Estimating the maximum number of hot dogs that can possibly be eaten in 10 minutes

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James Smoliga, a physical therapist at High Point University, has developed a computer model that not only shows the rate of improvement in hot dog eating contestants, but provides a number for

the limit on the number of hot dogs a person could possibly eat. In his paper published in the journal *Biology Letters*, Smoliga describes the factors that went into building his model and other possible uses for it.

Every year, Nathan's Famous Coney Island Hot Dog Eating Contest is held, quite naturally, on Coney Island in New York. It has become a Fourth of July tradition, and in recent years, has even been broadcast on television. While watching the event last year, Smoliga wondered what the upper limit might be for the number of hot dogs a contestant could eat. His current work involves doing much the same for more traditional sports, such as running and jumping.

To find the answer to his question, Smoliga used the same tools he uses for forecasting other sport maximums—real world data and computer models. He found the data he needed online—it covered 39 years of the contest in numbers that described how many hot dogs the winner of the contest had eaten each year. He then input the data into his forecasting model and used it to show graphs that represented the numbers of hot dogs winners had eaten over the years. In so doing, he discovered that contestants had improved dramatically, more so than in any other sport he had measured. In the first years, winning contestants were lucky if they could down a dozen hot dogs in the contest. In sharp contrast, this year's winner, Joey Chestnut, managed to wolf down an awe-inspiring 74 hot dogs—which included buns. But he could do better, Smoliga thinks. His model showed that a properly trained person such as Chestnut should be able to shove down 84 hot dogs in 10 minutes.

Smoliga notes that the only thing holding back someone like Chestnut is mechanics—whoever reaches the upper limit will have the stomach capacity due to training—but to reach their true potential, they will have to find a way to chew or swallow faster.

More information: James M. Smoliga. Modelling the maximal active

consumption rate and its plasticity in humans—perspectives from hot dog eating competitions, *Biology Letters* (2020). DOI: 10.1098/rsbl.2020.0096

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