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Size from sound: Size estimates of balls dropped from various height

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Three experiments investigated the perception of the size of a ball (i.e., a non sounding object) from the sound it produces when dropped upon a plate (i.e., a sounding object) from various heights. Experiment one: listeners estimated metrically the size of seven balls (\emptyset 1, 1.5, 2, 2.5, 3, 4, 5 cm) when dropped upon a baked clay plate from 6 cm of height. Experiment two: a new group of listeners estimate the size of the balls, however, balls could be dropped from either 6 cm or 12 cm of height. In the last experiment, balls could be dropped from either 3, 6 or 12 cm of height. In all experiments listeners received no foregoing information about the sound source event, such as the material of the balls, the material of the plate, etc.. Overall, listeners' estimations matched veridically the actual size of the balls. However, in the second and third experiment, listeners' estimations were dependent on the height: balls were judged slightly larger when dropped from the highest heights.