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The Association Between Gut Microbiota and Uremia of Chronic Kidney Disease

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Large microbial communities reside in the gut and interact with the host affecting health as an endogenous organ. Recent studies have provided much evidence that the microbiota plays an important role in kidney diseases including chronic kidney disease (CKD) by affecting the function of the intestinal barrier, regulating local and systemic inflammation, controlling metabolic components, and impacting immune responses.

The complex interactions between the gut, microbiota, metabolites, and kidney are recognized as novel mechanisms that mediate the pathogenesis of CKD and ultimately alter its progression and complications. Therefore, strategies that modulate the microbiome have the potential to improve CKD outcomes.

Considering that growing healthcare burden of CKD and limited therapeutic option, data from several clinical studies for the effectiveness of pre, pro, and synbiotics in CKD are promising. However, further studies are needed to elucidate the roles of each microbiome and metabolites, and the underlying mechanisms involved in disease pathogenesis.