metabolism. Cancer cells prevent pyruvate from entering the mitochondria. Instead, they convert pyruvate to lactate, which is released into the cell cytosol. This process, known as aerobic glycolysis, generates ATP and provides building blocks for the synthesis of new cellular components.

Funai and his colleagues discovered that exercise increased the amount of a certain fat molecule, called phosphatidylethanolamine (PE), in the inner membrane of the mitochondria. They hypothesized that increased PE levels could enhance mitochondrial function and, in turn, improve metabolic health.

In their study, the researchers observed that mice with high levels of PE in their mitochondria had improved insulin sensitivity and reduced body fat. This finding suggested that enhancing PE levels in mitochondria could be a potential therapeutic strategy for treating metabolic disorders.

"Our research provides a new perspective on how exercise can improve metabolic health," said Funai. "By increasing PE levels in mitochondria, exercise may help to prevent or reverse the development of metabolic diseases."