Abstract Submitted
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Glottal jet inertance MICHAEL MPHAIL, MICHAEL KRANE, Penn State University — Estimates of an inertive contribution of the glottal jet to glottal aerodynamic resistance is presented. Given that inertance of the flow in a constriction can be expressed in terms of the kinetic energy of the flow, and that a jet is a maximum kinetic energy flow pattern, it is argued that the glottal jet possesses its own inertance which is at least as large as that of the vocal tract. These arguments are supported by estimates of inertance obtained from simulations of an unsteady flow through an axisymmetric orifice, and of a compliant constriction with the approximate shape and mechanical properties of the vocal folds. It is further shown that the inertive effect of the glottal jet depends on the jet path and jet mixing, with a slowly diffusing, symmetric jet showing higher inertance than an asymmetric jet which rapidly mixes with supraglottal air. (Acknowledge support of NIH grant 2R01DC005642-10A1.)

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