

Abstract Submitted
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Probing the mechanics of pulsed contractions in embryonic epithelial cells¹ XIAOYAN MA, M. SHANE HUTSON, Dept of Physics & Astronomy, Vanderbilt University — During the dorsal closure stage of fruit fly embryogenesis, epithelial cells in the amnioserosa undergo multiple pulsed contractions of their apical surfaces. These pulsed contractions are important for proper dorsal closure and models have been proposed for the force feedbacks that lead to pulsed contractions; however, the correlation between the observed contractions and the hypothesized forces has not yet been experimentally investigated. We performed laser hole-drilling to probe how the cellular mechanics change during a contraction cycle. We find that cell-center wounds expand faster and farther when a cell is in the expanded half of its cycle. In contrast, cell-edge wounds expand faster and farther when the edge is in the process of contracting. These results imply different roles for cortical tensions along the lateral and apical cell surfaces during the contraction cycle.

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