

Module 6, Lesson 1 Handout: **Basics of Autoimmune Disease**

Autoimmune diseases are prevalent and they can be super complicated. As we discuss in another handout, there are over a hundred different types of autoimmune diseases and autoimmune related conditions. Over 6% of women and just shy of 3% of men suffer in the U.S. suffer from an autoimmune disease, so as a healthcare practitioner it's important to be prepared to work with clients who may have one of these conditions. Let's dive into the basics of what you absolutely need to know before working with these clients.

What are autoimmune diseases?

An autoimmune disease is a condition in which your immune system mistakenly attacks your body. The immune system usually does a great job fighting and attacking bacteria, germs, viruses or other invaders, but in an autoimmune disease the immune system mistakes part of your body as foreign. It releases proteins called autoantibodies, which mistakenly target and attack someone's own cells. Depending on the exact autoimmune disease and the cells that are under attack, this can lead to some seriously negative consequences.

Examples of Autoimmune Diseases

Here are a few examples of autoimmune diseases and a basic description of what's happening in the body. There is a complete list of different autoimmune diseases in another handout.

- Type 1 diabetes is an autoimmune disease where the pancreas is attacked by the immune system and pancreatic β -cells are destroyed. The result is that the body stops producing insulin, which is needed for proper metabolism. This may also lead to cellular damage and can affect the heart, kidneys, nerves and eyes. People with type 1 diabetes frequently have other autoimmune diseases too.
- Lupus is an autoimmune disease where the whole body gets attacked. There are a few different types of lupus, but systemic lupus is the type we think of most often. Lupus can present differently in everyone, but the skin, joints and internal organs such as kidneys and heart are most commonly affected.
- Rheumatoid Arthritis, also called RA, is another common autoimmune disease that affects the joints and causes swelling, pain, and stiffness. In RA, the immune system attacks the synovium, which is the lining of the membranes that surround your joints. This causes inflammation, pain and damage to cartilage, bone, tendons and ligaments.

How Do People Get Autoimmune Diseases?

We don't know the exact how, who or the why's of people developing autoimmune diseases, but there are a few hypotheses out there. Some researchers suspect a high fat Western diet may be causal. The typical "American diet" lacks beneficial anti inflammatory nutrients like polyphenols and omega-3 fatty acids. Researchers also suspect the high sodium content in a Western diet is linked to the development of autoimmune diseases, and that the impact a poor diet has on our microbiome may play a role as well. Plus, obesity is a risk and severity factor in autoimmunity. Studies have found that a high BMI and obesity before adulthood are associated with a higher risk of developing multiple sclerosis and that obesity is connected to some inflammatory gut disorders. Though more research is needed in this area, it's clear that diet may be playing a role.

Researchers are also looking into the effect of chemical exposure and environment on autoimmune development. It's thought that UV light may trigger systemic lupus. Scleroderma is associated with silica exposure and possibly linked with exposure to organic solvents such as vinyl chloride and epoxy resins. Eosinophilia-myalgia syndrome (EMS), which is a rare autoimmune disease that affects the muscles, skin and lungs has also been tied to chemical exposures. More precise research is needed in this field, but it's safe to say exposure to certain chemicals may be connected to certain autoimmune diseases.

Vaccinations is another area that needs to be discussed. Anecdotal reports and some poorly designed studies have linked vaccinations to certain autoimmune diseases, claiming that proteins in vaccines are similar to human proteins which could result in damaging immune responses (this is known as "mimicry.") However, well-controlled epidemiologic studies do not support this idea. A big study done back in the '90s in nearly twenty thousand children with asthma found no connection between having asthma and getting vaccines. A much smaller study published in the *Journal of Autoimmunity* found that exposure to HPV vaccines was not associated with an increased risk of autoimmune diseases. Right now, there's no solid evidence to support a definite connection between vaccines and autoimmunity.

Recommendations for Clients with Autoimmune Disorders

If a client is experiencing autoimmune-like symptoms (covered in another handout) and you can't quite put your finger on what's going on, suggest they visit their doctors, who will look at different lab values and tests. This can be a pretty frustrating experience because it's not at all black and white. There isn't one lab test that can tell if you have an autoimmune disease. Often the first test is an antinuclear antibody test (ANA) that screens to see if antibodies are present. On top of that, there is not an "autoimmune disease doctor" to refer to. Depending on the symptoms and suspected autoimmune disease, clients will need to be referred to different MDs. For instance, a dermatologist is the go-to for psoriasis while you'll want to call a GI doc for IBD. Each disease has its own medical intervention and may include immune-suppressing medications or steroids or nonsteroidal medications, also discussed in a different handout.

On your end, recommend an all-around anti-inflammatory diet that includes whole fruits and vegetables, minimally processed foods and lots of water. Refer to the specific food and nutrition handouts for further details. Exercise can also be really helpful in counteracting inflammation and clinical symptoms in autoimmune diseases, so help your client come up with a plan for activity. Most importantly, acknowledge that autoimmune diseases are confusing, frustrating and time consuming to figure out. You really have to be supportive of these clients who may be in lots of pain and have no idea why. Be empathetic and support them on this journey to get their health back on track.