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Introduction and Aim

Acyl-ghrelin has been reported to increase food intake and adiposity and it is the best studied of the orexigenic gastrointestinal hormones. On the other hand, desacyl-ghrelin – DAG (the unacylated form of the hormone) has been reported as a potential player on carbohydrate metabolism. However, the potential impact of DAG on glucose homeostasis remains uncertain. In this study we aim to assess the association between DAG and insulin sensitivity.

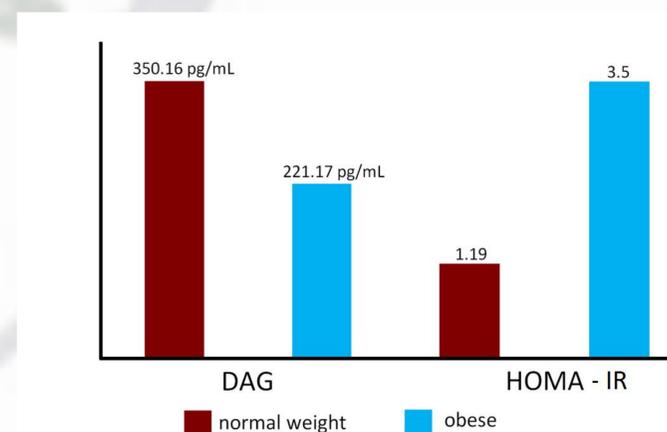
Materials and Methods

We studied 95 normal-weight and 223 obese premenopausal caucasian women; with no known health condition (other than obesity, in the obese group) or administration of any drug (other than oral contraceptives). The two groups, adjusted for age, were characterized for BMI, fasting glucose and insulin levels and DAG. DAG plasma levels were determined by ELISA (Cayman Chemical, USA), insulin by immunoluminescence (Siemens Healthcare Diagnostics, UK) and glucose by an automatic chemistry test (Ortho-Clinical Diagnosis Inc, USA). Insulin resistance was assessed by HOMA-IR (Homeostatic Model Assessment of Insulin Resistance). In each group we assessed for the presence of correlations of DAG and BMI, glucose and HOMA-IR.

Results

DAG levels were higher and glucose and HOMA were lower in normal-weight women ($p < 0.001$ for all). Dysglycemia (diabetes or intermediate hyperglycemia) was present in 21.1% of obese women but it was absent at the normal-weight group.

	Normal-Weight	Obese	p value
Age (Yrs)	34.21±8.38	34.45±8.17	ns
BMI (Kg/m ²)	21.4±1.70	42.0±7.80	<0.001
DAG (pg/mL)	350.16±251.88	221.2±149.0	<0.001
Glycemia (mg/mL)	80.9±7.20	89.1±28.4	<0.001
HOMA-IR	1.19±0.76	3.50±3.20	<0.001



No significant correlation was observed between DAG and BMI, glucose or HOMA-IR in either normal-weight or obese women.

Conclusions

These results suggest that although obese women have significantly lower DAG, and that some of them present dysglycemia, DAG is not a major regulator of insulin sensitivity.