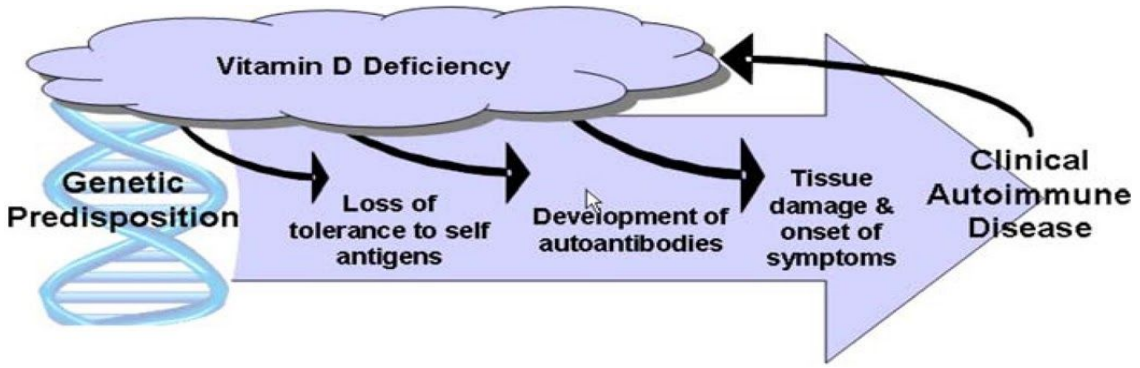
Vitamin D and Immunity

Although Vitamin D is well known for its role in bone-formation and also for its role in mineral metabolism, research is revealing Vitamin D also plays a role in the immune system.

Studies have shown that Vitamin D deficiency can lead to an increased susceptibility to respiratory pathogens. These pathogens can be both viral,such as Covid-19, or bacterial like strep throat.[1]

Vitamin D receptors are expressed on immune cells (B cells, T cells, and antigen presenting cells). What this means is that both parts of the immune system are affected by Vitamin D. There is innate immunity which is a general type of security against viruses and other pathogens. There is also adaptive immunity which will respond to specific threats.[2]

When looking at the link between Vitamin D and a virus such as influenza a clear link was found in animal and laboratory studies. Human studies were showing mixed results (multiple factors to account for). However, the evidence for an association between vitamin D and risk of influenza infection exists. Further research needs to be done to confirm this to be true, however, it would not hurt to begin supplementing with Vitamin D or getting a moderate amount of sunlight daily.[3]



Proposed mechanism for vitamin D's influence on the development and progression of autoimmunity[4]

Explanation of figure: A genetic predisposition plus a vitamin D deficiency may lead to an increased risk for autoimmune disease. The immune system becomes worse at recognizing its own cells and develops autoantibodies which will mark the body's own cells for attack from the immune system. This process leads to damage to the body's tissues, noticeable symptoms, and may progress into clinical autoimmune disease.

References

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4. Kamen D.L., Tangpricha V. *Vitamin D and molecular actions on the immune system: Modulation of innate and autoimmunity*. J. Mol. Med. 2010;88:441–450. doi: 10.1007/s00109-010-0590-9