

# Muscle activation in semantic processing: An electromyography approach

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In this study, we focus on the spontaneous activity related to manual verbs to determine the extent to which semantic processing of manual verbs affects spontaneous arm muscle activity. For this purpose, we recorded the arm's electromyographic activity while participants read manual and non-manual verbs, focusing their attention on the semantic content or a specific letter. In addition, we manipulated the arm position (in front of the body or behind the back) to observe postural priming effects for spontaneous muscle activity. Our results show that when arms were placed forward and the attention was directed to the semantic content, there was an enhanced spontaneous activation. Our results suggest that spontaneous motor responses are related to the involvement of the motor system in action language comprehension as suggested by language embodiment theories. © 2020 Elsevier B.V.

Action-related verb

Cognition

Embodied language

Language

motor control

adult

arm muscle

article

attention

comprehension

electromyography

female

human

human experiment

language

male

motor control

motor system

muscle contraction

muscle function