

Accepted Manuscript

Title: Motor affordance for grasping a safety handle

Authors: D.W. McDannald, M. Mansour, G. Rydalch, D.A.E. Bolton

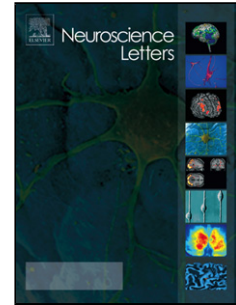
PII: S0304-3940(18)30391-4
DOI: <https://doi.org/10.1016/j.neulet.2018.05.040>
Reference: NSL 33619

To appear in: *Neuroscience Letters*

Received date: 9-12-2017
Revised date: 14-4-2018
Accepted date: 27-5-2018

Please cite this article as: D.W.McDannald, M.Mansour, G.Rydalch, D.A.E.Bolton, Motor affordance for grasping a safety handle, *Neuroscience Letters* <https://doi.org/10.1016/j.neulet.2018.05.040>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Title:**Motor affordance for grasping a safety handle****Type of Article: Registered Report****Author:** D.W. McDannald¹, M. Mansour², G. Rydalch³, D.A.E. Bolton¹**Affiliation:**¹ Department of Kinesiology & Health Science, Utah State University, United States² Department of Electrical & Computer Engineering, Utah State University, United States³ Department of Biology, Utah State University, United States

Corresponding Author:

David A. E. Bolton,

Department of Kinesiology & Health Science,

Utah State University,

7000 Old Main Hill,

Logan, UT 84322-7000,

United States

Email: dave.bolton@usu.edu

Tel: 1 (435) 797-7329

Highlights

- Visual priming of hand muscles when viewing a safety handle was tested
- Transcranial Magnetic Stimulation to assess temporal dynamics of affordance effect
- Rapid engagement of select hand muscles suitable for grasping a safety handle
- Priming hand muscles by viewing a safety handle has reactive balance implications

Abstract

Mere observation of objects in our surroundings can potentiate movement, a fact reflected by visually-primed activation of motor cortical networks. This mechanism holds potential value for reactive balance control where recovery actions of the arms or legs must be targeted to a new support base to avoid a fall. The present study was conducted to test if viewing a wall-mounted safety handle – the type of handle commonly used to regain balance – results in activation of motor cortical networks. We hypothesized that the hand area of the primary motor cortex would be facilitated shortly after visual access to a safety handle versus when no handle was visible. Here, we used transcranial magnetic stimulation (TMS) to measure corticospinal excitability in hand muscles directly following access to vision while participants performed a seated reach-grasp task. Vision was controlled using liquid crystal lenses and TMS pulses were time-locked to occur shortly after

Download English Version:

<https://daneshyari.com/en/article/8841378>

Download Persian Version:

<https://daneshyari.com/article/8841378>

[Daneshyari.com](https://daneshyari.com)