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Link between Imbalanced Gut Microbiome and Systemic Sclerosis

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Abstract. Recent research suggests that the intestinal microbiota influences the development and function of the immune system, may also play a role in the pathogenesis of autoimmune diseases. **Systemic sclerosis,** also known as scleroderma (SD), is a rare disease. Scleroderma is an immune-mediated systemic autoimmune disease, of unknown etiology, with high morbidity and mortality. The link between the disease and the imbalance of the intestinal microbiota suggested that it would contribute to the development of SD, which is characterized by immune disorder, vasculopathy, organ fibrosis. Gastrointestinal dysfunction affects 90% of patients with SD and is a leading cause of morbidity and mortality in these patients. Emerging evidence suggests that there are changes in the intestinal microbiota in SD, further laboratory and clinical studies are needed to establish the mechanism by which these changes perpetuate inflammation and fibrosis in SD. Although several studies have shown that the intestinal microbiota of patients with SD is abnormal compared to that of seemingly healthy people, it remains unclear whether changes in the intestinal microbiota are the result of the disease or the initial causes. Therapeutic studies are needed to investigate whether dietary interventions or fecal transplantation can restore intestinal microbial balance and improve health outcomes. Interventional studies aimed at addressing / correcting these disorders, either by dietary modification, pro / prebiotic supplementation or fecal transplantation, may lead to improved outcomes for patients with SD. It is necessary to further investigate the potential pathophysiological role of dysbiosis of the intestinal microbiota in triggering SD, we will discuss natural remedies for modulating the microbiota in SD.

Keywords: *microbiome, dysbiosis, scleroderma, natural remedies*

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Systemic sclerosis, also known as scleroderma (SD) is a rare disease. Scleroderma is a heterogeneous chronic multisystem disease of unknown etiology. Multiple genes are implicated in SD susceptibility, and the genetic architecture, dominated by the HLA locus, shows considerable overlap with other autoimmune diseases. Scleroderma is actually a collection of several autoimmune diseases that are characterized by hardened patches of skin and connective tissue. Approximately 80% of patients are females, and one-half present before