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Popular Genetics Article Summary

After spending some time on the internet, one article I came across was named "*How exercising now could benefit your future grandchildren."* This article explains the fundamentals of how exercise can not only be beneficial to your health but also to the health of your future children and grandchildren. It does this by stating facts about how a person's genetic expression can change over time with environmental changes. This can range anywhere from how a person manages their diet, to how physically active they are. They also go on to state that they received this information by referring to a study that was done in 2022 on mice about this very same concept. The scientific study was called "*Grandmaternal exercise improves metabolic health of second-generation offspring"* done by a handful of scientists who were led by Laurie J. Goodyear.

This scientific study tested the effects of how the F2 generation offspring were affected when there were mice who either lived an unhealthy lifestyle or a healthy one. It did this by having two cages of female mice who either had a training wheel or not and was fed either a regular chow or a chow for a high fat diet. After pregnancy and birth of the F1 generation, those mice were sedentary, and chow fed regular food, until they were paired with females to make the F2 generation. Lastly, the F2 generation mice were carefully studied up until 52 weeks (about 12 months) of age to see the effects that were made. When the experiment was all said and done, it turns out that for the F2 generation mice of the grandmaternal mouse that got exercise and healthy chow, showed an increase in glucose tolerance, a decrease in fat mass overall, an increase in liver metabolic function, and favorable gene expression overall. This is all while the F2 generation mice did not even exercise or anything as well, so even if the grandmother exercised but the grandchildren did not, they still received the additional benefits. However, on the other hand, for the mice who were the grandchildren of the unhealthy mouse, they received additional health restrictions. These can range from not being able to tolerate glucose well, to having an increase in fat mass and many more. Additionally, these effects can still affect the mice whether they exercised or not, so since their grandmaternal mouse was unhealthy, no matter how much the F2 generation mice tried, they will be facing certain health issues when it comes to exercising and their health throughout their life.

In conclusion, based on the information provided in the article and in the scientific literature, I think that the information provided is not only accurate but can be relevant to anybody and their grandchildren no matter what lifestyle they have.

References

Goodyear, L. J. et al. Grandmaternal exercise improves metabolic health of second-generation offspring. *Science Direct*; https://doi.org/10.1016/j.molmet.2022.101490

Reynolds, G. How exercising now could benefit your future grandchildren. *The Washington Post*; https://www.washingtonpost.com/wellness/2022/09/28/exercise-genetics-grandchildren/