

Macronutrients and the FTO Gene Expression in Hypothalamus: A Systematic Review of Experimental Studies

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Abstract : The various studies have examined the relationship between FTO gene expression and macronutrients levels. In order to obtain better viewpoint from this interactions, all of the existing studies were reviewed systematically. All published papers have been obtained and reviewed using standard and sensitive keywords from databases such as CINAHL, Embase, PubMed, PsycInfo, and the Cochrane, from 1990 to 2016. The results indicated that all of 6 studies that met the inclusion criteria (from a total of 428 published article) found FTO gene expression changes at short-term follow-ups. Four of six studies found an increased FTO gene expression after calorie restriction, while two of them indicated decreased FTO gene expression. The effect of protein, carbohydrate and fat were separately assessed and suggested by all of six studies. In conclusion, the level of FTO gene expression in hypothalamus is related to macronutrients levels. Future research should evaluate the long-term impact of dietary interventions.

Keywords : obesity, gene expression, FTO, macronutrients

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