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Hadrosaurid jaw mechanics

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Jaw systems in hadrosaurids can be treated as chewing machines operating in three dimensions. As such, different possiblilties of jaw mechanisms can be tested by using kinematic analyses to make predictions about tooth wear for
each mechanism, ranging from akinetic montmostyne skulls to kinetic streptostylic skulls. A hadrosaurid jaw mechanism that includes a degree of lateral rotation of the maxilla-premaxilla joint, as well as laterocaudal streptostyly and mobility of other articulations, accounts for tooth wear present in these animals better than the currently-accepted propalinal mechanism. Lateral rotation of the maxlila and concomittant motion of other cranial segments is powered by mandibular adduction and is best seen as a solution to a transverse power stroke constrained by an isognathous jaw system.

Key words: jaw mechanics, Hadrosaurldae, streptostyly, cranial kinesis, kinematics.