

Figure 1. Mean gains in reaction times (RTs - ms) for audiovisual congruent (ATVT-c) and incongruent (ATVT-i) presentations the letters 'b' and 'd' calculated by subtracting multisensory RTs from the faster of the unisensory auditory or visual signals. Panel on left depicts participants' responses using a simple detection task (respond to both 'b' and 'd'), while panel on right shows multisensory gain measures on discrimination task whereby participants had to respond only to one preselected letter (i.e. either seeing or hearing 'b' or 'd'). For the two tasks the stimuli are identical, only the task instruction differs. For the simple detection task, multisensory enhancements are observed for repeat and switch congruent and incongruent stimuli. For the discrimination task, on the other hand, multisensory enhancements are only observed for congruent ATVT stimuli. In this case incongruent stimuli (AiVT and ATVi) resulted in inhibition or slower responses. These studies clearly demonstrate that multisensory enhancements cannot be explained by switch costs nor race-models – if signals were merely racing to trigger a response we should observe only enhancements for all tasks.

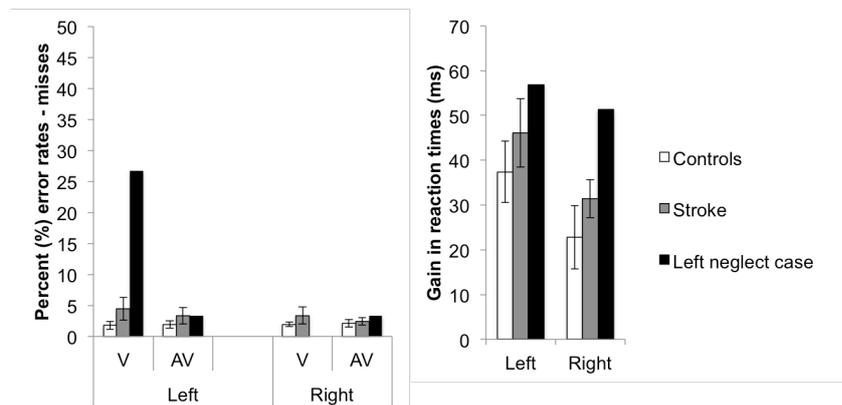


Figure 2. Left panel shows percent error rate (%) for visual (V) and audiovisual (AV) stimuli on a simple object discrimination task when stimuli are presented to the left or right visual field. Right panel shows mean gain in reaction times (RTs) for AV stimuli calculated by subtracting the RTs for AV from V stimuli (gain in RT = V – AV). Object discrimination accuracy improved with AV signals for the patients with neglect, all participants showed AV enhancements for RT measures. On average the observed benefits from AV signalling was higher for stroke patients.

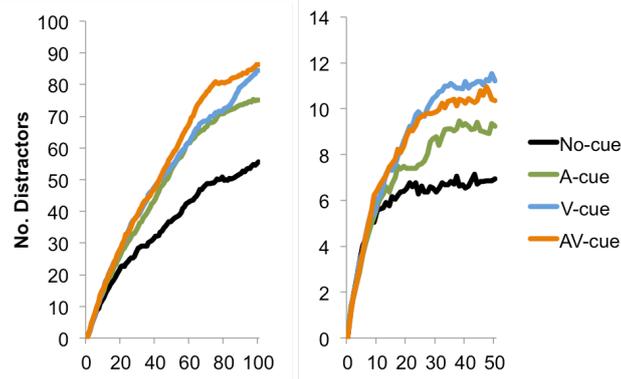


Figure 3. Numbers of distractors participants were able to tolerate for the search (left panel) and the spatial short-term memory task (right panel) for consecutive trials (x-axis) for young adults. For both tasks, cuing in general increased the number of distractors participants were able to tolerate. Optimal performance was observed for audiovisual and visual cueing. Participants with stroke with impaired perceptual awareness showed an added advantage with audiovisual cues. Audiovisual signals enhanced awareness of targets (see figure 2 for example). Therefore, audiovisual cues were employed for the clinical multisensory rehabilitation trial.