Objective: Age-related deficits in selective attention are hypothesized to result from decrements in inhibition of task-irrelevant information. Speed of processing (SOP) training is an adaptive cognitive intervention designed to enhance processing speed for attention tasks. The effectiveness of SOP training to improve cognitive and everyday functional performance is well documented. However, underlying mechanisms of these training benefits are unknown.

Methods: Participants completed a visual search task evaluated using event-related potentials (ERPs) before and after 10 weeks of SOP training or no contact. N2pc and P3b components were evaluated to determine SOP training effects on attentional resource allocation and capacity.

Results: Selective attention to a target was enhanced after SOP training compared to no training. N2pc and P3b amplitudes increased after training, reflecting attentional allocation and capacity enhancement, consistent with previous studies demonstrating behavioral improvements in selective attention following SOP training.

Conclusions: Changes in ERPs related to attention allocation and capacity following SOP training support the idea that training leads to cognitive enhancement. Specifically, we provide electrophysiological evidence that SOP training may be successful in counteracting age-related declines in selective attention.

Significance: This study provides important evidence of the underlying mechanisms by which SOP training improves cognitive function in older adults.