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ANTI-OBESOGENIC TREATMENT MODIFIES CARDIAC ENERGY METABOLISM

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Abstract

Diet-induced obesity in mice is associated with insulin resistance and a switch in fuel selection by the heart towards fatty acids at the expense of carbohydrates. We have previously reported, however, that dietary supplementation with Calanus oil (a novel marine oil extracted from the crustacean, Calanus *finmarchicus*) attenuates abdominal obesity and adipose tissue low-grade inflammation in mice during high-fat feeding. Here, utilizing female high fat diet-fed C57bl/6J mice, we show that dietary Calanus oil and infusion of the incretin mimetic exenatide (used for the treatment of type 2 diabetic patients) were able to antagonize obesity-induced alterations in myocardial energy metabolism. In contrast to exenatide, Calanus oil supplementation also protected the heart towards ischemic stress, based on recordings of left ventricular functional parameters during the post-ischemic recovery phase.

Keywords

Ischemia-reperfusion; Myocardial fatty acid oxidation; Myocardial glucose oxidation; Obesity; Ventricular function