

## “The Mysterious Buckyball Project: Fruit Flies on Nanoparticles”



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### Abstract

Excitement about the tremendous potential of nanoparticles (NPs) in a wide array of technologies has been tempered by recent report of adverse health effect of NPs in a variety of different biological systems. Controversy over the nature of these concerns has grown as conflicting reports have described severe and nearly benign effects of different NPs in animals. Here we examine the effects of various NPs on *Drosophila* development time, viability, adult mortality and locomotor ability. The same NP can be completely benign at the larval phase when delivered in the diet, but highly toxic to adult flies in dry exposure assays. Moreover, the aggregation state of the NP is more important in determining the adult toxicity than the specific NP that is applied. These studies unveil the complexity of NP structure in determining the toxicity of any given NP. Our findings have important implications for the design and execution of toxicity assays as well as policy decisions about the regulation of NP applications.