The Effect of Type 2 Diabetic Treatment on the Morphology of the Offspring of D. melanogaster

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Metformin is often the first line treatment of type 2 diabetes mellitus and has been in use for over 60 years. It does not increase insulin levels, but rather lessens the amount of sugar the body produces and absorbs. This lowers blood sugar by increasing the body's sensitivity to insulin. There are not many side effects associated with taking the medication but recent observations have shown a significant effect on genital deformities in the male offspring of men who had taken metformin three months before the conception of the child. This investigation hopes to determine the effect of metformin in an experimental setting. Although the fruit fly (Drosophila melanogaster) does not produce insulin, it produces a peptide that is comparable to insulin in humans and can act as a model for diabetes research. The fruit flies were placed under different conditions (varying concentrations of metformin and normal or hyperglycemic feeding medium) and later cross-bred with flies of other conditions. Upon reaching adulthood, male flies were dissected and testes sizes were measured. Rate of mortality, male and female offspring, and general reproduction were also measured. Results displayed a correlation between use of metformin and shorter testes in the offspring of diabetic males.

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