



Corrigendum: Experts bodies, experts minds: how physical and mental training shape the brain

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A corrigendum on

Experts bodies, experts minds: how physical and mental training shape the brain

by Debarnot, U., Sperduti, M., Di Rienzo, F., and Guillot, A. (2014). *Front. Hum. Neurosci.* 8:280. doi: 10.3389/fnhum.2014.00280

An important reference (Yarrow et al., 2009) has been mistakenly omitted from the published article.

The review uses the material of the article by Yarrow et al. in three parts, specifically in the section: The neurocognitive basis of motor skill learning. The sentences were, unfortunately, used and cited verbatim without citing this important reference. The passages concerned are reproduced below.

“In cognitive psychology, theoretical descriptions of changes in skilled performance were shown to move from cognitive to automatic processing (Fitts, 1964). The key concept is the increasing automaticity: controlled processes are attention demanding, conscious and inefficient, whereas automatic processes are rapid, smooth, effortless, require little attentional capacity, and are difficult to be consciously disrupted (Shiffrin and Schneider, 1977).”

“Practically, it is not automaticity per se that is indicative of high proficiency, but rather the level of skill at which automaticity is attained. Although the border

between the automaticity and the expertise concepts beg for clarification, one may consider that most people fail to develop beyond a hobbyist level of performance as they settle into automaticity at a given level of skill that they find enjoyable, rather than continuing to improve skills (Ericsson, 2007). Hence, automaticity is more a false ceiling than a measure of excellence.”

“One solution to this issue is through assessment of changes in speed-accuracy trade-off functions, i.e., to defy the speed-accuracy tradeoff for a given task (Krakauer, 2009; Krakauer and Mazzoni, 2011). In other words, a skilled tennis player can serve both faster and more accurately than a novice. Thus, sporting skill at the level of motor execution can be considered as acquiring a new speed-accuracy trade-off relationships for each sub-task of the motor sequence.”

These sentences are lifted verbatim from the study by Yarrow and collaborators in their important review paper, which should have therefore been cited explicitly. This is an individual error that we collectively take responsibility for. The authors apologize for their oversight and the unintentional inconvenience caused.

REFERENCES

Ericsson, K. A. (2007). Deliberate practice and the modifiability of body and mind: toward a science of the structure and acquisition of expert and elite performance. *Int. J. Sport Psychol.* 38, 4–34.

Fitts, P. M. (1964). “Perceptual-motor skill learning,” in *Categories of Human Learning*, ed A. W. Melton (New York: Academic), 243–285.

Krakauer, J. W. (2009). Motor learning and consolidation: the case of visuomotor rotation. *Adv. Exp. Med. Biol.* 629, 405–421. doi: 10.1007/978-0-387-77064-2_21

Krakauer, J. W., and Mazzoni, P. (2011). Human sensorimotor learning: adaptation, skill, and beyond. *Curr. Opin. Neurobiol.* 21, 636–644. doi: 10.1016/j.conb.2011.06.012

Shiffrin, R. M., and Schneider, W. (1977). Controlled and automatic human information processing: II. Perceptual learning, automatic attending, and a general theory. *Psychol. Rev.* 84, 127–190. doi: 10.1037/0033-295X.84.2.127

Yarrow, K., Brown, P., and Krakauer, J. W. (2009). Inside the brain of an elite athlete: the neural processes that support high achievement in sports. *Nat. Rev. Neurosci.* 10, 585–596. doi: 10.1038/nrn2672.

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