

Abstract Submitted  
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**Measurement of swimming force generation during flagella regeneration in *Chlamydomonas reinhardtii***<sup>1</sup> JOHN N. YUKICH, MONA SHABAN, CATHERINE CLODFELTER, KAREN BERND, Davidson College — The green alga *Chlamydomonas reinhardtii* has been at the forefront of many studies investigating the establishment and function of flagella in facilitating cellular motility. Previously we reported an intriguing pattern during flagella regeneration in which increases in force do not always correspond with increase in flagella length. That work made direct measurement of maximum flagellar swimming force by measuring the cell's ability to escape from an optical trap (*optical tweezers*). Here, we report on optimization and automation of the force measurement using power spectral density calibration of the trap and distance of periodic displacement from the trap center. This process yields an average value for the swimming force. The intriguing pattern described for maximum swimming force is also evident in the average swimming force data, suggesting that the phenomenon reflects a change in flagella functionality during regeneration.

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