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## Alpha amylase activity is positively lined with the propensity of obesity, diabetes and inflammation

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Alpha amylases are enzymes which hydrolyze dietary starch into disaccharides and tri-saccharides which are further converted by other enzymes to glucose to supply the body with energy. Thus, alpha amylase acts as a key player in metabolic energy homeostasis. Hence, assessment of the activity of alpha amylase in metabolic disorders such as in obesity and diabetes is of interest. Therefore, the aim of the present study was to demonstrate the role of alpha amylase in the pathological progression of obesity and diabetes and to elucidate the effect of trace mineral in controlling its activity. To implement the hypothesis, alpha amylase activity along with various biochemical markers such as glucose level, triglyceride, total cholesterol, C-reactive protein and creatinine level were assessed. In addition, an attempt was done to characterize the *in vitro* modulation of alpha amylase activity by trace mineral (zinc). In obesity and diabetes, sufficient deviation was observed in the level of biochemical markers including blood glucose, lipid profile, C-reactive protein (CRP), creatinine and alpha amylase activity when compared with healthy participants. Alpha amylase activity found to be positively linked with Body Mass Index (BMI). In addition, alpha amylase also showed a positive correlation with blood glucose level and duration of diabetes. Thus, it can be stated that alpha amylase can initiate a cross-link mechanism between BMI and blood glucose level facilitating the propensity of obesity and diabetes. Furthermore, alpha amylase also showed a significant positive correlation with CRP, an ideal inflammatory marker, suggesting an intricate role of alpha amylase on propagation of inflammation in obesity and diabetes. Serum creatinine also showed an insignificant positive link with alpha amylase activity in obesity and type-2 diabetes. Moreover, *in vitro* serum fortification with zinc represents a significant inhibition on the activity of alpha amylase in obesity and diabetes. Thus, alpha amylase can be considered as a major risk factor in the pathogenesis of obesity and diabetes associated complications and supplementation of zinc trace mineral can be suggested to control this impetuous marker.

### Biography

Mohammad Salim Hossain has completed his graduation in Pharmacy from University of Dhaka, obtained his PhD form Tottori University, Japan. Currently he is a Professor of Pharmacy at Noakhali Science and Technology University, Bangladesh. He has vast experiences in studying the biochemical and molecular regulation of adipogenesis and adipocyte inflammation. He aims to explore the cross linking parameters between obesity and other related life style diseases. He is also studying natural products for combating obesity and linked non-communicable diseases.

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