

Why visual cues of portion size may influence intake

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Short running title: Why portion size may influence intake

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ABSTRACT

Objective: Using self-refilling soup bowls, this study examines whether visual cues related to portion size can influence intake volume without altering either estimated intake or satiation.

Research Methods and Procedures: Fifty-four participants (Body Mass Index of 17.3-36.0 kg/m²; aged 18-46) were recruited to participate in a study involving soup. The experiment was a between subject design with two visibility levels: 1) an *accurate* visual cue of a food portion (normal bowl) versus 2) a *biased* visual cue (self-refilling bowl). The soup apparatus was housed in a modified restaurant-style table in which two of four bowls slowly and imperceptibly refilled as their contents were consumed. Outcomes included intake volume, intake estimation, consumption monitoring, and satiety.

Results: Participants who were unknowingly eating from self-refilling bowls ate more soup (14.7 ± 8.4 vs. 8.5 ± 6.1 oz; $F_{1, 52}=8.99$; $p<.01$) than those eating from normal soup bowls. Yet despite consuming 73% more, they did not believe they had consumed more, nor did they perceive themselves as more sated than those eating from normal bowls. This was unaffected by BMI.

Conclusion: These findings **are consistent with** the notion that the amount of food on a plate or bowl increases intake because **if** influences consumption norms and expectations and **if** it lessens one's reliance on self-monitoring. **It appears that people** use their eyes to count calories and not their stomachs. The importance of having salient, accurate visual cues can play an important role in the prevention of unintentional overeating.