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Advances in research on hypoxia-mediated miRNAs affecting glucose metabolism

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Objective This article reviews the role of miRNAs in promoting insulin sensitivity, controlling insulin synthesis, and regulating insulin resistance in hypoxia exercise, and discusses the relationship between miRNAs and glucose metabolism, and the mechanism of hypoxia-induced regulation of miRNAs in glucose metabolism. It provides a theoretical basis for better research on the prevention and treatment of disorders of glucose metabolism.

Methods This paper uses the literature data method, collects a large number of documents and cites more than 90 articles for comprehensive statistical analysis to write this article, which provides researchers with relevant research directions.

Results Studies have shown that miRNAs such as miR-138, miR-26b, miR-27a, miR-122, miR-802 and miR-143 have regulatory effects on obesity; some miRNAs such as miR-128, miR-7, miR-25, miR-92a, miR-375 and miR-15 family (miR-15a and miR-15b) and other miRNAs play an important role in regulating glycolipid metabolism, thereby maintaining a stable state of glycolipid metabolism. Expressions such as miR-802 and miR-143 are up-regulated in the liver of obese patients, resulting in impaired glucose tolerance.

Conclusions By regulating the expression of target genes and maintaining the homeostasis of glucose metabolism, miRNAs can effectively improve or prevent obesity and disorders of glucose metabolism such as type 2 diabetes. Current studies have shown that miRNAs affect glucose metabolism from insulin sensitivity, insulin synthesis and insulin resistance. At the same time, studies have shown that exercise intervention can effectively improve glucose metabolism. However, the research on the metabolism of miRNAs in glucose metabolism during hypoxia is still insufficient. It is for further study. Studying the mechanism of the effects of miRNAs on glucose metabolism in hypoxic exercise can not only provide a theoretical basis for scientific hypoglycemic and weight control, but also can be used as an intervention for the prevention and control of diseases related to glucose metabolism disorders. In the future, drugs can regulate the expression of miRNAs, thereby providing a new therapeutic approach for the treatment of diseases caused by abnormal glucose and lipid metabolism.