MEDICINAL EATING
NUTRITIONAL THERAPY

JANINE THORNTON
WWW.MEDICINALEATING.CO.UK
INFO@MEDICINALEATING.CO.UK

GLUTEN AND AUTOIMMUNE DISEASE

Gluten is the main protein in wheat. It is also found in other non-wheat cereals like barley, rye, and spelt. Currently, both the prevalence and the incidence of gluten-related disorders are surging in many countries worldwide. The reasons most frequently suggested include the spread of the Western diet, increased consumption of gluten-containing foods, the development of wheat with a higher gluten content, and advances in food processing which reduce dough fermentation times and increase gluten concentration in commercial bakery products.

The incidence of autoimmune disease is also on the rise. While many of these have a genetic component, diet and environment play a key role in their development. The increased incidence of coeliac disease has been linked to increased gluten consumption. However, some evidence indicates that gluten might be related to the increased incidence of other, non-coeliac autoimmune diseases.

The Effects of Gluten on Autoimmunity

Inflammation - Many different studies have confirmed that glutenpeptides can trigger inflammation and induce the expression of proinflammatory cytokines.

Shift towards autoimmune profile - Diets containing gluten have also been shown to cause a shift in immunity towards the Th17 profile which is associated with autoimmune disease.

Dysbiosis - Gluten has a significant effect on the balance of microbes. In particular it is linked with a fall in beneficial gut species and a greater number of potentially pathogenic ones.

Intestinal permeability - Gluten-induced dysbiosis is accompanied an increase in gut permeability. The combination of detrimental changes in gut flora and increase gut permeability contribute to the activation of further inflammatory pathways.

Oxidative stress – Gliadin has been shown to deplete cellular glutathione levels and compromise antioxidant defence mechanisms. This exacerbates mucosal inflammation, potentiating tissue damage and delaying the return of epithelial cell layer integrity in inflammatory conditions.

Changes in gene expression - Gluten derived peptides have been shown to negatively change the expression of genes involved in antioxidant protection and inflammation.

Cognitive dysfunction - Some gluten-derived peptides exhibit strong opioid activities and are called exorphins. Exorphin receptors are widely scattered throughout the body, at locations that include the gut, the brain, and the nervous system. If the intestinal and blood–brain barriers are disrupted, gluten-derived exorphins can impact cognitive function, causing symptoms like mood changes and brain fog.

Shared pathways - Many autoimmune diseases share common genetic and immunological pathways with coeliac disease, allowing gluten to act as an exacerbating factor. Those studies include type 1 diabetes, multiple sclerosis, rheumatoid arthritis, psoriasis, and autoimmune thyroid disease.