critical reviews (2), and a systematic review and meta-analysis of the literature (1).

Mixed Design and Single Repeated Measure Designs

Bushmann, Dobmeyer, Leeker and Perlmutter (1989) examined the swallowing abnormalities and their response to treatment with levodopa in 20 subjects with PD. They also compared the presence of swallowing abnormalities in patients with PD to those of healthy controls. For the purposes of this article, only the swallowing abnormalities of the patients with PD and their response to levodopa will be discussed.

Swallowing function was assessed with a modified barium swallow (MBS) both on and off levodopa, and rated by two speech-language pathologists, one of whom was blinded, using an objective protocol. Appropriate analysis using the kappa statisitc revealed strong inter-rater reliability for assessment of all swallowing behaviours. Results showed abnormal swallows in 15 patients off levodopa. Of those, five showed mild to dramatic improvement (decreased residue and transit time) on levodopa, and one showed deterioration. No statistical analysis was completed on the MBS findings that were performed both before and after treatment with levodopa.

This study provided a high level of evidence (level 2b) which included experimenter blinding and interrater statistical analysis. However, there was no

This study provided a moderately high level of evidence (level 2b), which included controlling for an oder bias and performing statistical analysis of the nasendoscopy findings. However, the endoscopy ratings are qualitative in nature.

Systematic Review and Meta-analysis

Menezes and Melo (2009) selected five studies to include in their systematic review assessing the

findings in order to strengthen the validity of the evidence.
Performing appropriate statistical analysis on research findings both pre and post levodopa administration.
Controlling for possible confounding variables through statistical analysis or