How Fermented Foods Affect Fruit Fly Insulin Resistance by Gender

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This experiment explores how different fermented foods affect signs of insulin resistance in both male and female fruit flies. I hypothesized that if I supplemented fruit fly diets with fermented foods, fruit flies would have signs of improved insulin sensitivity. Three groups received food with either yogurt, kefir, or sauerkraut added. These were compared to a control group that received no fermented food. I measured larval physical activity by counting larval contractions, and I assessed adult physical activity by measuring fruit fly climbing times. I also measured average fruit fly weights and lifespan. Every day, I counted the number of fruit flies that had formed a puparium to measure developmental time. In addition, I measured wing length and wing area from magnified images of fruit fly wings. The data only somewhat support my hypothesis because although fruit flies that received fermented foods had higher rates of larval physical activity and shorter developmental times, they had lower rates of adult physical activity, increased weights, and larger wings. These data indicate that fermented foods decreased insulin resistance early in life but increased insulin resistance later in life. Further research should be conducted to verify these results since some measurements differ from those of my previous experiment. Future experiments can also measure glucose and insulin levels directly to more accurately assess fruit fly insulin resistance. Gaining more knowledge about the effects of fermented foods on insulin resistance can lead to people using this information to improve their insulin sensitivity.