



Doença de Parkinson

Musculatura oral

Musculatura oral

- Lentidão movimento lábios, língua e amplitude reduzida, assim como palato mole
- Provas diadococinesia
 - evidente diminuição da taxa de repetição e com redução progressiva da contração muscular para emissão de consoantes → sensação de sílabas contínuas e sem distinção



4

Fala

Prevalência

- 49-73% disartria
- Torna-se mais prevalente com progressão doença

- Astenia – fraca intensidade vocal
- Decadência de intensidade
- Imprecisão articulatória
- Monofrequência
- Tremor
- Gaguez
- Voz nasalada
- Rouquidão, aspereza e sopro
- Silêncios inapropriados
- Pequenas tiradas de discurso
- Lentidão do discurso
- Dificuldades em iniciar o discurso

Disartria na DP

**Diminuição
amplitude
movimentos**

Rigidez

Bradicinesia

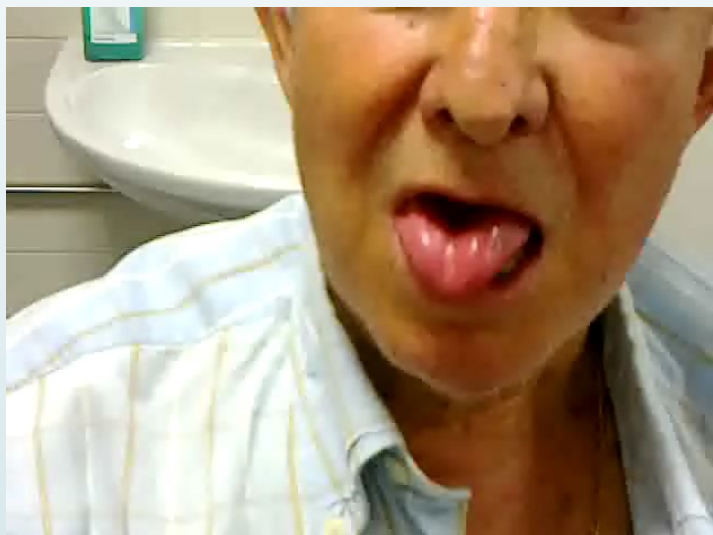
Disartria na DP

Alterações de voz e fala mais frequentes na DP

Alterações de fala	Percentagem de indivíduos
Intensidade fraca	61
Imprecisão articulatória	36
Voz rouca	32
Dificuldades iniciar o discurso	27
Monopitch	17
Fala lenta	11
Tremor	10
Gaguez	9
Velocidade aumentada	6
Alterações de ritmo	5
Nasalidade	4

Note: adapted from "speech and swallowing Symptoms Associated with Parkinson's Disease and Multiple Sclerosis", by L. Hartelius and P. Svensson, 1994, Folia Phoniatica et Logopaedica, 46, pp. 9-17.

Disartria na DP



“...People with PD (PwPD) often suffer from a **lack of respiratory support ... phonatory problems** which are most commonly characterised by a **drop in volume ...** Speech intelligibility is further impacted by changes in **the precision of articulatory movements for vowels and consonants alike.**”



Rhythmic performance in hypokinetic dysarthria: Relationship between reading, spontaneous speech and diadochokinetic tasks



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DDK

Respiração	Achados clínicos: Rigidez muscular, tremor, diminuição amplitude dos movimentos torácicos	Fala: Diminuição intensidade vocal e queda durante o discurso	Tratamento: Adequação postural; Aumento do trabalho respiratório durante a fala;
Fonação	Rigidez muscular; encerramento incompleto das ppvv; tremor; diminuição da flexibilidade e eficiência laríngea; assimetria ppvv.	Soprosidade; rouquidão; qualidade vocal trémula; diminuição prosódia	Técnicas que aumentam adução glótica; Controlo respiração/ fonação durante a fala
Função velofaríngea	Normal ou rígido com redução do encerramento velofaríngeo	Nasalidade em vários segmentos fonéticos, com diminuição do movimento	Sobrearticulação Diminuir velocidade do discurso
Articulação	Fadiga; rigidez; tremor;	Imprecisão articulatória associada a diminuição dos movimentos, repetição de fonemas, tiradas curtas de discurso	Sobrearticulação

Intervenção na Disartria na DP

Intervenção nas alterações de fala na DP

Caraterísticas perceptivas	Patofisiologia	Tratamento
Redução da intensidade vocal, voz fraca (logemann et al., 1978; Aronson, 1985)	Pregas vocais arqueadas; rigidez, hipocinesia laríngea e/ou respiratória; redução adução; redução do volume inspiratório, expiratório (Hanson et al., 1984; Critchley, 1981)	Aumento da adução das pregas vocais – pushing, aumento do tempo de duração da fonação com vogais e aumento da intensidade - “pense forte, fale forte” Aumento do suporte respiratório - Postura - Respiração profunda antes de falar - Treino de controlo inspiração/expiração

Intervenção na Disartria na DP

Intervenção nas alterações de fala na DP

Características perceptivas	Patofisiologia	Tratamento
Monopitch (logemann et al. 1978)	Rigidez músculo cricofaríngeo (Aronson, 1985)	Aumento da variação da frequência fundamental <ul style="list-style-type: none">- Escalas de variação de frequência;- Sustentação de vogais em tom grave e agudo Aumento da variação da frequência fundamental em tarefa de fala <ul style="list-style-type: none">- Ênfase em palavras- Entoação em questões

Intervenção na Disartria na DP

Intervenção nas alterações de fala na DP

Características perceptivas	Patofisiologia	Tratamento
Voz instável, rouca e áspera (Logemann et al., 1978)	Rigidez, hipocinesia e tremor na musculatura laríngea ou respiratória (Hanson et al., 1984)	Aumento da firmeza glótica <ul style="list-style-type: none">- Aumento intensidade e do tempo máximo de fonação com fonemas fricativos vozeados- Voz consistente e firme na produção de frases- Exercícios do trato vocal semi-ocluído.

“... Speech is severely affected in PD. Although l-dopa had some effect on motor performance, including axial signs, **speech and voice did not improve.**

The applicability and efficacy of non-pharmacological treatment for speech impairment should be considered for speech disorder management in PD.”



Speech and Voice Response to a Levodopa Challenge in Late-Stage Parkinson's Disease

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OPEN ACCESS

STUDY PROTOCOL**Open Access**

Lee Silverman voice treatment versus standard NHS speech and language therapy versus control in Parkinson's disease (PD COMM pilot): study protocol for a randomized controlled trial

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Abstract

Background: Parkinson's disease is a common movement disorder affecting approximately 127,000 people in the UK, with an estimated two thirds having speech-related problems. Currently there is no preferred approach to speech and language therapy within the NHS and there is little evidence for the effectiveness of standard NHS therapy or Lee Silverman voice treatment. This trial aims to investigate the feasibility and acceptability of randomizing people with Parkinson's disease-related speech or voice problems to Lee Silverman voice treatment or standard speech and language therapy compared to a no-intervention control.

Methods/Design: The PD COMM pilot is a three arm, assessor-blinded, randomized controlled trial. Randomization will

“...The findings provide evidence for the efficacy of the LSVT as well as the long term maintenance of these effects in the treatment of voice and speech disorders in patients with idiopathic Parkinson’s disease.”

Intensive voice treatment (LSVT®) for patients with Parkinson’s disease: a 2 year follow up

L O Ramig, S Sapir, S Countryman, A A Pawlas, C O’Brien, M Hoehn, L L Thompson

Abstract

Objectives—To assess long term (24 months) effects of the Lee Silverman voice treatment (LSVT®), a method designed to improve vocal function in patients with Parkinson’s disease.

Methods—Thirty three patients with idiopathic Parkinson’s disease were stratified and randomly assigned to two treatment groups. One group received the LSVT®, which emphasises high phonatory-respiratory effort. The other group received respiratory therapy (RET), which emphasises high respiratory effort alone. Patients in both treatment groups sustained vowel phonation, read a passage, and produced a monologue under identical conditions before, immediately after, and 24 months after speech treatment. Change in vocal function was measured by means of acoustic analyses of voice loudness (measured as sound pressure level, or SPL) and inflection in voice fundamental frequency (measured in terms of semitone standard deviation, or STSD).

Results—The LSVT® was significantly

folds, and/or respiratory muscles.⁹⁻¹¹ Voice and speech abnormalities in people with Parkinson’s disease have also been attributed to neurocognitive, neuroaffective, psychomotor, and other higher level cerebral dysfunction.¹²⁻¹³

Traditional methods of speech therapy for dysarthric patients with Parkinson’s disease, typically administered once or twice a week and emphasising articulation, rate, and prosody intervention, have been largely ineffective.¹⁴⁻¹⁶ By contrast, intensive voice therapy methods, administered almost daily and emphasising simple phonatory effort tasks, have been found to produce favourable results.¹⁷⁻¹⁹

In 1987 Ramig *et al*²⁰ developed an intensive treatment programme to improve vocal fold adduction and overall voice and speech production in patients with Parkinson’s disease. The programme, known as the Lee Silverman voice treatment (LSVT®), is unique in that it focuses on a simple set of tasks designed to maximise phonatory and respiratory functions. This is done by instructing and constantly stimulating patients to produce a loud voice

PAPER

Swallowing and voice effects of Lee Silverman Voice Treatment (LSVT[®]): a pilot study

A El Sharkawi, L Ramig, J A Logemann, B R Pauloski, A W Rademaker, C H Smith, A Pawlas, S Baum, C Werner

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Objective: To define the effects of Lee Silverman Voice Treatment (LSVT[®]) on swallowing and voice in eight patients with idiopathic Parkinson's disease.

Methods: Each patient received a modified barium swallow (MBS) in addition to voice recording before and after 1 month of LSVT[®]. Swallowing motility disorders were defined and temporal measures of the swallow were completed from the MBS. Voice evaluation included measures of vocal intensity, fundamental frequency, and the patient's perception of speech change.

Results: before LSVT[®], the most prevalent swallowing motility disorders were oral phase problems including reduced tongue control and strength. Reduced tongue base retraction resulting in residue in the vallecula was the most common disorder in the pharyngeal stage of the swallow. Oral transit time (OTT) and pharyngeal transit time (PTT) were prolonged. After LSVT[®], there was an overall 51% reduction in the number of swallowing motility disorders. Some temporal measures of swallowing were also significantly reduced as was the approximate amount of oral residue after 3 ml and 5 ml liquid swallows. Voice changes after LSVT[®] included a significant increase in vocal intensity during sustained vowel phonation as well as during reading.

Conclusions: LSVT[®] seemingly improved neuromuscular control of the entire upper aerodigestive tract, improving oral tongue and tongue base function during the oral and pharyngeal phases of swallowing as well as improving vocal intensity.

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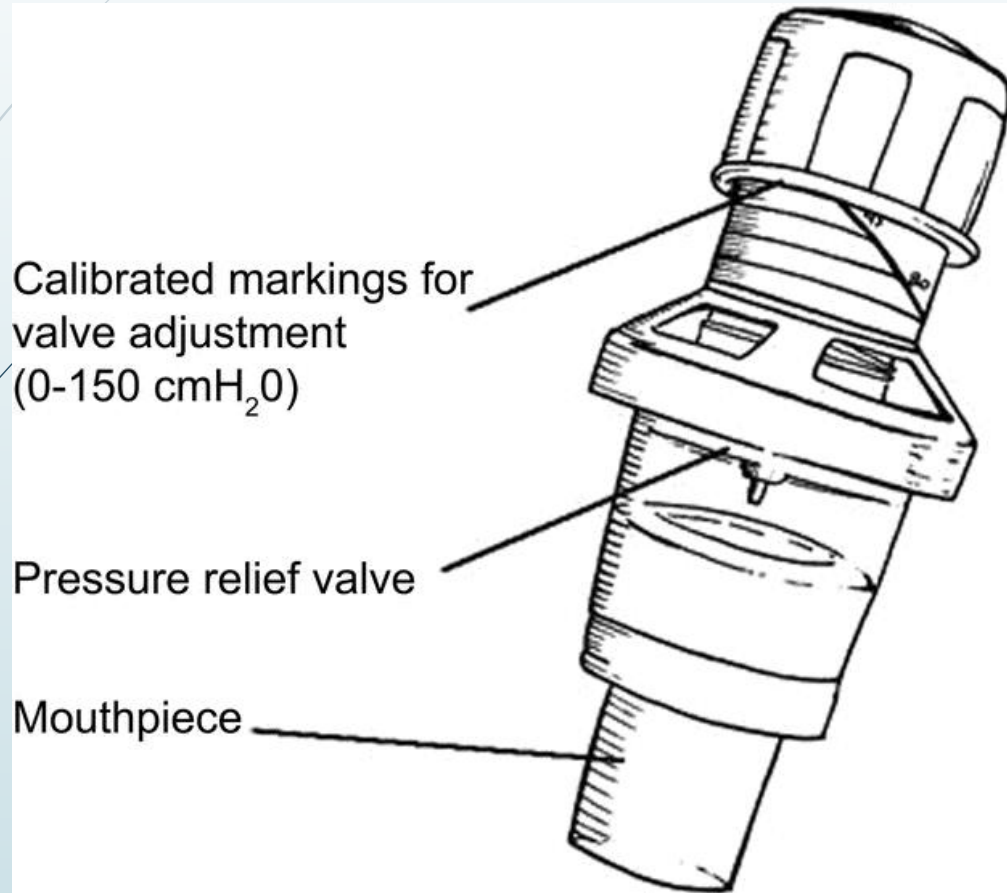
Oro-Facial Changes in Parkinson's Disease Following Intensive Voice Therapy (LSVT)

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Parkinson's disease (PD) is associated with multiple communication deficits which affect both verbal and nonverbal abilities, including vocal loudness, articulatory precision, and facial expression. This paper addresses the effects of intensive voice therapy (Lee Silverman Voice Treatment, LSVT) on communicative acts in PD involving significant oro-facial movement, specifically speech articulation and spontaneous facial expression. Both acoustic measurements and perceptual judgments are presented. The underlying mechanisms thought to be responsible for treatment-related changes are proposed and discussed.

EMST – Expiratory Muscle Strength Training



The EMST 150 – Handheld device for increasing expiratory muscle strength.



Patient using the EMST 150



Intervenção na Disfagia na Doença de Parkinson

Terapia Indireta

EMST – Expiratory Muscle Strength Training

- Aumento da coaptação pregas vocais;
- Aumento da intensidade vocal;
- Promove mobilidade laríngea;



Treino isométrico:

4 semanas/ 5 dias por semana/ 20 minutos (5 séries de 5 respirações para um total de 25 respirações por dia)

The screenshot shows the Neurology journal website. At the top, the journal's name "Neurology" is displayed in a large serif font, with the tagline "THE MOST WIDELY READ AND HIGHLY CITED PEER-REVIEWED NEUROLOGY JOURNAL" below it. To the right, it states "The Official Journal of the American Academy of Neurology". A search bar is visible with the placeholder text "keyword, author" and a dropdown menu showing "Only this journal". Below the header is a navigation menu with links for "Home", "Current Issue", "All Issues", "Ahead of Print", "Topics", and "WriteClick®". A secondary navigation bar includes "« Previous Article", "Table of Contents", and "Next Article »". A CrossMark logo with the text "click for updates" is present. The main content area features the article title "Aspiration and swallowing in Parkinson disease and rehabilitation with EMST" in a large, bold, black serif font. Below the title, it says "A randomized trial". At the bottom, the authors are listed: "M.S. Troche, PhD, M.S. Okun, MD, J.C. Rosenbek, PhD, N. Musson, MA, H.H. Fernandez, MD, R. Rodriguez, MD, J. Romrell, PA-C, T. Pitts, PhD, K.M. Wheeler-Hegland, PhD and C.M. Sapienza, PhD".