

Biomechanics of Elephant Trunks

An elephant eats 200 kg per day, or the equivalent of 200 grams every minute. How does an elephant feed so quickly? We present experiments with African elephants at the Atlanta Zoo and dissections of elephant trunks at the Smithsonian Institution. We demonstrate three ways that elephants can feed quickly: sucking like a vacuum cleaner, squeezing food items together, and wrapping their trunk around objects to get a better grip. We use mathematical models to rationalize the forces and geometries required by the trunk to perform these feats.