

Rapid modification of an ongoing reach using touch

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A hallmark of visually-guided reaching is the rapid correction of reach trajectory toward the target when it moves (Day & Lyon 2000)

This early "pro-" response appears even when instructed to move in the opposite direction of target movement ("anti-reach")

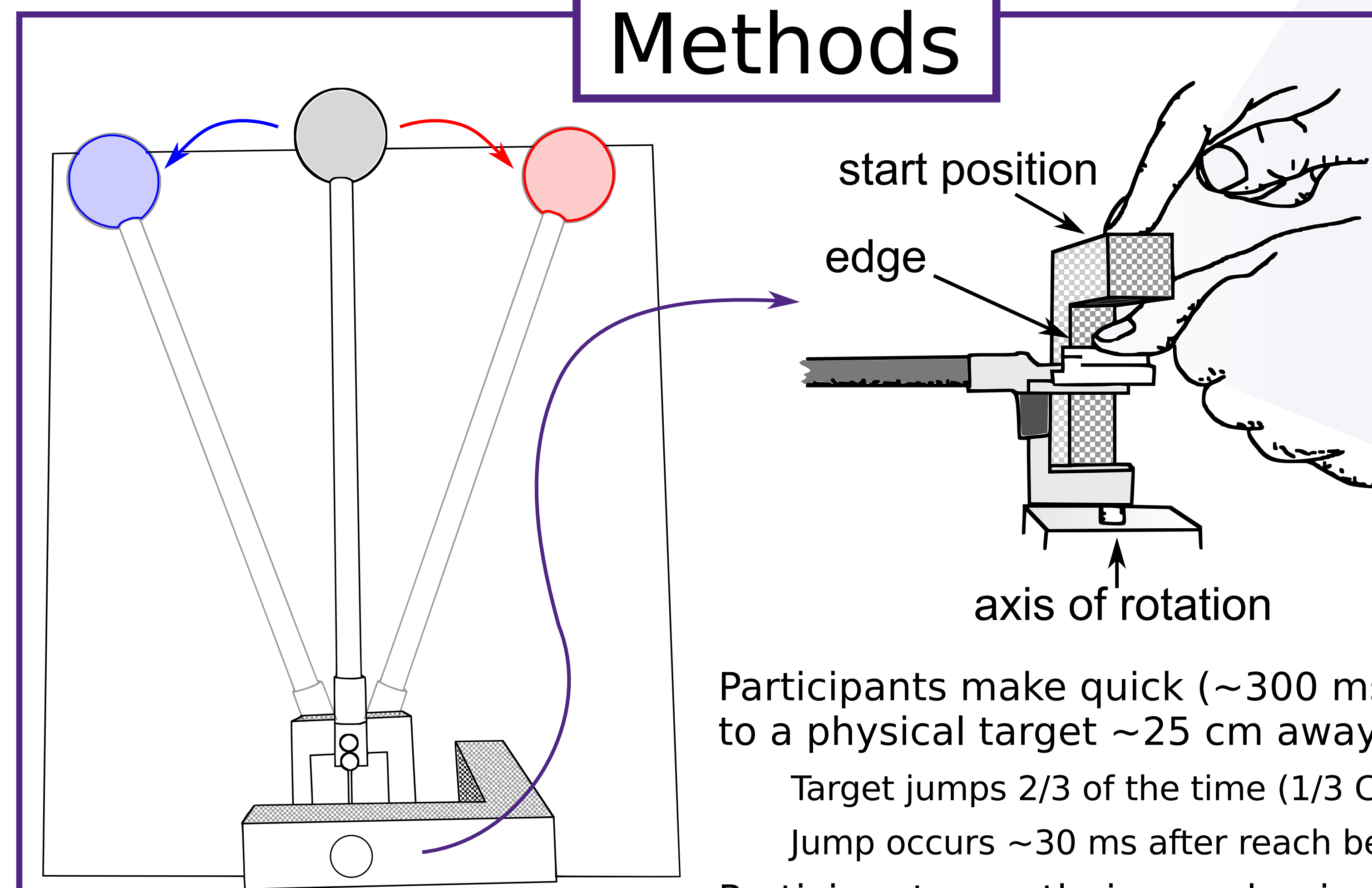
People are able to update reach trajectories at similar latencies when guided by a tactile stimulus (Pruszynski et al. 2016)

Here we investigate whether this pro- response occurs during an anti-reach paradigm under tactile guidance

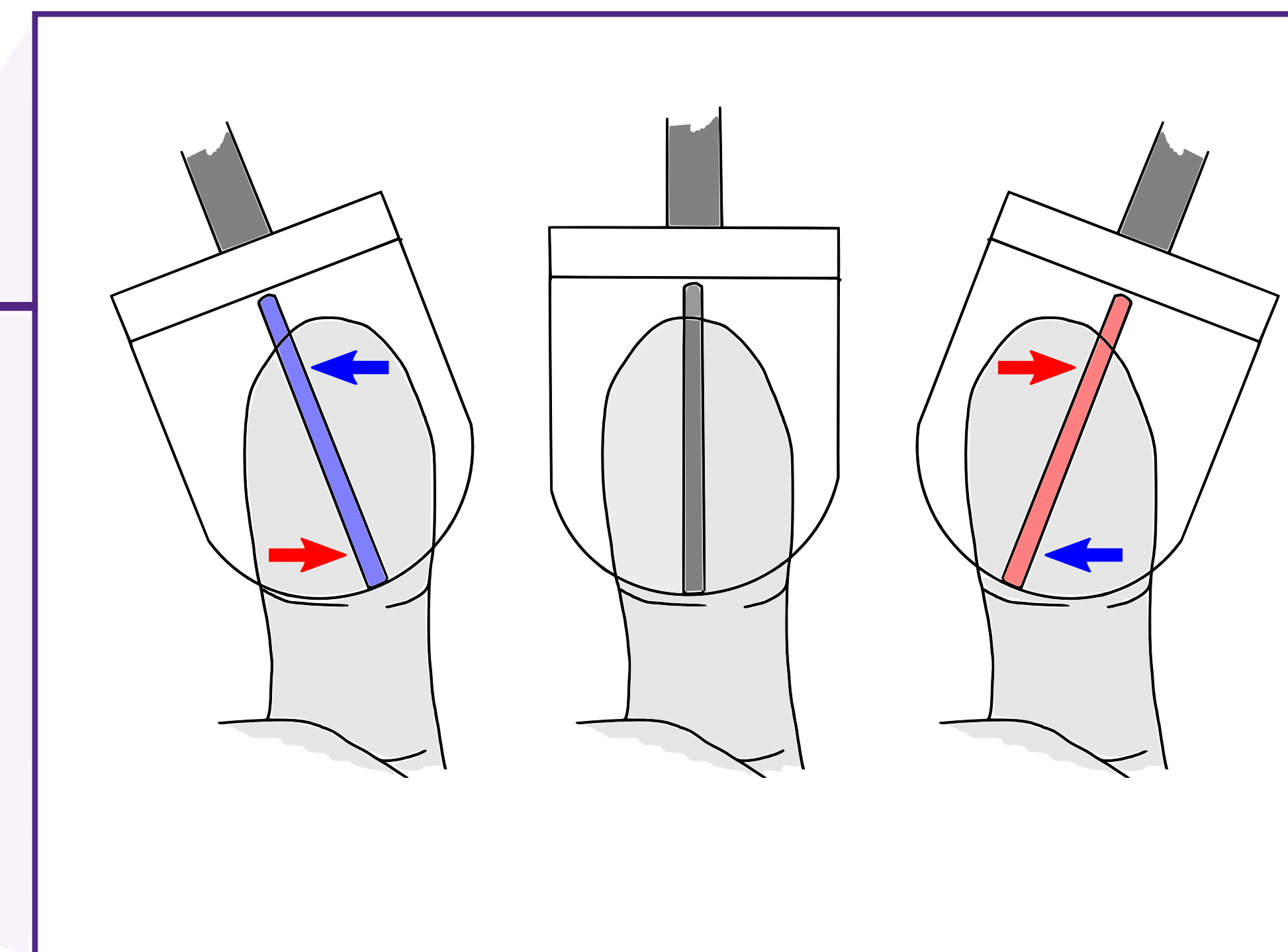
We can manipulate non-rigid objects, for which the association between relative motion on the skin and object orientation varies

Due to the nature of the stimulus, different parts also move in different directions

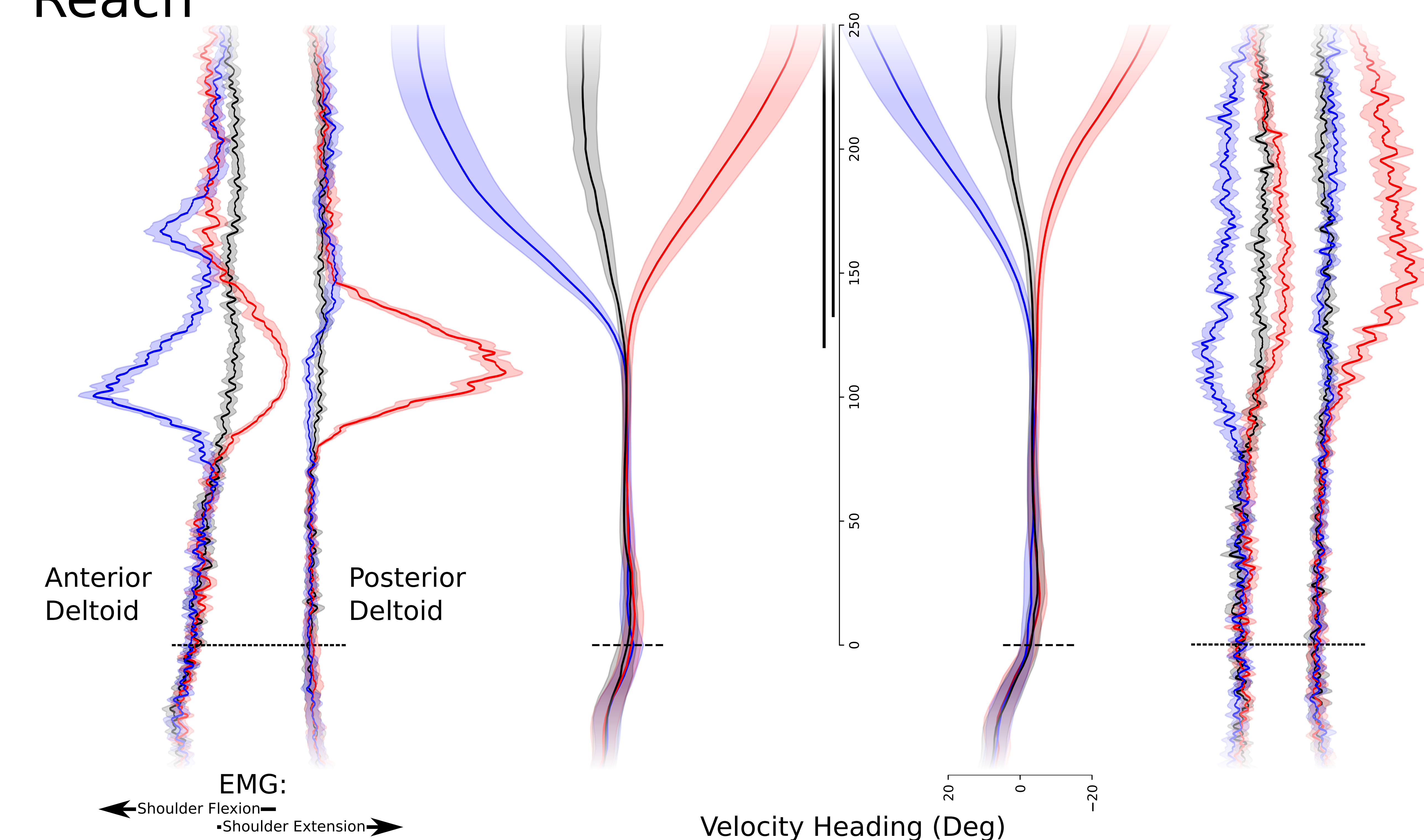
Methods



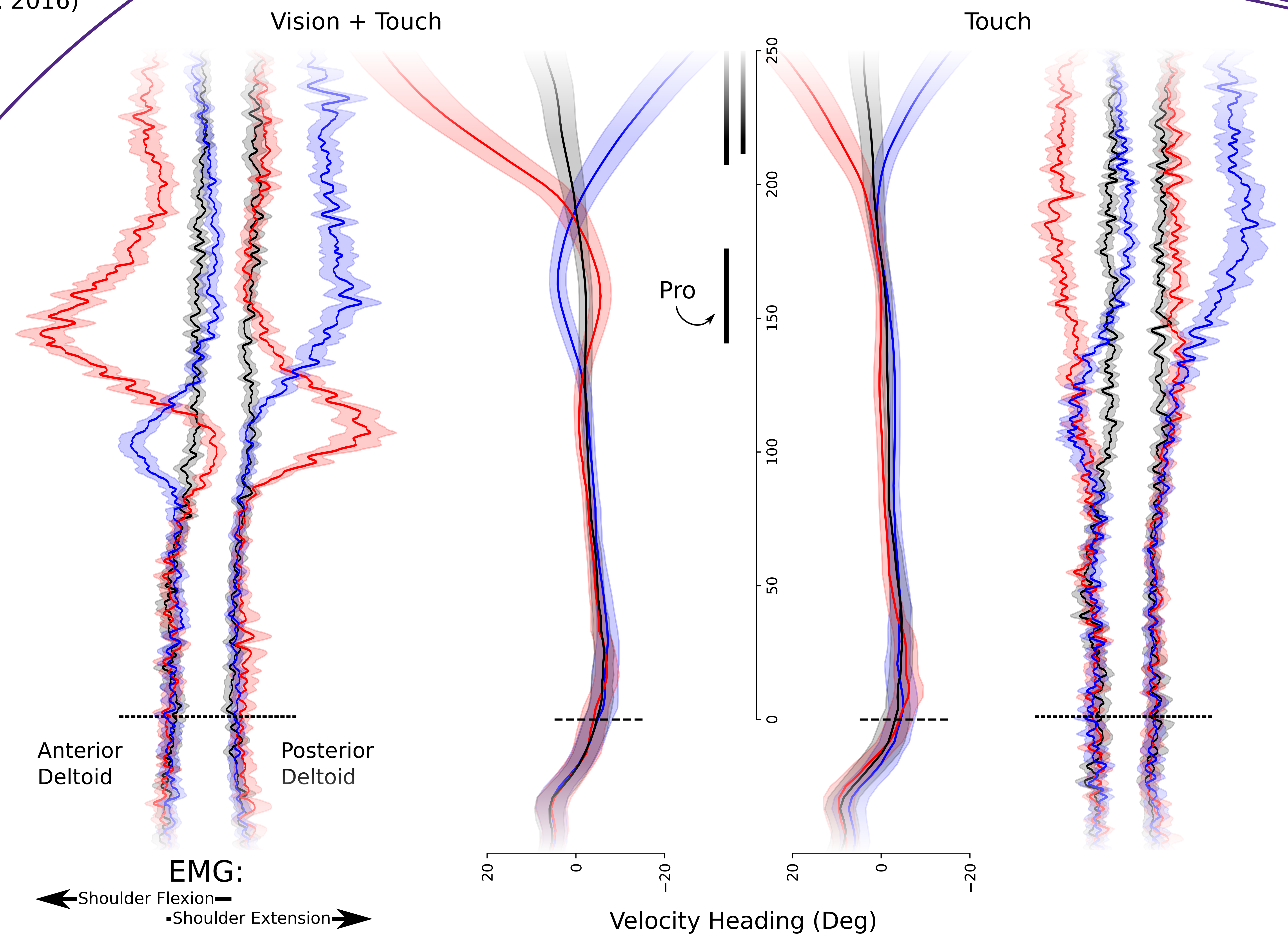
Participants make quick (~300 ms), unconstrained reaches to a physical target ~25 cm away from the start position
Target jumps 2/3 of the time (1/3 CW; 1/3 CCW) or stays stationary
Jump occurs ~30 ms after reach begins and takes ~50 ms
Participants use their non-dominant index finger or thumb to touch an edge connected to the target
In touch trials, vision during reach is occluded with LCD glasses



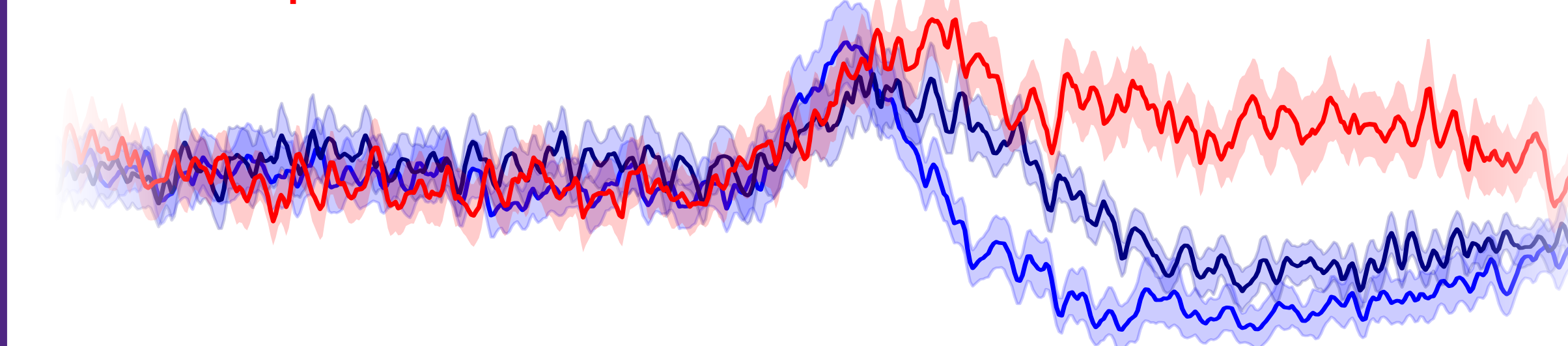
Reach



Anti-Reach



Touch: anti
Vision + Touch: anti
Touch: pro



While there is no kinematic pro- component, a non-direction-specific burst of activity is evident in Touch at similar latency to the pro- component in vision

This occurs despite participants' ability to react at similar latency in a direction-specific way

The non-direction specific response does not appear to be large co-contraction

Is tactile guidance more amenable to arbitrary remapping, or do these responses result from mixed relative motion on the fingertip?

Next, we will use a partial edge to try to tease apart this question

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