Examination of aerodynamic, acoustic, and perceptual goals during speech production. Jessica E. Huber¹, Elaine T. Stathopoulos² & Joan E. Sussman², ¹Purdue University, Department of Audiology and Speech Sciences, West Lafayette, IN, ²University at Buffalo, Department of Communicative Disorders and Sciences, Buffalo, NY, USA.

One of the most important areas of study in speech motor control has been the identification of control variables or goals of movement. The focus on the goals or control variables in movement is related to the belief that knowing the goals of movement leads directly to information about motor programming. The current study examined two hypotheses regarding control variables in speech production: 1) pressure and resistance in the vocal tract are controlled, and 2) perceptual and acoustic accuracy are controlled. The current investigation included production and perceptual studies. Aerodynamic and acoustic data were collected on twenty subjects under three conditions, normally, with an air pressure bleed in place, and with a closed bleed tube in place. The voice recordings collected from the subjects in the production study were used in the perceptual study. The data suggested that pressure may be one of the variables controlled in speech production, but vocal tract resistance was not maintained across the conditions. Perceptual accuracy in the bleed condition was strongest when a burst was present, but intraoral pressure was lowest. The data from the current suggests that the purpose of pressure maintenance was to ensure acoustic and perceptual accuracy.