



# Esclerose Múltipla

> [Folia Phoniatr Logop](#), 46 (1), 9-17 1994

## Speech and Swallowing Symptoms Associated With Parkinson's Disease and Multiple Sclerosis: A Survey

L Hartelius <sup>1</sup>, P Svensson

Affiliations + expand

PMID: 8162135 DOI: [10.1159/000266286](https://doi.org/10.1159/000266286)

### Abstract

A survey of approximately 460 patients with Parkinson's disease (PD) or multiple sclerosis (MS) shows that speech and swallowing difficulties are very frequent within these groups. Seventy percent of the PD patients and 44% of the MS patients had experienced impairment of speech and voice after the onset of their disease. Forty-one percent of the PD patients and 33% of the MS patients indicated impairment of chewing and swallowing abilities. The speech disorder was regarded as one of their greatest problems by 29% of the PD patients and by 16% of the MS patients. Only a small number of patients, 3% of the PD and 2% of the MS group, had received any speech therapy.

## Research Report

### Content validity of the Comprehensive ICF Core Set for multiple sclerosis from the perspective of speech and language therapists

Marta Renom<sup>†</sup>, Andrea Conrad<sup>‡</sup>, Helena Bascuñana<sup>§</sup>, Alarcos Cieza<sup>¶</sup>||, Ingrid Galán<sup>†</sup>, Jürg Kesselring<sup>#</sup> and Michaela Coenen<sup>†\*\*</sup>

<sup>†</sup>Unitat de Neurorehabilitació and Unitat de Neuroimmunologia Clínica, Ce (CEM-Cat), Barcelona, Spain

<sup>‡</sup>Department of Medical Informatics, Biometry and Epidemiology—IBE, Ch Research, Research Unit for Biopsychosocial Health, Ludwig-Maximilians-Un

<sup>§</sup>Physical Medicine and Rehabilitation Department, Sant Pau University Hos

<sup>¶</sup>Faculty of Social and Human Sciences, University of Southampton, Southan

<sup>||</sup>Swiss Paraplegic Research, Nottwil, Switzerland

<sup>#</sup>Department of Neurology and Neurorehabilitation, Valens Rehabilitation C

<sup>\*\*</sup>ICF Research Branch in cooperation with the WHO Collaborating Centre Germany (DIMDI)

(Received June 2013; accepted January 2014)

## Abstract

**Background:** The Comprehensive International Classification of Functioning, Disability and Health (ICF) Core Set for Multiple Sclerosis (MS) is a comprehensive framework to structure the information obtained in multidisciplinary clinical settings according to the biopsychosocial perspective of the International Classification of Functioning, Disability and Health (ICF) and to guide the treatment and rehabilitation process accordingly. It is now undergoing validation from the user perspective for which it has been developed in the first place.

**Aims:** To validate the content of the Comprehensive ICF Core Set for MS from the perspective of speech and language therapists (SLTs) involved in the treatment of persons with MS (PwMS).

**Methods & Procedures:** Within a three-round e-mail-based Delphi Study 34 SLTs were asked about PwMS' problems, resources and aspects of the environment treated by SLTs. Responses were linked to ICF categories. Identified ICF categories were compared with those included in the Comprehensive ICF Core Set for MS to examine its content validity.

**Outcomes & Results:** Thirty-four SLTs named 524 problems and resources, as well as aspects of environment. Statements were linked to 129 ICF categories (60 *Body-functions* categories, two *Body-structures* categories, 42 *Activities-&-participation* categories, and 25 *Environmental-factors* categories). SLTs confirmed 46 categories in the Comprehensive ICF Core Set. Twenty-one ICF categories were identified as not-yet-included categories.

**Conclusions & Implications:** This study contributes to the content validity of the Comprehensive ICF Core Set for MS from the perspective of SLTs. Study participants agreed on a few not-yet-included categories that should be further discussed for inclusion in a revised version of the Comprehensive ICF Core Set to strengthen SLTs' perspective in PwMS' neurorehabilitation.

**Keywords:** International Classification of Functioning, Disability and Health, ICF Core Set, multiple sclerosis, speech disorders, neurorehabilitation.

**What is already known on this subject?**

The Comprehensive ICF Core Set for MS serves as a pool of categories to describe functioning in settings in which a comprehensive description and assessment of functioning is necessary. Up to now, validation studies of this Core Set using the Delphi method were carried out including physicians, physical and occupational therapists. This is the first validation study on the Comprehensive ICF Core Set for MS taking into account the perspective of SLTs experienced in the treatment of persons with MS.

*What this paper adds?*

The results of this study indicate that several ICF categories referring to communication problems, as well as cognitive and swallowing functions, are not yet included in the Comprehensive ICF Core Set for MS. When applying the Comprehensive ICF Core Set for MS in clinical work it is recommended additionally to include these aspects in the assessment and documentation to strengthen the needs of SLTs in this field.

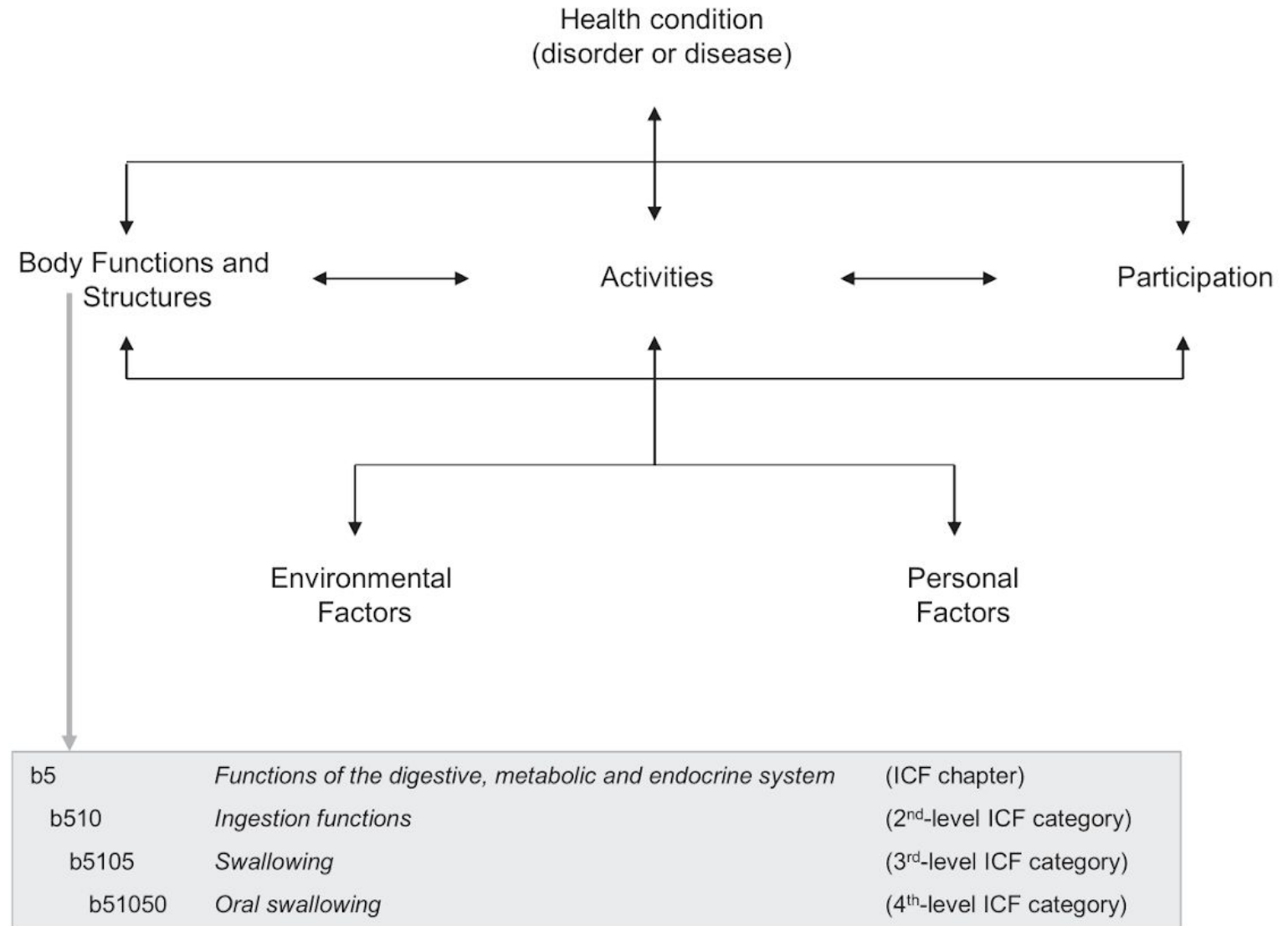


Figure 1. Biopsychosocial perspective of the ICF classification and its hierarchical structure.

**Table 2. Results of the Delphi Study: Identified categories of the ICF components *Body Functions* and *Body Structures***

ICF code			ICF title	Percentage of SLTs
2nd level	3rd level	4th level		
<i>Confirmed categories (categories with an agreement <math>\geq 75\%</math>)</i>				
	b1308		Energy and drive functions, other specified (fatigue)	75.0
b140			Attention functions	82.1
b144			Memory functions	78.6
b164			Higher-level cognitive functions	82.1
	b1641		Organization and planning <sup>a</sup>	75.0
b310			Voice functions	89.3
	b3100		Production of voice	89.3
	b3101		Quality of voice	89.3
b320			Articulation functions	89.3
b330			Fluency and rhythm of speech functions	89.3
	b3300		Fluency of speech	89.3
	b3301		Rhythm of speech	89.3
	b3302		Speed of speech	89.3
	b3303		Melody of speech	89.3
b445			Respiratory muscle functions	85.7
	b5104		Salivation	85.7
	b5105		Swallowing	89.3
	b51051		Pharyngeal swallowing	89.3
b730			Muscle power functions	71.4
	b7300		Power of isolated muscles and muscle groups	78.6
b760			Control of voluntary movement functions	82.1

D/00		Control or voluntary movement functions	82.1
<i>Not-yet-included categories (with an agreement <math>\geq</math> 75%)</i>			
b122		Global psychosocial functions	89.3
b167		Mental functions of language	89.3
	b1670	Reception of language	85.7
		b16700 Reception of spoken language	85.7
		b16701 Reception of written language	85.7
	b1671	Expression of language	89.3
		b16710 Expression of spoken language	89.3
		b16711 Expression of written language	89.3
b440		Respiration functions	85.7
	b4402	Depth of respiration	85.7
b450		Addition of respiratory functions	85.7
b510		Ingestion functions	89.3
	b5102	Chewing	89.3
	b5103	Manipulation of food in the mouth	89.3
<i>Not-confirmed categories (with an agreement <math>&lt;</math> 75%)</i>			
b114		Orientation functions	–
b126		Temperament and personality functions	–
	b1300	Energy level	–
	b1301	Motivation	71.4
b134		Sleep functions	–
b152		Emotional functions	42.9
b156		Perceptual functions	–
b210		Seeing functions	28.6
b235		Vestibular functions	–
b260		Proprioceptive function	39.3
b265		Touch function	21.4
b270		Sensory functions related to temperature and other stimuli	46.4
b280		Sensation of pain	–
b455		Exercise tolerance functions	–
b525		Defecation functions	–
	b5500	Body temperature	–
	b5508	Thermoregulatory functions, other specified (Sensitivity to heat)	–
	b5508	Thermoregulatory functions, other specified (Sensitivity to cold)	–

*Not-confirmed categories (with an agreement < 75%)*

b114		Orientation functions	–
b126		Temperament and personality functions	–
	b1300	Energy level	–
	b1301	Motivation	71.4
b134		Sleep functions	–
b152		Emotional functions	42.9
b156		Perceptual functions	–
b210		Seeing functions	28.6
b235		Vestibular functions	–
b260		Proprioceptive function	39.3
b265		Touch function	21.4
b270		Sensory functions related to temperature and other stimuli	46.4
b280		Sensation of pain	–
b455		Exercise tolerance functions	–
b525		Defecation functions	–
	b5500	Body temperature	–
	b5508	Thermoregulatory functions, other specified (Sensitivity to heat)	–
	b5508	Thermoregulatory functions, other specified (Sensitivity to cold)	–

Continues



ICF code			ICF title	Percentage of SLTs
2nd level	3rd level	4th level		
b620			Urination functions	–
b640			Sexual functions	–
b710			Mobility of joints	–
b735			Muscle tone functions	60.7
b740			Muscle endurance functions	–
b750			Motor reflex functions	–
	b7650		Involuntary contractions of muscles	–
	b7651		Tremor	–
b770			Gait pattern functions	–
b780			Sensations related to muscles and movement functions	–
s110			Structure of brain	–
s120			Spinal cord and related structures	–
s610			Structure of urinary system	–
s730			Structure of upper extremity	–
s750			Structure of lower extremity	–
s760			Structure of trunk	–
s810			Structure of areas of skin	59.2

Note: \*ICF categories that have been reported by the SLTs with an agreement of  $\geq 75\%$  and which are not included in the Comprehensive ICF Core Set for MS at this level of specification (e.g. 'b1641 Organization and planning' is not included in the Comprehensive ICF Core Set for MS; however, its lower-level category 'b164 Higher-level cognitive functions' is included and confirmed by the SLTs).

The table shows ICF categories reported by the participants of the Delphi Study (categories with percentage), namely (1) confirmed categories: ICF categories included in the Comprehensive ICF Core Set for MS that were confirmed by the SLTs with an agreement of  $\geq 75\%$ , (2) not-yet-included categories: ICF categories that have been reported by the SLTs with an agreement of  $\geq 75\%$  and that are not included in the Comprehensive ICF Core Set for MS, and (3) not-confirmed categories: ICF categories included in the Comprehensive ICF Core Set for MS that were not confirmed by the SLTs (agreement of  $< 75\%$ ).



## PREVENTION AND REHABILITATION: RANDOMIZED CLINICAL TRIAL

## The effect of traditional dysphagia therapy on the swallowing function in patients with Multiple Sclerosis: A pilot double-blinded randomized controlled trial

Maryam Tarameshlu<sup>a</sup>, Leila Ghelichi<sup>b</sup>, Amir Reza Azimi<sup>c</sup>, Nouredin Nakhostin Ansari<sup>d</sup>, Ahmad Reza Khatoonabadi<sup>a,\*</sup>

<sup>a</sup> Department of Speech Therapy, School of Re

<sup>b</sup> Department of Speech and Language Pathol  
Tehran, Iran

<sup>c</sup> MS Research Center, Neuroscience Institute,

<sup>d</sup> Department of Physiotherapy, School of Reh  
Medical Sciences, Neuromusculoskeletal Rese

### ARTICLE INFO

#### Article history:

Received 1 August 2017

Received in revised form

11 January 2018

Accepted 18 January 2018

#### Keywords:

Traditional dysphagia therapy

Swallowing disorders

Deglutition

Multiple sclerosis

### ABSTRACT

**Background:** Dysphagia is common following Multiple Sclerosis (MS) and is associated with significant morbidity and mortality. The current rehabilitation program to swallowing therapy is Traditional Dysphagia Therapy (TDT), but there is a dearth of evidence about its effectiveness in MS patients.

**Objectives:** This study was aimed to determine the effects of the TDT on the swallowing function in MS patients with dysphagia.

**Methods:** A pilot double blind randomized clinical trial was carried out on 20 patients with MS. Patients were randomly divided into experimental group (TDT) comprising sensorimotor exercises and swallowing maneuvers, and Usual Care (UC) comprising diet prescription and postural changes. Patients in both groups received treatments for 6 weeks, 18 treatment sessions, 3 times per week, every other day. The Mann Assessment of Swallowing Ability (MASA) was the main outcome measure. The swallowing ability was assessed before treatment (T<sub>0</sub>), after the end of 9th session (T<sub>1</sub>), after the end of 18th session (T<sub>2</sub>), and after 6 weeks follow-up (T<sub>3</sub>). Penetration–Aspiration Scale (PAS) and Pharyngeal Residue Rating Scale (PRRS) as secondary outcome measures were applied at T<sub>0</sub> and T<sub>2</sub>.

**Results:** Both groups had improved regarding MASA, PAS and PRRS scores over the time (P < 0.001). The improvements achieved in all outcomes were significantly greater in the TDT group than those of the UC group. The Main effect of the Time × Group interaction was significant for MASA score (P < 0.001). The large effect sizes were found for MASA score in both the TDT (d = 3.91) and the UC (d = 1.11) groups.

**Conclusions:** This pilot randomized controlled trial showed that the TDT significantly improved the swallowing function of the MS patients with dysphagia.

### *2.5. Traditional dysphagia therapy*

The TDT strategies are generally designed to change the physiology of swallowing by improving range of motion of the oral and pharyngeal structures, improving sensory input, and coordinating the oropharyngeal movements during swallowing (Logemann, 1998, 2006; Carnaby-Mann et al., 2006; Restivo et al., 2006). TDT includes oral motor control and range of motion exercises, swallowing maneuvers, and strategies to heighten sensory input (Logemann, 1998; Carnaby-Mann et al., 2006; Restivo et al., 2006). The details of the TDT strategies are provided in Table 1.

### *2.6. Usual care*

The UC consisted of supervision for feeding and precautions for safe swallowing. The UC strategies lead to control the food flow and eliminate the clinical symptoms such as aspiration. However, these strategies do not change the physiology of the swallowing. The UC program includes 1) postural changes (chin up, chin down, head tilt, and head rotation), 2) modifying volume and speed of food presentation, 3) changing food consistency and viscosity, and 4) improving sensory oral awareness (presenting a cold bolus and/or a sour bolus, downward pressure of the spoon against the tongue (Carnaby-Mann et al., 2006, 2007).

**Table 1**  
Traditional dysphagia therapy (TDT).

Type of traditional treatment	Examples/Description
Exercise programs	<ul style="list-style-type: none"> <li>Oral motor control Exercises</li> <li>Range of motion tongue Exercises</li> <li>Resistance Exercises</li> <li>Bolus control Exercises</li> <li>Bolus propulsion Exercises</li> <li>Laryngeal elevation</li> </ul>
Pharyngeal swallowing maneuvers	<ul style="list-style-type: none"> <li>Mendelsohn maneuver</li> <li>Supraglottic swallow</li> <li>Super supraglottic swallow</li> <li>Effortful swallow</li> <li>Masako maneuver</li> </ul>
Compensatory swallowing strategies	<ul style="list-style-type: none"> <li>Viscosity changes to food and liquids</li> <li>Positional changes</li> <li>Clear throat or cough after each bite/sip</li> <li>No straws</li> <li>Place food on right or left side of mouth</li> <li>Alternate bite/sip</li> </ul>
Sensory stimuli	<ul style="list-style-type: none"> <li>Changing the taste, volume, temperature, or carbonation of the bolus</li> <li>Thermal tactile stimulation</li> <li>Additional pressure on the tongue with a spoon</li> </ul>