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## Association between circulating serum free fatty acids in adolescents with and without insulin resistance

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**Background:** Individuals with higher serum concentrations of Free Fatty Acids (FFAs) were at risk for metabolic changes. However, the full nature of the inter-relationship between FFAs and obesity and metabolic homeostasis is not yet fully understood.

Aim of the Study: The aim of this study is to investigate the association between IR and alterations in serum FFAs in adolescents.

**Patients & Methods:** Fifty adolescents with insulin resistance (IR) aged 13-18 years and fifty age-matched healthy controls without IR we collected. Serum fatty acids were measured by Gas Chromatography Mass Spectrometry (GC-MS). Insulin resistance (IR) was evaluated by the Homeostasis Model Assessment-Insulin Resistance (HOMA-IR). Plasma FFAs levels of subjects across insulin resistant and controls groups were compared. Serum fasting Glucose, Insulin and Blood lipids and Anthropometry were measured.

**Results:** IR adolescents showed significant lower values of monounsaturated fatty acids oleic, linoleic and alphalinolenic than controls. On the other hand, arachidonic acid was significantly elevated. Inverse relationship between oleic acid and arachidonic acid as well as between linoleic acid and arachidonic acid was observed in IR group.

**Conclusions:** These findings highlight the potential role of understand FAs in the IR pathogenesis, suggesting that their high levels might be used as predicting risk markers for developing IR and diabetes in obese adolescents.

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