identify what is our own tissue and what is foreign. It is far less common for people who grew up in non-industrialised countries to develop autoimmune disease. So let your kids get dirty and be exposed to everyday bugs, it may protect them in the future.
- **The leaky gut connection:** Approximately 80 percent of our immune cells live just outside the gut wall, waiting in the wings, like border control, to apprehend any potential foreign invaders. A perilously thin layer of epithelial cells separate the immune system from the trillions of bacterial cells living inside the gut. These bacteria are collectively referred to as the gut microbiome and they perform various important tasks, including helping us to breakdown food, producing nutrients, and maintaining the health of the bowel wall. These bacteria are vital to our health, and in a well-balanced system the gut microbiome and the immune system exist harmoniously. However, a modern diet may significantly



interfere with the barrier between the two systems and this is where turf wars triggered by dietary factors can ultimately lead to major immune dysregulation. Tight gap junctions are the microscopic pores through which we absorb nutrients; they also act as a 'doorway' between the two systems. They are delicate structures and easily damaged by inflammatory, biological, and chemical insults. Maintaining a healthy gut helps to strengthen the barriers between the gut microbiome and the immune system and decreases the risk of developing autoimmune disease.

- **Toxic triggers:** Toxins damage the immune system and play a role in autoimmune disease, possibly due to their effect on the genes associated with inflammation. Environmental exposure to heavy metals, such as cadmium, mercury and lead, increases the risk of developing a range of autoimmune diseases, including multiple sclerosis. Occupational exposure to common organic solvents (e.g. paints, glues, dyes, polymers, pharmaceuticals, printing inks) or pesticides used in farming also increases the risk of developing autoimmune disease. Avoiding these harmful chemicals and supporting detoxification will help to lessen the risk.
- **Bug wars:** Some bacteria, viruses, parasites may actually trigger autoimmunity. This is thought to be due to a phenomenon called 'molecular mimicry', where the invading bug has specific proteins that are so similar to our

own, the immune system becomes confused and starts attacking its own body tissue. For example, high levels of the inflammatory bacteria *Prevotella copri* are associated with the onset of rheumatoid arthritis. Salmonella and other acute bacterial gut infections, such as *Yersinia*, *Campylobacter* and *Shigella*, are clearly associated with the onset of reactive arthritis. Several viruses are associated with the onset of autoimmune diseases, including Epstein Barr virus (multiple sclerosis) and enteroviruses (type I diabetes).

- **Hormones:** There is a definite disparity between the sexes when it comes to autoimmune disease. Of the five to eight percent of the population with autoimmune disease, an estimated 78 percent of those are women. The discrepancy between the sexes is thought to be due to the complexity of hormones in women. Women are at greater risk of autoimmune flare-ups or developing autoimmune disease during times of hormonal change such as pregnancy and menopause.

Protect yourself

Perhaps the most exciting area of research into autoimmunity comes from our growing knowledge of how the bacteria in the digestive tract interact with the immune system and how diet may play a mediating role between the two systems. A recently released paper highlighted the effects of a modern diet on the immune system and identified common foods

and additives that may contribute to autoimmune disease via their negative effect on the gut. Here's what to avoid:

Gluten: This is found in grains such as wheat, barley and rye, and gets a bad wrap on many levels; not only is it the causative factor behind coeliac disease, it may be a key driver of autoimmune disease. Gliadin, one of the components of gluten, opens the tight gap junctions in the digestive tract, contributing to a leaky gut. This allows the passage of under-digested foods, wastes and toxins from inside the lumen of the digestive tract out into the circulation where they are immediately set upon by the immune system.

Genetically, some people are more sensitive to gluten than others and more prone to develop coeliac disease. Interestingly, people genetically predisposed to coeliac disease seem to be more prone to other autoimmune diseases, particularly autoimmune thyroid diseases and type I diabetes. Due to its damaging affect on the gut membranes and its potential interaction with genes associated with autoimmune disease, avoiding gluten is vital.

Sugar: A lot has been written about the harmful effects of sugar in the diet and its connection with autoimmunity. Fructose, a type of sugar, has varying negative effects on the body; however, glucose - which has been lauded as a 'preferred' sugar - may actually contribute to the autoimmune disease cycle. Glucose is absorbed mainly via the tight gap junctions in the digestive tract and can enhance gut permeability, which may

It seems our fixation with cleanliness and avoidance of germs can actually disadvantage the immune system.

contribute to leaky gut syndrome. When we eat a processed food it's difficult to tell how much sugar we are consuming, so avoid processed foods and sugar.

Alcohol: This has also been shown to damage the tight gap junctions, which contribute to leaky gut and stress on the immune system. In susceptible people, alcohol may potentially play a role in the initiation and potentiation of autoimmune disease. Save alcohol for special occasions and avoid it altogether if you have an existing autoimmune disease.

Food additives: Emulsifiers and surfactants are widely used in processed foods to ensure even consistency. Both break down the barrier between the gut and the immune system. A Japanese study has demonstrated a direct correlation between the annual sales of emulsifiers to the food and beverage industry and the rising rate of Crohn's disease.



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Your 10-point prevention plan



1 Go for whole: A wholefood diet can have profound effects on your health. Avoiding all processed foods reduces your intake of chemical additives that damage the immune system. Put some effort into developing a good relationship with your local suppliers, ask about the food you are buying and get a good understanding of where it is grown and how it is farmed - a little bit of knowledge can help you make good choices. Experiment with new recipes and expand your cooking repertoire.

2 Pick plants: Having a high vegetable intake will provide you with valuable nutrients to fuel your health, and natural prebiotic, probiotic, and dietary fibres to keep your gut microbiome happy. A high vegetable intake is anti-inflammatory and will also help to alkalise the body, which may relieve pain. Juicing

is a great way to increase your intake. Aim for between 6-9 servings of vegetables and 2 pieces of fruit per day.

3 Go organic: This is definitely the way to go if you have an autoimmune disease; it is the fastest way to decrease your exposure to harmful pesticides and herbicides and reduce your toxic burden.

4 Love your guts: Adding fermented foods such as kefir, sauerkraut and kimchi provide beneficial bacteria to balance the microbiome. Resistant starches are a valuable source of fuel and support the health of gut bacteria; these can be found in potatoes, sweet potatoes, and rice that has been cooked, and then cooled. For best results these foods should be added to the diet slowly, starting with small amounts and building up over time.

5 Pump up your vitamin D: This is one of the most important nutrients for a healthy immune system. It has powerful anti-inflammatory effects and protects against the development of autoimmune diseases. You can get vitamin D from sun exposure and from certain foods, such as oily fish, eggs, and mushrooms. Some people have difficulty maintaining healthy vitamin D levels due to genetic variations, so supplementation is often needed. If you have an existing autoimmune condition, or you are at risk of developing one, you should aim to keep your vitamin D levels in a high healthy range, around 100 nmol/L. As vitamin D is a fat-soluble vitamin, you need to have your levels monitored by your health care provider.

6 Heal your gut: This is essential. Nutrients such as glucosamine, vitamin A, zinc and bioflavonoids will be useful for the repair of the gut

wall, as will herbs like slippery elm, marshmallow, and licorice, although these should be prescribed by a professional if you are taking other medications.

7 Dampen inflammation: Eicosapentaenoic acid (EPA), a constituent from fish oils can significantly reduce the inflammation associated with autoimmune disease. Aim for a dose of 1.2 grams daily. Nutrients such as vitamin C and bioflavonoids like quercetin and rutin will help. Herbs such as turmeric, boswellia and cat's claw are also effective anti-inflammatories.

8 Get specialised advice: There are several herbs which have an immunomodulating effect, and that can be used to control autoimmune disease, including polypodium and hermidesimus. These may not be suitable for every person and need to be

prescribed by a professional, especially if you are taking other medications.

9 Control your stress: Sustained stress leads to disruption of adrenal hormones, including cortisol, which under normal circumstances helps us to ward off inflammation. Recent studies show that when cortisol is affected by sustained stress we are less able to modulate inflammation, which is one of the driving factors behind autoimmune disease. Managing stress also reduces pain and protects against depression: two vital survival skills for autoimmune disease. Mindfulness techniques, meditation, tai chi and gentle yoga can all be useful, as can the support of a psychologist specialising in stress management.

10 Move: It reduces stress, improves mood, and releases pain-reducing endorphins.