The Omo-Turkana Basin hominin fossil record. What is it really, and what can it teach us?

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Résumé

The Omo-Turkana Basin (Ethiopia and Kenya) is well known for its hominin fossil record, very rich between 4.2 and 1.5 million years ago (Ma), and its diversity of hominin taxa (i.e. *Australopithecus*, *Kenyanthropus*, *Paranthropus*, *Homo*). Paradoxically, this hominin fossil record is poorly understood. Based on a bibliographic review of 117 articles published between 1967 and 2022, we developed an exhaustive hominin catalog for the Omo-Turkana Basin. The analyses of this dataset make significant contributions to the study of hominin evolutionary history, e.g., for understanding the historical importance of the Omo-Turkana Basin, differences in fossil representation across the three parts of the basin (east, west and north), patterns of skeletal element abundances and geochronological distribution. Furthermore, by integrating data from all parts of the basin we were able to precisely enumerate 1,231 fossil specimens corresponding to 651 individuals. This record can offer for example some perspectives concerning the *Paranthropus* and early *Homo* records and the relationships between these two taxa. With such an analysis, we show in particular that (1) contrary to the prevailing view, the genus *Homo* was significantly present in the Omo-Turkana Basin between 2.7 and 2 Ma; (2) *Paranthropus boisei* is the most abundant fossil taxa and generally twice as abundant as *Homo* in most contexts; (3) with the exception of the Upper Burgi and KBS times at Koobi Fora, which are atypical, both in terms of anatomical and taxonomic representation. The analysis of the hominin fossil record from the Omo-Turkana Basin paves the way for further interdisciplinary research into the potential taphonomic and environmental causes for these patterns.

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