

We investigated the effects of dietary supplementation of difructose anhydride III (DFA III), raffinose (Raf), and fructooligosaccharides (FOS) on diet-induced obesity development. Male rats were fed normal or high-fat and high-sucrose (HFS) diet, with or without supplementing (3%) DFA III, Raf, or FOS, for 8 or 5 weeks. Supplementing DFA III to the HFS diet decreased energy intake compared to the non-supplemented HFS diet. Accordingly, body weight gain and fat accumulation reduced in DFA III-fed rats. Cecal acetate production and plasma glucagon-like peptide-1 (GLP-1) and peptide-YY (PYY) were elevated in DFA III-fed rats, while Raf and FOS partially affected these parameters. These results demonstrate that DFA III has suppressive effect on excessive energy intake driven by the palatable obesogenic diet, possibly due to combined effects of increased anorexigenic factors such as cecal acetate production and GLP-1/PYY secretion.

