



# Exercise Biochemistry Review

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## Study On The Effect Of Exercise On Intestinal Flora And Its Mechanism

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**Objective** To explore the relationship between exercise and intestinal microbes, and to analyze the effect of exercise on intestinal microflora to affect the health, in order to provide a theoretical basis for the study of the future exercise and the intestinal microorganism.

**Methods** the PUBMED and Google academic articles were used to retrieve articles related to intestinal microorganism and exercise from June 1, 2008 to June 1, 2018. The key words: "Exercise" and "Microbiome (intestinal microorganism)". Inclusion criteria: (1) study on the correlation between intestinal flora and host.(2) The study of the effect of exercise intervention on intestinal flora. (3) exercise changes the intestinal flora and affects the physiological and pathological state of the host. A total of 76 Chinese and English related literatures were retrieved, and 32 articles were included in the final analysis according to the screening criteria.

**Results** there are several important correlations between the intestinal microflora and the host: (1)the intestinal microorganism has the function similar to the endocrine organ, which can produce a large number of hormones in the body, release it into the blood and play its role in the distal organ. (2) the immune system components in the host are directly or indirectly regulated by microbes, such as the metabolites of microbes that induce the expression of immune cells, promote or inhibit the occurrence of inflammatory reactions.(3) Intestinal microbes affect the metabolism of the body and participate in the synthesis of vitamins and the absorption of calcium and magnesium plasma. The effect of exercise on intestinal flora is mainly reflected in the following aspects: (1) the general influence of exercise on the intestinal physiology; reducing the digestion time of food in the gastrointestinal tract, thus affecting the composition of the intestinal flora. Exercise reduces gastrointestinal blood flow and affects gastrointestinal endocrine changes. (2) There were great changes in the intestinal microflora of obese mice induced by high fat diet. Exercise could normalize the abnormal groups of the mice and improve the anxiety induced by high fat diet. (3) The mice in the exercise group showed a higher concentration of n-butyric acid than those in the lack of exercise, suggesting that the change in the intestinal microbial environment caused by exercise may be an important reason for the improvement of gastrointestinal diseases. (4) Exercise to improve cardiopulmonary endurance can increase the diversity of intestinal flora, and the diversity of intestinal flora is positively correlated with host health and other related indicators.(5) Exercise affects the number and diversity of intestinal microflora and leads to changes in certain specific strains, and the changes in most specific strains are closely linked to the health level of the body and the production of chronic diseases.

**Conclusions** as a kind of non drug intervention with great potential and effective, exercise can regulate the number and diversity of the intestinal microorganism in the host, so as to improve the physiological and pathological state of the host and promote the health.