



- What's in this handout?**
- An overview of autoimmune diseases
 - Digestive health links with autoimmunity
 - Long term holistic treatment aims
 - Nutritional recommendations
 - Diet and lifestyle recommendations

An overview of autoimmune diseases

Autoimmune diseases (AIDs) are a range of diseases that result from an individual's immune system attacking the body's tissues. Common AIDs include, but are not limited to, coeliac disease, Crohn's disease, multiple sclerosis, and rheumatoid arthritis.

The onset and progression of AIDs are influenced by genetics, sex, age and modifiable factors such as diet, pathogen exposure, microbiome dysbiosis/imbalance, increased intestinal permeability and inflammation. Cholesterol metabolism also plays a significant role in the regulation of the immune system, showing potential as another modifiable factor in AIDs.

Existing treatments for AIDs focus on dampening the immune response, which can potentially lead to an increased risk of infection or cancer.

AIDs are strongly associated with the health of the digestive system, sharing underlying patterns of gut microbiome disturbance and intestinal permeability (leaky gut). Digestive system health is affected by diet, medications including antibiotics, sedentary lifestyle, and strenuous exercise.

Another common link between AIDs is chronic inflammation. Systemic and intestinal inflammation both have a direct effect on immunity and the microbiome. The interaction between inflammation and digestive health is bidirectional. Intestinal inflammation can be triggered through the diet (e.g. by long-chain fatty acids) and by microbiome dysbiosis. Intestinal inflammation also causes microbiome dysbiosis and intestinal permeability, setting up a vicious cycle.

Both the type and levels of nutrients in the diet can influence the regulation of the immune system and can therefore affect several AIDs.

Digestive health issues linked to different autoimmune diseases

	Intestinal inflammation	Dysbiosis	Intestinal permeability	Reduced gastric secretion
Hashimoto's disease	●	●	●	●
Rheumatoid arthritis	●	●	●	●
Coeliac disease	●	●	●	
Crohn's disease	●	●	●	
Ulcerative colitis	●	●	●	
Grave's disease			●	●
Multiple sclerosis		●	●	
Type 1 diabetes		●	●	

Long term holistic treatment aims

- Improve digestive health by addressing inflammation, dysbiosis, intestinal permeability and gastric secretion regulation.
- Manage and maintain healthy blood cholesterol levels.

Nutritional recommendations

*Combine supplementation with dietary changes for extended clinical benefits and increased treatment effectiveness.

Probiotics	<ul style="list-style-type: none">• <i>Bifidobacterium</i> spp., <i>Lactobacillus</i> spp., <i>Lactococcus</i> spp., and <i>L. casei</i> may regulate the immune system and reduce inflammation.
Vitamin D	<ul style="list-style-type: none">• May regulate the immune system and reduce inflammation and reduce the risk of AIDs (especially after long term supplementation).
Omega-3 (fish oil)	<ul style="list-style-type: none">• May regulate the immune system and reduce inflammation and reduce the risk of AIDs.
Selenium	<ul style="list-style-type: none">• Sufficient supply is needed to support and moderate the activity of immune cells. Deficiency may be a risk factor/trigger for AIDs.

Diet and lifestyle recommendations (prevention and management)

Mediterranean diet	<ul style="list-style-type: none">• A diet rich in fresh fruit and vegetables, whole grains, legumes, nuts, fish, monounsaturated fats from olive oil, and moderate red wine consumption.• May reduce AID activity and normalise the microbiota, maintain the health of the digestive system and intestinal integrity.
Paleo Diet	<ul style="list-style-type: none">• A diet rich in lean meats, seafood, fruits, vegetables, nuts, and eggs with a restriction on grains (e.g., wheat, rice, and spelt), legumes, dairy, salt, refined fats, and processed carbohydrates/sugar.• Aspects of the diet may reduce intestinal inflammation and modulate the immune system.
Autoimmune protocol (AIP) diet	<ul style="list-style-type: none">• A version of the paleo diet that avoids foods, additives or medications (e.g. NSAIDs) that may trigger gut inflammation or dysbiosis.• Emphasizes consumption and preparation of fresh, nutrient-dense foods, bone broth, and fermented foods and an initial elimination phase of foods including grains, legumes, nightshades, dairy, eggs, coffee, alcohol, nuts and seeds, refined/processed sugars, oils, and food additives.
Low arachidonic acid (AA) diet	<ul style="list-style-type: none">• AA is pro-inflammatory and found primarily in animal products.• Aim for <90 mg of AA per day. May reduce the severity of inflammation and protect against dysbiosis and maintain intestinal integrity.
Dietary exclusions	<ul style="list-style-type: none">• Long-chain saturated fats and animal protein alter intestinal microbiota, increase intestinal permeability and inflammation. Limit long-chain saturated fat to <10% of the diet.• Processed foods, sugar and alcohol increase long-chain saturated fats and increase intestinal permeability.• Gluten is considered to be a pro-inflammatory digestive irritant, increasing dysbiosis and intestinal permeability and altering immune modulation. Exclusion is essential in coeliac disease.• Sodium can modulate the immune system and excessive consumption can promote inflammation and is a potential risk factor and exacerbating agent for AIDs.• Limiting foods containing dietary antigens, such as gluten, milk, soybean, corn, tomato, and foods high in lectins during acute flares or until intestinal integrity is restored to reduce the risk of molecular mimicry.• Food additives are associated with increased autoimmunity via impairing tight junction integrity and increasing intestinal permeability.
Dietary inclusions	<ul style="list-style-type: none">• Fruit and vegetables (> six servings per day) are associated with reduced inflammation.• Support the microbiota with fibre (>25–30 g per day), prebiotic sources (e.g., asparagus, leeks, bananas, onions, garlic, and cabbage), fermented foods (kefir, yogurt, kimchi, and fermented soy milk), and probiotics.
Exercise	<ul style="list-style-type: none">• Engage in regular physical activity, starting slowly and gradually increasing intensity over time. Aerobic exercise, strengthening, and pool-based exercises can reduce pain and improve quality of life.• Strenuous exercise can increase intestinal permeability; however, moderate exercise, can have beneficial effects on the digestive system.

Seek Medical Care

Treatment recommendations should not replace medical treatment. Consult your primary healthcare professional to check drug and herb/nutrient interactions or if you have concerns about autoimmune conditions and related symptoms.



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