Male Fragility in Drosophila melanogaster with Antennapedia Mutation

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One of the largest biological supply companies, commonly utilized by science professionals, has received unofficial reports of male fragility in Drosophila melanogaster with Antennapedia mutation. The Antennapedia gene (Antp73b), a mutated version of a homeodomain, causes the development of legs in the place of the flies' antennae. This mutation results in the overexpression of the Antp gene in the head and the dominance of legs over antenna. Unfortunately, scientific documentation of male fragility in these mutants seems lacking. The purpose of this study was to determine if male D. melanogaster with the Antp73b mutation are more fragile than females with the same Antp73b mutation. Survival rates following anesthetization stress in male and female D. melanogaster variants, wild type and Antp73b, were compared. This study confirms that Antp73b males had significantly lower rates of survival compared to Antp73b females. Additionally, both male and female mutants showed lower survival rates than their wild type counterparts. These conclusions will allow suppliers of Antp73b Drosophila to modify their delivery systems to account for male fragility and also lays the foundation for further research in developing new anesthetization methods for flies with mutations to improve their survival rates during research. While the exact cause of male fragility in these mutants has not been identified, it may be explained by decreased muscle development, fragile X syndrome, and/or the differential mechanical stress on the smaller male fly. More studies on the proximate cause of this fragility are warranted.

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