

# Peripheral causes of cognitive motor dissociation in patients with vegetative or minimally conscious state - Reply

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1 **Peripheral causes of cognitive motor dissociation in patients with vegetative or**  
2 **minimally conscious state – Reply**

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17 We thank Latronico and colleagues for their comments regarding our article<sup>1</sup>. They proposed  
18 that peripheral nervous system and muscle pathology<sup>2</sup> may have contributed to the lack of  
19 behavioural responses exhibited by our patient. As mentioned in our Discussion section, Shea  
20 and Bayne<sup>3</sup> had previously argued a similar peripheral explanation for the absence of overt  
21 motor behaviour in patients with preserved covert motor behaviour<sup>4</sup>. In vegetative and  
22 minimally conscious patients, peripheral damage is most commonly related to motor axonal  
23 neuropathy<sup>5</sup>, which, as Latronico and colleagues point out, is a major cause of *paralysis*<sup>2</sup>.  
24 While we did not specifically test for electrophysiological signs of peripheral pathology, our  
25 patient showed no evidence of paralysis. In fact, he exhibited frequent spontaneous

26 movements of the limbs (more frequently upper limbs), head, and torso, as well as very  
27 consistent withdrawal to painful stimulation (see information about clinical assessments in  
28 the original supplementary information). In contrast, he was incapable of producing  
29 voluntarily motor responses to command. Therefore, the main deficit he exhibited, which our  
30 study aimed to explain, was not an absence of skeletal movement, but a lack of *voluntary*  
31 *control* of his motor responses, and thus the underlying mechanism is necessarily central <sup>6</sup>.  
32 Based on this, we disagree with Latronico and colleagues' suggestion for a role of peripheral  
33 pathology in explaining our patient's lack of overt command following capabilities.  
34 Nevertheless, as we mentioned in our Discussion, our patient exhibited other symptoms in  
35 addition to the lack of command following (e.g. lack of visual pursuit, or vocalizations) for  
36 which our results may not offer a complete explanation. In this context, we agree that the  
37 evaluation of the peripheral nervous system and muscles, in combination with neuroimaging  
38 and clinical assessments, may contribute to a more comprehensive understanding of the full  
39 clinical profile exhibited by each individual patient.

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