

Abstract Submitted
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Correlation between Recoil Velocity after Laser Ablation and Cell-edge Orientation¹ XIAOYAN MA, M. SHANE HUTSON, Vanderbilt University — In order to determine the interfacial tensions along cell-cell boundaries in living fruit fly (*Drosophila*) embryos, we have developed a microsurgical method based on laser ablation and laser-scanning confocal microscopy. Following ablation of one cell edge, we follow the recoil dynamics (strain relaxation) of adjacent GFP-labeled cell edges (with time resolution down to 2 ms). The initial recoil velocities are consistently fit best by a double exponential decay. We observe that the initial recoil velocity shows a strong correlation with cell edge orientation. This correlation is particularly pronounced in late dorsal closure where both the recoil velocities and the distribution of cell edge orientations have sharp peaks near 30 and 150 ° with respect to the long (anterior-posterior) axis of the embryo. In early dorsal closure, the distribution of cell edge orientation has three much weaker peaks and the recoil velocities only show a weak maximum near 90 °.

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