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Effects of Irisin on the Reproductive Parameters in High-Fat Diet-Induced Obese Male Rats

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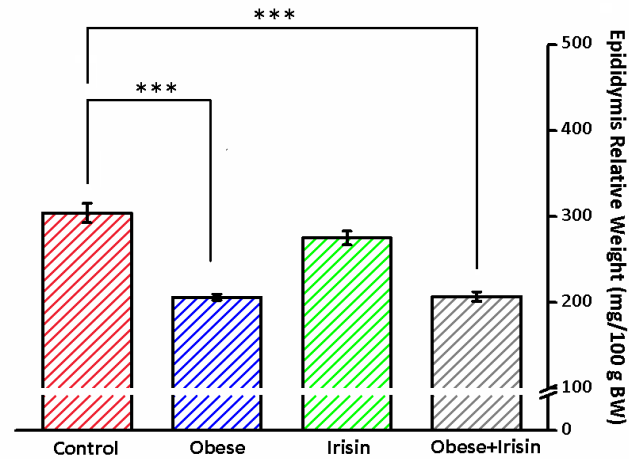
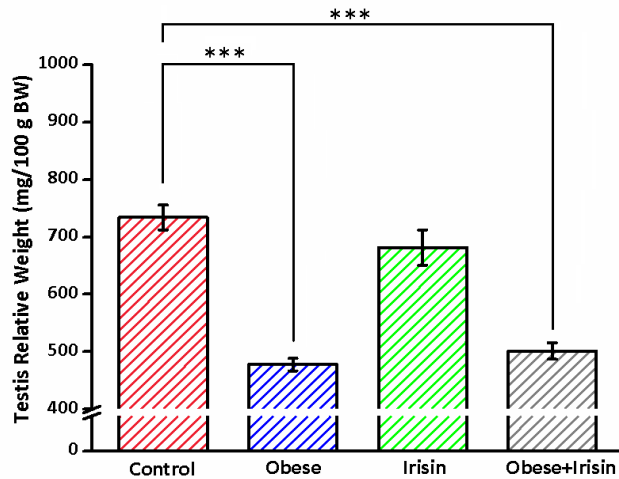


AIM: The present study was designed to investigate the possible effects of irisin on accessory sex organs and sperm parameters in the rat model of high-fat diet-induced obesity.

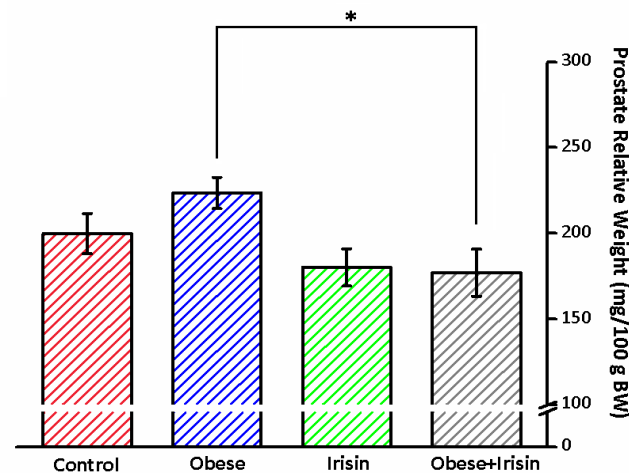
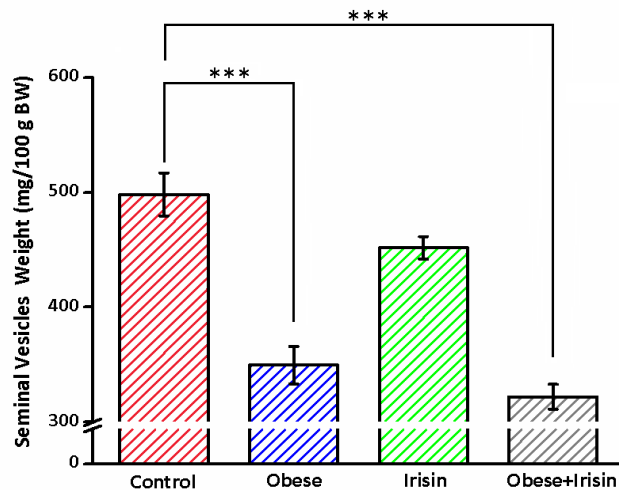
METHODS: For the study, a total of 40 male Sprague-Dawley rats were used. Animals were randomly divided into four groups: Control, irisin (subcutaneous irisin infusion (100 ng/kg) for 4 weeks), obese, obese+irisin (100 ng/kg s.c.) infusion for 4 weeks (n=10 for each group).

Irisin and control groups were fed with a control diet. Obese and obese+irisin groups were fed with a high-fat diet to ensure diet-induced obesity. At the end of the study, the animals were decapitated by guillotine, and then left and right epididymis, testicular tissues, prostate, and seminal gland were taken and weighed respectively. Finally, sperm motility, morphology, and concentrations were determined. One-way ANOVA post hoc Tukey's HSD test was used for evaluation of the data. In all analyses, $p \leq 0.05$ was considered statistically significant.

RESULTS:



***p < 0.001



*p < 0.05



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RESULTS:

Parameters	Control	Obese	Irisin	Obese + Irisin
Sperm motility (%)	66 ± 2.67	51 ± 4.07 ^{a*}	66.67 ± 3.73	72.22 ± 4.65 ^{b**}
Sperm concentration (10 ⁶ /right cauda epididymis)	165.60 ± 13.14	130.20 ± 8.16	164.22 ± 12.25	140.33 ± 20.51
Abnormal Sperm Rate (%)				
Head (%)	2.56 ± 0.29	5.22 ± 0.80 ^{a**}	2.67 ± 0.41	2.67 ± 0.58 ^{b*}
Tail (%)	3.56 ± 0.56	4.56 ± 0.65	3.33 ± 0.60	4 ± 0.44
Total (%)	6.11 ± 0.56	9.78 ± 1.12 ^{a*}	6 ± 0.62	6.67 ± 0.85 ^{b#}

*p< 0.05, **p< 0.01, # p = 0.05, a vs. Control Group, b vs. Obese Group



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CONCLUSION:

Our results suggest that the chronic administration of irisin does not prevent high-fat diet-induced accessory sex organs' shrinkage, however, it may show the *ameliorative effect* on the ***certain sperm parameters*** in ***obese male rats***.

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