D.5.3 Speech and language therapy

Study details	Participants	Methods	Results	Comments
Full citation Herd,Clare P., Tomlinson,Claire L., Deane-Katherine,H.O., Brady,Marian C., Smith,Christina H., Sackley,Catherine M., Clarke,Carl E., Speech and language therapy versus placebo or no intervention for speech problems in Parkinson's disease, Cochrane Database of Systematic Reviews, -, 2012 Ref Id 257693 Country/ies where the study was carried out UK Study type systematic review found online here: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002812.pub2/abstract Aim of the study To compare efficacy of speech and language therapy versus placebo or no intervention for speech and voice problems in patients with PD	Sample size N = 3 studies inc in qualitative synthesis, 2 studies inc in quantitative MA Inclusion criteria see Cochrane review for individual study inclusion criteria http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002812.pub2/abstract Exclusion criteria see Cochrane review for individual study exclusion criteria http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002812.pub2/abstract	Details see cochrane review for review and individual study methodology Interventions http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002812.pub2/abstract 3 studies with 3 interventions: Individual pitch, volume, and prosody training loudness and pitch variation, respiration, voice production and intelligibility group training Lee Silverman coice training Each compared to usual care placebo (i.e. no active intervention).	Results see Cochrane paper: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002812.pub2/abstract	Overall Risk of Bias: Serious : see cochrane paper for bias assessment: http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002812.pub2/abstract Other information N/A

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Study dates Literature search was up to 11th April 2011 Source of funding Cochrane collaboration - individual study funding sources listed in each study data extraction page in Cochrane review				
Full citation Troche,M.S., Okun,M.S., Rosenbek,J.C., Musson,N., Fernandez,H.H., Rodriguez,R., Romrell,J., Pitts,T., Wheeler-Hegland,K.M., Sapienza,C.M., Aspiration and swallowing in Parkinson disease and rehabilitation with EMST: a randomized trial, Neurology, 75, 1912-1919, 2010 Ref Id 306260 Country/ies where the study was carried out USA Study type RCT Aim of the study	Sample size N = 68; intervention n= 33, sham n=35 mean age EMST 66.7 (SD 8.9)' sham 68.5 (SD 10.3) UPDRS motor total: EMST pre 39.4 (9.2), post 38.9 (8.1); sham pre 40 (8.5), post 41.5 (10.3) Inclusion criteria Ideopathic PD screened and recruited from movement disorders clinicl at university of Florida. all participants had to: 1) meet diagnostic UK Brain bank criteria for PD 2) report some degree of swallowing difficulty i.e. coughing during meals, increased eating duration 3) remain on same PD medications throughout the study	Details design prospective, blinded RCT design all pts took part in baseline swallowing assessment followed by 4 weeks of intervention or sham following completion of treatment, pts returned for post-treatment assessment baseline/post training pts were assessed during 2 baseline measurement sessions videoflouroscopy assessment was only completed at second baseline in order to limit radiation exposure	Results 2 pts lost to follow-up in both groups as did not want to travel for post test visit. 1 patent in intervention group became too ill to continue. Total N each group for analyses = 30. swallow safety: Penetration aspiration (PA) no difference in baseline characteristics interaction between time and group reported mean PA scores improved in EMST (MC = 0.61 95% CI: 0.10 to 1.11) no improvement in sham(MC=0.43, 95%CI: -0.82 to -0.04)	Overall Risk of Bias low 1. An appropriate method of randomization was used to allocate pts to treatment groups? Randomization method unclear 2.There was adequate concealment of allocation; yes, aparatus for both groups looked identical, double blind design 3.The groups were comparable at baseline, including all major confounding and prognostic factors? all factors comparable at baseline, no significant differences 4.Comparison groups received same care apart from interventions: yes, same care for both groups

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To test treatment outcome of 4 week device-driven expiratory muscle strength training (EMST) progrm om swallow safety and define the physiologic mechanisms through measures of swallow timing and hyoid displacement Study dates 2010 Source of funding National Parkinson Foundation centre of excellence	other inclusion criteria were: aged between 55 and 85; moderate clinical disability (H&Y stages II - IV), score of >24 on MMSE, Exclusion criteria 1) other neuoogical disorders 2) gastrointesinal disease 3) gastroesophageal surgery 4) head and neck cancer 5) history of breathing disorders or disease 6) untreated hypertension 7) heart disease 8) history of smoking in the last 5 years 9) difficulty complying due to neuropsychological dysfunction 10) failing to pass screening test for pulmonary function completed at baseline	same assessment protocol was completed following finish of treatment pts were tested for 1 hour of intake of their dopaminergic medications to ensure they were practically deifned as "on" state maximum expiratory pressure (MEP) pts instructed to stand and occlude nose with nose clip MEP measurements completed using pressure manometer With the device mouthpiece placed between the lips and behind teeth, pts instructed to inhale as deeply as possible and blow into manometer tube quickly and forcefully 3 values within 5% of eachother were required to calculate a average videoflouroscopy pts sat upright and their swallowing function was recorded in the lateral viewing plane using a	age sex disease severity all had no significant effect on outcome 11/30 had improved scores (33%) compared to 5 (14%) in sham NNT=5.3 physiologic measures of swallow mechanism no significant changes in hyoid movement over time in EMST group but decreased significantly post intervention in sham group time by treatment group interaction for hyoid movement duration significant time by tmt interactions for hyoid displacement at several swallowing specific events: onset of bolus transit, upper oesophageal sphincter opening, UES at its widest opening UES closure, laryngeal closure, maximum laryngeal closure, laryngeal opening swallowing QoL improvement in swallowing QoL secondary to treatment, independant of tmt group membership (F=3.007, p<0.007)	5. Pts receiving care were kept blind to tmt allocation: both groups blinded 6. Individuals administering care were kept blind to tmt allocation:yes therapists blinded 7. All groups followed up for an equal length of time: yes, both followed up for 4 week period 8. Groups comparable for treatmen completion? yes, same dropout (n=2) for both groups 9.Groups were comparable with respect to avalilability of outcome data? yes - data available both groups 10 Study had appropriate length of followup: unclear what appropriate length of FU would be, however benefits were shown for initial 4 weeks. Need to understand whether these benefits are durable over time. 11. Study used a precise definition of outcome: yes, outcomes clear 12. Valid and reliable method was used to determine the outcome: yes 13. Investigators were kept blind to participants exposure

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		properly collimated flouroscope unit images digitally recorded pts completed 10 x 5 mL trials of thin liquid by cup and also a trial of one 3oz sequential swallow of thin liquid by cup trials presented in random order pts given liquid and asked by experimentor to put liquid in mouth and swallow when ready Speech pathologists with clinical expertise in evaluating patients with PD analyzed swallow studies and were blinded to pts identity and treatment randomization. 25% of total dataset was re-analyzed to ensure inter-rater reliability Interventions EMST/sham training device set weekly to 75% of the participants average maximum expiratory pressure pts visited weekly during the 4wk tmt phase by a clinician, blinded to tmt randomization		to the intervention: yes, investigators were blinded 14. Investigators were kept blind to other important confounding and prognostic factors: Yes, investigators blind to clinical information overall risk of Bias = Low Other information n/a

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		sham dvice identical to EMST, except pressure release valve nonfunctional therefore both clinician and patients were blinded sham device also set to 75% MEP using adjustable cap for blinding purpose, however would provde little to no physiologic load to targeted muscles during weekly visit by clinician, pts were reminded how to properly use their device to facilitate independent daily treatment trials pts instructed to wear nose clips, take deep breath, hold cheeks lightly, blow as hard as they could into device, and identify that the air was flowing freely through the device once threshold pressure had been released feedback provided to ensure accuracy of initial training once pts able to identify accurate task completion, clinician-based feedback was eliminated		

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		each pt trained at home, independent of clinician, completing 5 sets of 5 repetitions 5 days out of the week compliance tracked using form provided by clinician		