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Title of Talk: Panting and Resonance in Canine Respiration

Abstract:

Past studies have claimed that dogs pant at the resonant frequency of their chest-lung systems. This is said to be necessary in order to breathe most efficiently so as not to generate more heat than is dissipated. It can be shown analytically that under reasonable assumptions the resonant frequency of a dog's chest-lung system scales inversely with the radius of the lung. Using this conclusion, we investigate the phenomenon of panting through modeling, numerical simulation, and analysis of published data, in order to determine the validity of the resonant frequency hypothesis.