

## Postcranial osteology of the first early-stage juvenile skeleton of *Plateosaurus trossingensis* from the Norian of Frick, Switzerland

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Owing to monospecific mass-accumulation sites in Central Europe, the early-branching sauropodomorph *Plateosaurus* has one of the best fossil records among dinosaurs. Despite this, early-stage juveniles have been conspicuously absent. However, such specimens are critical in assessing the ontogenetic development of this taxon, as well as the role of heterochrony in sauropodomorph evolution. A new skeleton from the *Plateosaurus* bonebed at the Gruhalde Quarry (Klettgau Formation, Norian) of Frick, Switzerland, nicknamed “Fabian”, represents the first substantially complete juvenile referable to *Plateosaurus*. The specimen includes large portions of the cranium and vertebral column and an almost completely represented appendicular skeleton. Its juvenile ontogenetic stage is confirmed by a lack of neurocentral suture fusion in the axial skeleton. Consistent with this, the estimated total length and body mass of approximately of 2.3 m and 40 kg are considerably smaller than any previously reported specimen of the genus. Surprisingly, the postcranial morphology of the specimen is remarkably consistent with that of osteologically mature individuals, including a virtually fully developed pattern of laminae and fossae in the vertebrae. Comparisons of body proportions are complicated by varying degrees of compaction in the limb elements, but skeletal proportions mostly appear to follow isometry, with the notable exceptions of a relatively long neck, proportionately larger manus, shorter, more gracile humerus and shorter forearm in the juvenile specimen. The observed morphology suggests that adult morphology was either achieved early in ontogeny of *Plateosaurus*, or alternatively that developmental plasticity, which has previously been found to result in high variability of adult body size, could potentially also extend to morphological development.

**Key words:** Dinosauria, Sauropodomorpha, morphometrics, morphology, small body size, early ontogeny, Triassic, Swiss Plateau.

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