

# TIMOTHY A. JOHNSON MEDICAL SCHOLAR LECTURE SERIES

Presented by the Fralin Biomedical Research Institute at VTC and the Virginia Tech Carilion School of Medicine



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## *The Omnivore's Predicament: Body Weight Regulation and Cognitive Control*

Homeostatic models of weight regulation fail to account for the substantial worldwide increase in obesity caused by the abundance of inexpensive calories over the past 50 years. Evidence from psychology, cognitive neuroscience, and neuroeconomics points to a role of cognitive factors in the control of body weight in humans. The defense of negative energy balance appears to be mostly homeostatic: peptide hormones such as ghrelin, leptin and insulin rapidly signal weight loss to the CNS to promote increased appetite. However, what explains the defence against weight gain, and why has it failed recently? Dr. Dagher will argue that food overconsumption in both hunter-gatherers and agricultural societies is economically sub-optimal. Indeed, foraging models have long shown that animals in the wild do not overconsume, but rather accumulate energy stores to an optimum point, e.g. when the risk of starvation equals the risk or death from predation. In humans, the cost of food (in money, time or effort) always made overconsumption suboptimal. However, modern economic factors have allowed calorie overconsumption. Dr. Dagher will provide evidence that prefrontal systems involved in value computation and motivation act to limit food overconsumption when food is scarce or expensive, but promote over-eating when food is abundant.

FRIDAY, APRIL 2, 2021 at 1:00 p.m.

This seminar will be webcast live at <https://fbri.vtc.vt.edu/events/live-webcast.html> and via Zoom at <https://virginiatech.zoom.us/j/89938546237>.

