



## Correction to: Whole-brain death and integration: realigning the ontological concept with clinical diagnostic tests

Daniel P. Sulmasy<sup>1</sup>

Published online: 17 December 2020  
© Springer Nature B.V. 2020

**Correction to: Theoretical Medicine and Bioethics (2019) 40:455–481**  
<https://doi.org/10.1007/s11017-019-09504-w>

In my article, “Whole-brain death and integration: Realigning the ontological concept with clinical diagnostic tests” [1], I wrote that Oderberg holds that only the death of all cells can count as the death of the organism. While I was interpreting him and not quoting him, Prof. Oderberg has correctly pointed out that he does not directly advance this claim. He states, instead, that “only putrefaction—the physical decomposition of the body—can be a certain sign that death has occurred” [2]. It should be noted, however, that autolysis, the spontaneous destruction and rupture of the cell membranes of dead organisms, begins 4 minutes after human death and, while further autolytic chemical changes might be ongoing, the twin processes of apoptosis and autophagy may be complete as early as 8 hours after death [3]. Putrefaction, the digestion of dead remains by microorganisms, follows and depends upon autolysis, beginning in the gut. The first visible sign of putrefaction, a greenish skin discoloration above the right iliac fossa, usually appears 18–36 hours after death [4, 5].

### References

1. Sulmasy, Daniel P. 2019. Whole-brain death and integration: Realigning the ontological concept with clinical diagnostic tests. *Theoretical Medicine and Bioethics* 40: 455–481.
2. Oderberg, David S. Death, unity, and the brain. *Theoretical Medicine and Bioethics* 40: 359–379.

---

The original article can be found online at <https://doi.org/10.1007/s11017-019-09504-w>.

✉ Daniel P. Sulmasy  
sulmasyd@georgetown.edu

<sup>1</sup> Kennedy Institute of Ethics, Georgetown University, Healy 419, 3700 O Street NW, Washington, DC 20057, USA

3. Martínez, Paula Núñez., Sofia T. Menéndez, María de los Ángeles Villaronga, Douglas H. Uebelaker, Juana M. García-Pedrero, and Sara C. Zapico. 2019. The big sleep: elucidating the sequence of events in the first hours of death to determine the postmortem interval. *Science and Justice* 59: 418–424.
4. Almulhim, Abdulaziz M., and Ritesh G. Menezes. 2020. Evaluation of postmortem changes. *StatPearls* [Internet]. Updated May 29, 2020. Treasure Island, FL: StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK554464>.
5. Shedje, Rutwik, Kewal Krishan, Varsha Warriar, and Tanuj Kanchan. 2020. Postmortem changes. *StatPearls* [Internet]. Updated July 27, 2020. Treasure Island, FL: StatPearls. <https://www.ncbi.nlm.nih.gov/books/NBK539741>.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.