

ADIPONECTIN RESPONSE TO VEGETARIAN DIET IS GENDER-DEPENDENT AND INVERSELY RELATED TO URIC ACID

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Objectives

Beneficial influence of vegetarian dietary habits in reducing common risk factors of metabolic syndrome has been recently evidenced. However, adiponectin production and secretion has been scarcely studied in vegetarians, despite its important potential in recovering metabolic homeostasis by reducing inflammation and insulin resistance.

The aim of this study was to evaluate the influence of vegetarian diet on serum adiponectin levels and its association to the established inflammatory and metabolic biomarkers.

Methods

Total serum adiponectin (ADN), leukocytes (L), CRP, plasma glucose (PG), insulin (INS) and uric acid (UA) were measured at fasting in healthy, non-obese, age-matched vegetarian (N=40; M/F=16/24) and omnivore subjects (N=39;M/F=15/24).

ADN was determined by an immunoturbidimetric method (Randox Laboratories, Ireland) and INS with a chemiluminiscent immunoassay (Advia Centaur-XP, Siemes Diagnostic Solutions, USA). HOMA-2 model was used for the assessment of beta-cell function (BS), insulin sensitivity (IS) and insulin resistance index (IRI).

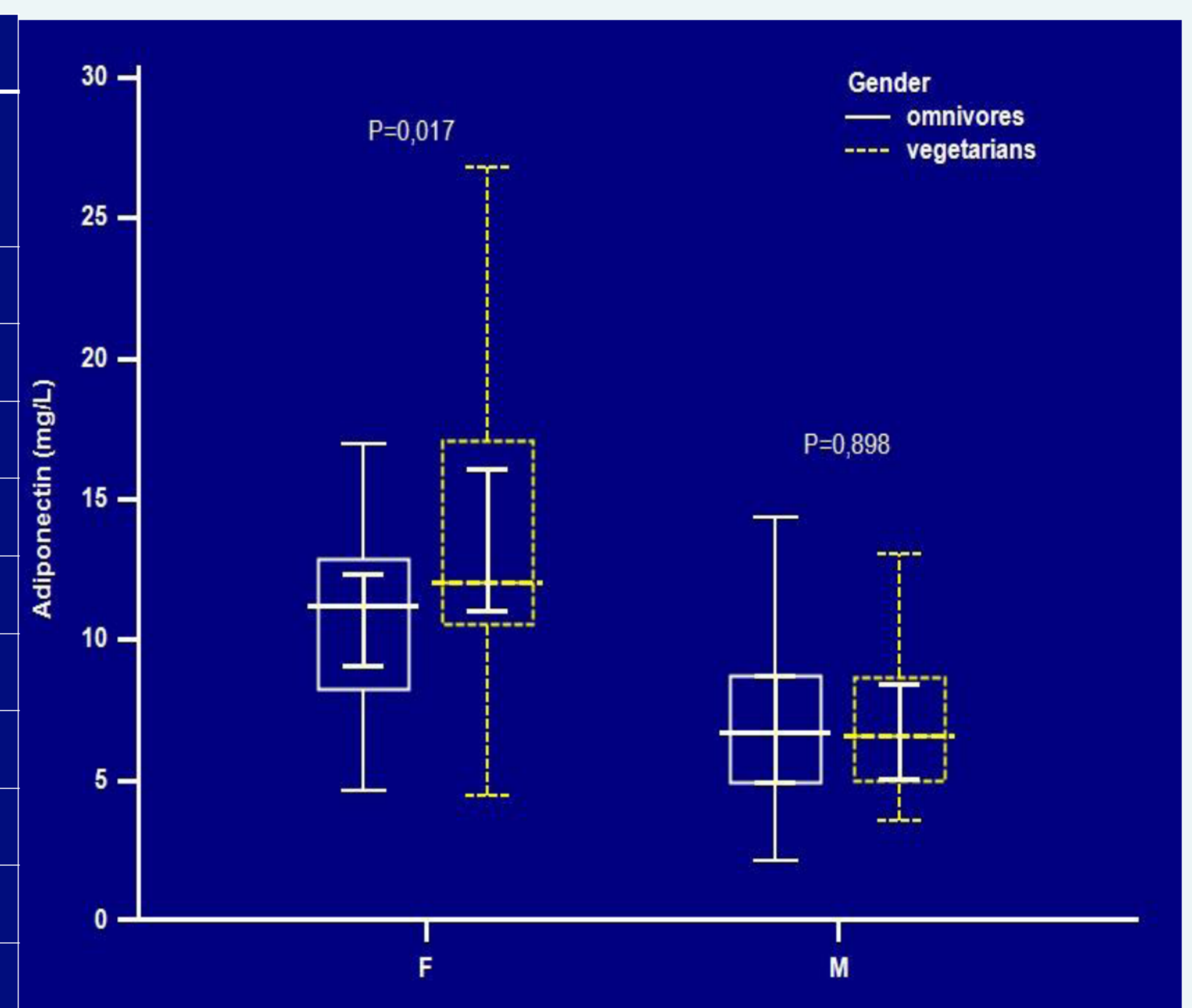
Results

In comparison to controls, significantly lower INS (P=0,042) and IRI (P=0,041), as well as higher BS (P=0,019) were found in vegetarians subjects.

Serum ADN levels were significantly higher in female vegetarians than the respective omnivore controls (P=0,017), whereas no dietary-associated difference was observed in male vegetarian and omnivore subjects, respectively (P=0,898).

Stepwise multiple regression analysis identified uric acid as the significant negative determinant of ADN in vegetarians ($r_{\text{partial}}=-0,4585$, P=0,002), while in omnivore subjects only BMI was found to be significantly associated to ADN levels ($r_{\text{partial}}=-0,4439$, P=0,016).

	GROUP				P
	OMNIVORES (N=39)		VEGETARIANS (N=40)		
	Mean	SD	Mean	SD	
Adiponectin (mg/L)	9,25	3,752	11,27	5,981	0,2615
Age (y)	31,7	7,75	32,0	7,21	0,8320
BMI (kg/m ²)	23,34	3,616	22,42	2,630	0,1992
BS (%)	94,18	35,280	115,52	42,892	0,0189
hs-CRP (mg/L)	1,19	1,542	0,64	0,578	0,1667
Glucose (mM)	5,0	0,43	4,9	0,47	0,3533
Insulin (pM)	57,6	23,66	47,6	19,16	0,0415
IRI (%)	1,22	0,492	1,01	0,413	0,0393
Leukocytes (x10 ⁹ /L)	6,2	1,45	5,8	1,38	0,1550
Uric acid (μM)	248	81,6	226	62,5	0,3963



Conclusions

Vegetarian dietary habits result into improved insulin sensitivity and beta-cell function. Gender diversity in adiponectin response indicate distinct effects of vegetarian diet to adipose tissue metabolism, with a more favorable metabolic pattern in female vegetarians.

References

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