

GRADE summary of findings table.

Outcome	Participants (studies)	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Overall certainty of evidence
Irisin	15 Observational studies	Not serious	Very serious ¹	Not serious	Not serious	Plausible confounding ²	VERY LOW

¹Serious inconsistency due to significant heterogeneity($I^2>90\%$)

²All plausible residual confounding would reduce the demonstrate effect. Some of the studies do not match the basic information of two groups, like age, BMI and so on.