

# PAGE MORTON HUNTER DISTINGUISHED SEMINAR SERIES



## Breaking the Cycle: Halting Tendon Damage Before Rupture

Tendons transmit large forces from muscle to bone, enabling stable joint motion. Despite the optimization of their extracellular matrix (ECM) for this demanding role, repetitive loading from everyday movement leads to sub-rupture damage that can eventually progress to a full rupture. Tendon repair through surgery often results in scar tissue, failing to restore original mechanical properties. I will be discussing main findings from our research on tendon fatigue damage accumulation, rupture and healing. We have shown that tendons are inefficient at repairing sub-rupture fatigue damage, increasing their susceptibility to further injury. Given that physiological loading significantly influences biological responses, we are examining the effects of exercise and cell death inhibitors on the tendon's matrix remodeling process. We are also exploring new techniques to modulate inflammation in sub-rupture repair, aiming to trigger a typically absent repair cascade. Finally, since ruptures are inevitable, we are investigating scar formation mechanisms in tendon healing using mouse models, including the regenerative MRL/MpJ mouse. Our goal is to guide interventions that restore both structure and function to injured tendons.

## Nelly Andarawis-Puri, Ph.D.



*Associate Professor  
Sibley School of Mechanical and Aerospace  
Engineering, Cornell University*

I completed predoctoral training with Dr. Louis Soslowsky at UPenn and postdoctoral training with Dr. Evan Flatow at Icahn School of Medicine, focusing on tendon sub-rupture damage. As an Assistant Professor at Icahn (2012) and later at Cornell (2016), where I became a tenured Associate Professor in 2018, my research has been funded by NIH and NSF grants, focusing on tendon repair and early interventions. My work has shown tendons' poor healing capacity, developed a seminal in vivo model of tendon repair and degeneration, and identified therapeutic proteins. In 2018, I received the Kappa Delta Young Investigator Award from the AAOS. I founded Cornell's MAE FLAME program, supporting URM students entering Ph.D. programs, and serve on our department's DEI committee, advocating for graduate students.

October 17, 2024 • 3:30 p.m.

*Location:*

<https://clemsun.zoom.us/j/95385264545>



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