

Abstract Submitted
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Why does water shoot higher if we partially block the garden hose outlet? REZA ALAM, University of California, Berkeley — It is a common experience that water shoots higher when we block a garden hose outlet by our thumb. But what causes this? How high does the water go? Does water from our neighbor's garden hose reach the same height? Is there an optimum outlet blockage that results in the highest height that water can reach? Here, we show that a competition between viscous friction along the hose and the viscous dissipation at the thumb-generated constriction results in a variable water shooting height. Through systematic analysis we demonstrate that depending on the municipal water main pressure, and length and diameter of the hose, the maximum water height may increase, decrease, or gain an optimum as the blockage ratio of the outlet varies.

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