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**Acceleration-induced water ejection in the human ear canal** ANUJ BASKOTA, SEUNGHO KIM, Cornell University, HOSUNG KANG, Virginia Tech, SUNGHWAN JUNG, Cornell University — Water entering the ear canal is a common problem during swimming, showering or other water sports. The trapped water can lead to an ear infection as well as damage to the ear canal. A common strategy for emptying water from the ear canal is to shake the head, where the force created due to the head jerk helps push the water out. One-end closed hydrophobic glass tubes of varying diameters were used as a simplified model of the ear canal. Then, the tube is dropped onto a spring to mimic the shaking strategy. Results revealed that the critical acceleration to remove the water from the ear canal strongly depends on the volume and the position of trapped liquid inside the tube. We found that the critical acceleration is on the order of 10 g, which may cause serious damage to the human brain. The critical acceleration tends to be much higher in smaller sized tubes which indicates that shaking heads for water removal can be more laborious to children due to their small size of the ear canal, compared to adults.

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