

Aortic atherosclerotic plaque inflammation may contribute to the progression of fatty liver disease to liver fibrosis

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The world's rising obesity epidemic is associated with a broad spectrum of ailments including atherosclerosis and non-alcoholic fatty liver (NAFL) disease. Each condition can progress from small fatty deposits to localized tissue inflammation that is potentially dangerous. For example, in arterial vessel walls inflamed atherosclerotic plaques are prone to rupture (thrombosis) to form blood clots that may cause life-threatening strokes or heart attacks.

Now a new study sheds light on the long-term effects of highly inflamed plaques on the progression of [liver](#) fibrosis.

"In the past, research focused on particular conditions of the vasculature or liver, but the contribution of chronic systemic effects and inter-organ communication to the pathogenesis of both diseases, and notably [liver disease](#), remained understudied," explained corresponding author James Hamilton, Ph.D., professor of physiology and biophysics at Boston University School of Medicine (BUSM) and professor of biomedical engineering at Boston University.

The researchers found that advanced inflamed vascular plaques were associated with progressive liver [disease](#). According to Hamilton these observations support the emerging broad view that chronic unresolved inflammation may impart systemic effects leading to secondary conditions, including diabetes, rheumatoid arthritis, colitis, cancer and

Alzheimer's disease.

"The good news of our study showing this inflammatory relationship between vascular and liver disease is that the systemic nature of these diseases also presents a valuable therapeutic approach, including the treatment with natural molecules that lower inflammation without unwanted side effects."

Hamilton and his colleagues are currently testing oral delivery of molecules produced naturally in the body from [omega-3 fatty acids](#) such as DHA and EPA found in fish oils, which have been shown to be effective in treating both periodontal inflammation and atherosclerotic plaque inflammation.

More information: Erik Taylor et al, MRI of atherosclerosis and fatty liver disease in cholesterol fed rabbits, *Journal of Translational Medicine* (2018). [DOI: 10.1186/s12967-018-1587-3](https://doi.org/10.1186/s12967-018-1587-3)

Provided by Boston University School of Medicine

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