

## Remodeling of Gut Microbiome of Pakistani Expats in China After Intermittent Fasting/Ramadan Fasting

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**Abstract :** Time-restricted intermittent fasting (TRIF) impacts host's physiology and health. Plenty of health benefits have been reported for TRIF in animal models. However, limited studies have been conducted on humans especially in underdeveloped economies. Here, we designed a study to investigate the impact of TRIF/Ramadan fasting (16:8) on the modulation of gut-microbiome structure, metabolic pathways, and predicted metabolites and explored the correlation among them at different time points (during and after the month of Ramadan) in Pakistani Expats living in China. We observed different trends of Shannon-Wiener index in different subjects; however, all subjects showed substantial change in bacterial diversity with the progression of TRIF. Moreover, the changes in gut microbial structure by the end of TRIF were higher vis-a-vis in the beginning, significant difference was observed among individuals. Additionally, metabolic pathways analysis revealed that amino acid, carbohydrate and energy metabolism, glycan biosynthesis metabolism of cofactors and vitamins were significantly affected by TRIF. Pyridoxamine, glutamate, citrulline, arachidonic acid, and short chain fatty acid showed substantial difference at different time points based on the predicted metabolism. In conclusion, these results contribute to further our understanding about the key relationship among, dietary intervention (TRIF), gut microbiome structure and function. The preliminary results from study demonstrate significant potential for elucidating the mechanisms underlying gut microbiome stability and enhancing the effectiveness of microbiome-tailored interventions among the Pakistani populace. Nonetheless, extensive, and rigorous large-scale research on the Pakistani population is necessary to expound on the association between diet, gut microbiome, and overall health.

**Keywords :** gut microbiome, health, fasting, functionality

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