



# Esclerose Múltipla



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FALA

# Problemas fala – disartria

- Estudos relata, 50%, 20-41%
- Problemas de fala ou outros problemas de comunicação
- % fala ininteligível
- % usa CAA

# Características fala

- Qualidade vocal nasalada
  - Fonação fraca
  - Ciclo respiratório incompleto
  - Trocas no tom voz
  - Velocidade lenta
  - Deterioração intelectual
  - Labilidade emocional
- 
- Medida útil na avaliação: precisão de produção de consoantes

## Disartria na Esclerose Múltipla (EM)

Ventilação inadequada

Emissão nasal

Diminuição da capacidade vital

Hipernasalidade

Soprosidade

Controlo *pitch* alterada

Qualidade vocal áspera

Articulação imprecisa

Alterações prosódia

Alterações controlo da Intensidade vocal

N – 168 indivíduos com EM

# Alterações fala – disartria mista (espástica-atáxica)

- Fonação
  - Controlo volume
  - Voz rouca
- Articulação
  - Alteração inteligibilidade
  - Alteração cadência
- Ressonância
  - Hipernasalidade
- Prosódia
  - Alteração da acentuação – ressalte entre palavras e acentuação exagerada em palavras e sílabas
  - Características atáxicas – acento prosódico monótono e excessivo

## Disartria na Esclerose Múltipla (EM)

### Intervenção nas Disartria na EM

#### Disartria ligeira

#### Caraterísticas

Tremor vocal  
Voz áspera  
Alterações na intensidade vocal (demasiado alta ou fraca)  
Descoordenação pneumofonoarticulatória  
Descoordenação respiratória  
Uso de ar residual durante a fala  
Sintomas pioram com a fadiga

#### Intervenção

Ensino de técnicas de conservação de energia  
Treino de controlo volume de ar inspiratória e expiratório  
Treino controlo intensidade vocal  
Eliminar comportamentos respiratórios inadequados  
Aumentar eficiência laríngea prejudicadas pela ataxia e espasticidade – postura/ relaxamento/ controlo respiratório  
LSVT

## Disartria na Esclerose Múltipla (EM)

Intervenção nas Disartria na EM		
	Disartria Moderada	Disartria Severa
Caraterísticas	Tremor vocal e aspereza Alterações de prosódia – velocidade de fala reduzida	Fala não é funcional
Intervenção	Técnicas para controlo de velocidade e ritmo de fala Treino de controlo de volume de ar inspiratório e expiratório Implementação de meios aumentativos de comunicação (ex.: quadro letras)	Implementação de sistemas aumentativos de comunicação



“...The present findings provide further support for the efficacy of LSVT® in the treatment of various neurologically-based speech disorders.”

## Effects of Intensive Phonatory-Respiratory Treatment (LSVT®) on Voice in Individuals with Multiple Sclerosis

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### Abstract

Many individuals with multiple sclerosis (MS) exhibit a variety of voice and speech problems, with vocal weakness and fatigue being common complaints. The purpose of this study was to assess the impact of an intensive phonatory-respiratory treatment program (Lee Silverman Voice Therapy, LSVT®) on vocal function in two women (ages 47 and 48) with a long history (12 and 15 years) of MS. These women complained of vocal weakness and fatigue associated with their illness. These voice problems were chronically present in spite of the fact that the symptoms of MS were in remission in these women during the study. Statistically significant improvement from pre- to post-treatment and from pre- to 6 month post-treatment follow up were observed in vocal sound pressure level (SPL) ( $p < 0.005$ ) for different speech tasks and for duration of sustained vowel phonation ( $p < 0.005$ ). Statistically significant improvement ( $p < 0.001$ ) was also observed in the perceptual rating of voice loudness after treatment. The present findings provide further support for the efficacy of LSVT® in the treatment of various neurologically-based speech disorders.

### Introduction

Approximately 40-45% of individuals with multiple sclerosis (MS) suffer from dysarthria.<sup>1-2</sup> These individuals may exhibit different speech abnormalities, depending on the severity of the neurologic involvement, location of the lesions in the central nervous system (CNS), and the progressive or fluctuating nature of the disease. In most of these individuals, the dysarthria is of the spastic-ataxic type.<sup>3</sup> Some of the prominent features of the dysarthria include impaired vocal loudness, breathy or harsh voice, vocal instability, and imprecise articulation.<sup>3-5</sup> Complaints of vocal weakness and fatigue, often accompanied by dysphagia, are common in dysarthric individuals with MS.<sup>2,6-7</sup>

Although oral communication is a significant aspect of quality of life, employment, and social functioning, very few studies have assessed the effects of speech treatment for individuals with MS.<sup>3,4</sup> Farmakides & Boone<sup>7</sup> reported that 85% of 68 patients who received speech therapy improved their speech. The therapy was designed according to the specific deficits each of the patients exhibited. Detailed information about treatment was not reported. Evaluation of treatment was done perceptually by three judges using a 4-point scale. Farmakides & Boone argued

# DEGLUTIÇÃO

## Disfagia na Esclerose Múltipla (EM)

Engasgue com alimento ou bebida – 27%

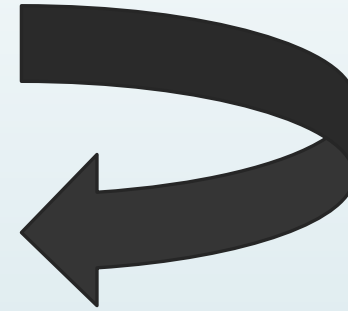
Dificuldade na deglutição de sólidos – 16%

Dificuldade na deglutição de líquidos – 13%

Escape anterior de saliva ou bebida – 13%

Dificuldades de mastigação – 12%

Entrevista a 100 indivíduos  
com EM



As alterações de deglutição na EM podem estar presentes na fase oral, faríngea e esofágica. A disfagia na EM ocorre possivelmente devido a uma combinação de vários fatores, tais como o envolvimento **das vias corticobulbares, cerebelo, tronco cerebral, e parésia do nervo craniano**. O **prejuízo cognitivo e afetivo** pode ser também um factor relevantes.

# Prevalência/incidência disfagia

- Prevalência: 30-43% ou mais
- Incidência: 65% nos mais afetados
- 17% dos utentes menos debilitados apresentam disfagia

# Patofisiologia

- Lesão cerebelar
  - Descoordenação no mecanismo da deglutição
- Tronco cerebral
  - Fraqueza na deglutição
- Afeção cognitiva
  - Interrupção da deglutição

# Diagnóstico

- A disfagia poderá variar de acordo com área afetadas
- História completa para identificar as alterações específicas da deglutição em conjunto com avaliação instrumental da deglutição com VFS é recomendado
  - Permite identificar o local da disfunção e alterações sensoriais
- Todas as fases da deglutição estão afetadas na maioria dos utentes
  - Faríngeo – 28,7%
  - Oral - 5%
  - Aspiração – 6,9%
- Alterações cricofaríngeo

# Complicações

- Redução da QdV
- Desidratação
- Pneumonia de aspiração
  
- Aumento da morbidade e morte em estádios finais

# Tratamento

- Não há tratamentos farmacológicos eficazes para disfagia na ES
- Miotomia ou toxina botulínica tipo A - casos hipertonicidade cricofaríngeo
  
- Há taxas muito baixas de referenciação para terapia
  - Só 2% recebem tratamento comportamental – terapia!
  
- Casos moderados:
  - Melhorar controlo oral do bolo
  - Melhorar função faríngea
  
- NMES – melhora na função da deglutição
  - Diminuição estase saliva nos seios piriformes e menos aspiração



“There were alterations in **swallowing efficiency and/or safety in more than 80% of the patients.** In 52% there was some change in the swallowing safety. **40% of them were silent aspirators. ...**”

## Disfagia orofaríngea en pacientes afectados de esclerosis múltiple

R. Terré-Boliart <sup>a</sup>, F. Orient-López <sup>a</sup>, D. Guevara-Espinosa <sup>a</sup>,  
S, Ramón-Rona <sup>a</sup>, M. Bernabeu-Guitart <sup>a</sup>, P. Clavé-Civit <sup>b</sup>

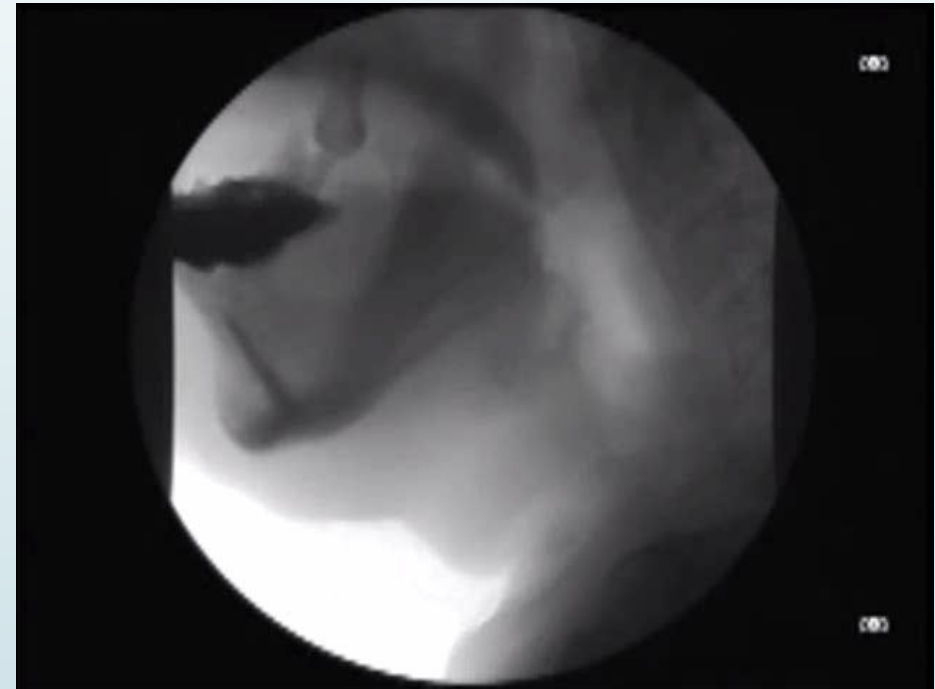
### OROPHARYNGEAL DYSPHAGIA IN PATIENTS WITH MULTIPLE SCLEROSIS

*Summary.* Aims. The aim of this study is to evaluate the prevalence of the clinical and videofluoroscopic (VDF) symptoms of oropharyngeal dysphagia in patients with multiple sclerosis, and to describe its therapeutic management. Patients and methods. We studied 23 patients suffering from multiple sclerosis to evaluate the characteristics of the disease, the VDF exploration of swallowing and therapeutic strategies. The VDF exploration enables us to define the VDF symptoms that assess the safety and efficiency of swallowing for the oral and pharyngeal phases. The therapeutic strategies include: changes in the characteristics of the diet, changes of posture and active manoeuvres. Results. The patients studied presented a mean EDSS score 7.4 (4-9). There were alterations in swallowing efficiency and/or safety in more than 80% of the patients. In 52% there was some change in the swallowing safety. 40% of them were silent aspirators. All these patients were fed orally without any complications, in 78% the volume of the bolus has been modified and changes have taken place in the consistency (thickening for liquids); in 43%, moreover, postural strategies were employed and active manoeuvres (supraglottic swallow) were introduced in 13% in order to improve swallowing safety. Conclusions. There is a high prevalence of clinical and VDF symptoms of oropharyngeal dysphagia in patients with advanced multiple sclerosis. VDF enables us to diagnose the pathophysiological mechanism of aspiration and the existence of silent aspirators, and helps us to introduce specific therapeutic interventions for each patient, thereby achieving safe and efficient swallowing, while prolonging oral feeding. [REV NEUROL 2004; 39: 707-10]

*Key words.* Aspiration. Dysphagia. Multiple sclerosis. Rehabilitation. Videofluoroscopy.

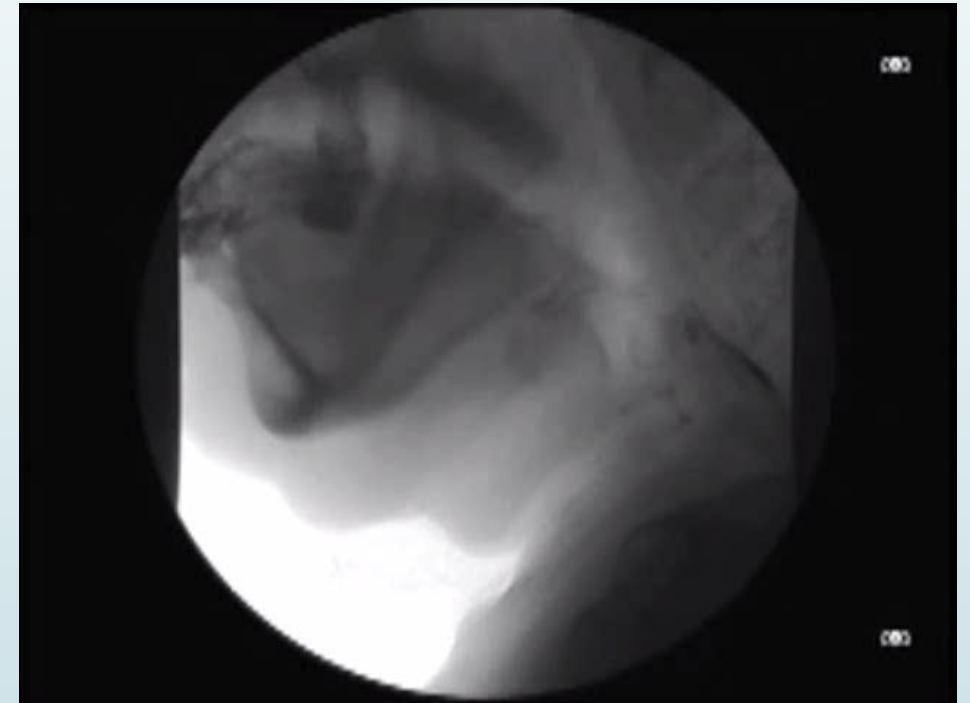
## Disfagia na EM

- Podem surgir alterações na **fase preparatória oral**, fase faríngea e esofágica:
  - Redução vedamento labial
  - Diminuição da ejeção oral
  - Resíduos na cavidade oral
  - Redução da sensibilidade intraoral
  - Alterações de mastigação
  - Aumento do transito oral
  - Escape posterior de alimento
  - Tosse antes da deglutição

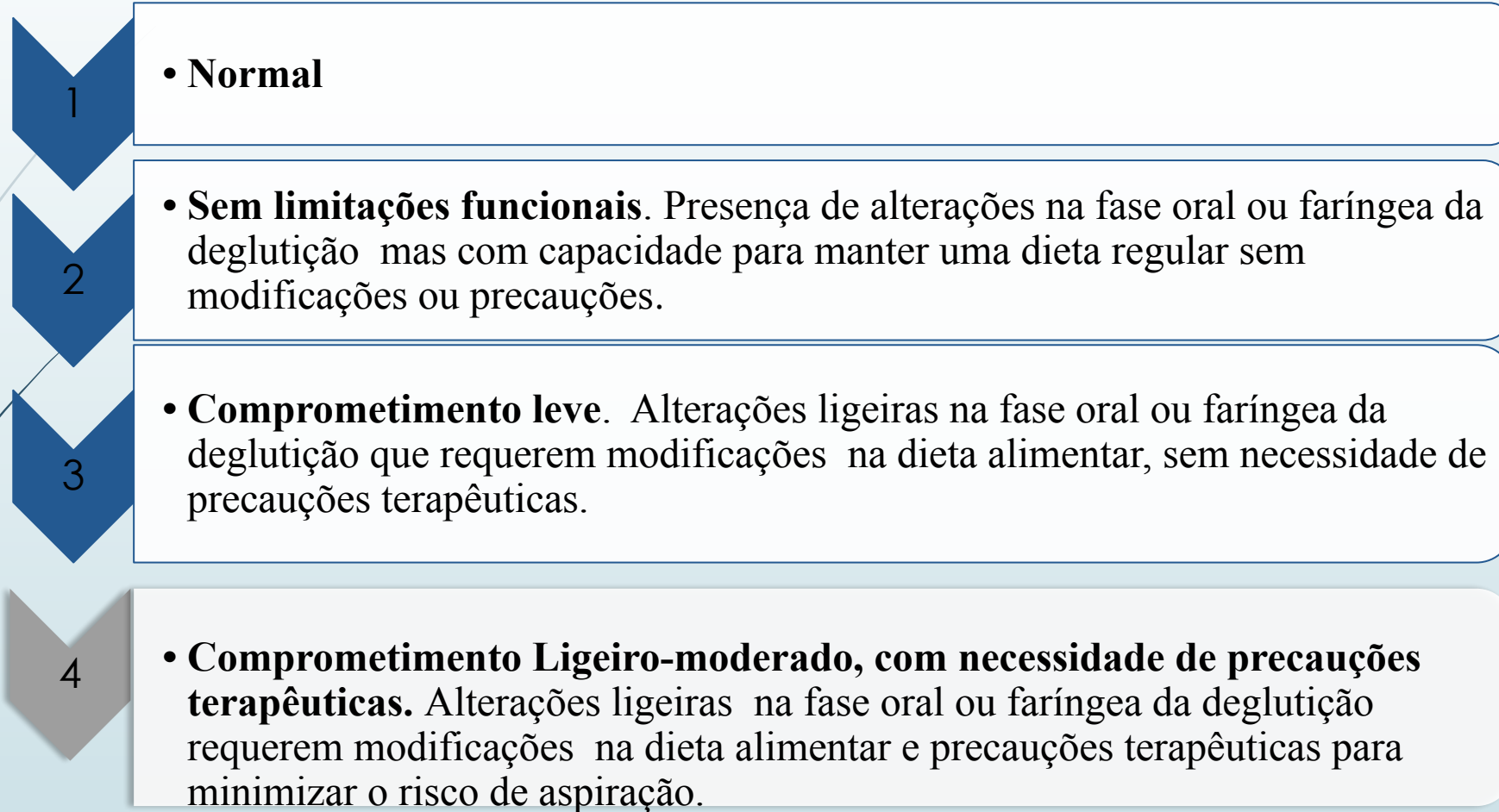


## Disfagia na EM

- Podem surgir alterações na fase preparatória oral, **fase faríngea** e esofágica:
  - redução da contração faríngea
  - atrase ou ausência do reflexo de deglutição
  - proteção laríngea ineficiente
  - diminuição da elevação laríngea
  - tosse durante e após a deglutição
  - risco de aspiração silenciosa
  - interação entre fadiga e disfagia



## EM – Swallowing Performance Scale



Yorkston et al. 2004

## EM – Swallowing Performance Scale

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- **Comprometimento Moderado.** Comprometimento moderado na fase oral ou faríngea da deglutição, aspiração verificado no exame clínico, requerem modificações na dieta alimentar e precauções terapêuticas para minimizar o risco de aspiração.

6

- **Comprometimento Moderado-severo, com suplemento de alimentação enteral.** Comprometimento moderado na fase oral ou faríngea da deglutição, aspiração verificado no exame clínico, requerem modificações na dieta alimentar e precauções terapêuticas para minimizar o risco de aspiração. Necessidade de suporte alimentar por via enteral

7

- **Comprometimento Severo.** Comprometimento severo com aspiração significativa. Nada por via oral. Necessidade de alimentação por via entérica.

Yorkston et al. 2004

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Six empty rectangular boxes with rounded corners and a blue border, arranged vertically. Each box has a grey shadow on its left side, suggesting they are part of a list or a set of notes. The boxes are currently empty.

“...Swallow therapy, another common form of rehabilitation, can be divided into: **compensatory techniques (i.e., postural manoeuvres), indirect therapy** (exercises to strengthen swallowing muscles or by stimulating the faucial arches have shown improvement in swallowing measures) and **direct therapy** (exercises to perform while swallowing).”

D.A. Restivo · R. Marchese-Ragona · F. Patti

## Management of swallowing disorders in multiple sclerosis

**Abstract** Dysphagia can complicate multiple sclerosis (MS). Its real prevalence may be estimated to be around 30%–40%. Furthermore, dysphagia is life-threatening. In fact, its complications such as dehydration and aspiration pneumonia are a common cause of death and morbidity in late MS. The management of dysphagia should be focused on treatment of the specific dysphagic symptom and the underlying pathophysiology. The symptomatic management of dysphagia is based on two different types of approaches: the rehabilitative treatment and the pharmacological treatment. Botulinum toxin treatment may be a valid therapy in MS patients with oro-pharyngeal dysphagia associated with upper oesophageal sphincter hyperactivity.

### Introduction

Swallowing permits the ingestion of fluids and foodstuffs without aspiration. It is a complex process regulated by a trigger centre in the brainstem, the central program generator (CPG), which receives inputs from the cerebral cortex and the peripheral muscles and directs the final sequence of swallowing [1]. Deglutition is commonly divided into three phases: oral, pharyngeal and oesophageal phases. Disruption of normal swallowing, dysphagia, is a frequent and life-threatening complication of several neurological disorders including multiple sclerosis (MS) [2, 3]. Furthermore, bronchopneumonia is a common cause of death and morbidity in late MS; a pos-

“... The symptomatic management of dysphagia is based on two different types of approaches: the **rehabilitative treatment and the pharmacological treatment**. Botulinum toxin treatment may be a valid therapy in MS patients with oro-pharyngeal dysphagia associated with upper oesophageal sphincter hyperactivity...”

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**Key words** Dysphagia • Multiple sclerosis • Swallowing disorders • EMG (electromyography) • Botulinum toxin

### Introduction

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