Technical and Scientific Translation: *Wolf Motor Function Test (WMFT)*

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Table of contents

1. Introduction....10

1.2. The Role of Physiotherapy in stroke recovery....11

1.3. Characterization of the Research Group....15

1.4. Justification....15

1.5. Objectives....16

2. CHAPTER I: Theoretical Framework....17

2.1. Theoretical basis....17

2.1.1 Technical translation....18

2.1.2 Translation techniques for technical and scientific translation....19

2.1.3 Textual typology in the translation field....21

2.1.4 Translation methods of informative texts....21

2.2. Background....22

2.2.1 Technical translation in the medical field....22

2.2.2 Translation of medical terminology....22

2.2.3 Readability and Quality Issues....23

2.3 Project Methodology....24

2.3.1 Role of the Translator....24

2.3.2 Resources....25

3. CHAPTER II: Activities carried out before, during and after translation process....26

3.1 Pre-translation process....26

3.1.2 Meetings and Contextualization.....26

3.1.2. Translation Brief.....27

3.1.3. Parallel texts and term extraction.....28

3.2 During-translation process.....29

3.2.1. Words that appeared to be wrong.....29

3.2.2. Sentences that appeared to be grammatically incorrect.....30

3.3 Proofreading and validation process.....33

3.3.1 Lack of determiners.....33

3.3.2 Register variations.....35

3.3.3 Capitalization Errors.....35

3.3.4 Terminology correction.....36

3.3.5 Validation and Feedback.....37

4. Conclusion.....38

Bibliography.....40

List of tables

Table 1. *Term extraction in parallel text* 28

Table 2. *Words that appeared to be wrong* 29

Table 3. *Absence of auxiliary verbs and contradictions* 31

Table 4. *Terminology correction* 35

List of figures

Figure 1. *CAULIN recommendations for upper limb OMs* 13

List of Annexes

Page

Annex A. *Translation brief* 44

Annex B. *Matrix of parallel texts* 45

Annex C. *Term extraction* 46

Annex D. Source text sample 48

Abstract

Title: Technical and Scientific Translation: Wolf Motor Function Test (WMFT)

Author(s): Juan Sebastián Arciniegas García, Miguel Ángel Vargas González, Sergio Andrés Chinchilla Verjel.

Keywords: technical and scientific translation, textual typology, technical translation techniques, stroke, motor function, physiotherapy.

Description: In this research internship project, the documents that conform the Wolf Motor Function Test (WMFT) were translated from English to Spanish. For this purpose, a technical and scientific translation process was carried out in the field of physical therapy, focused on the use of instruments for measuring motor functions. In addition, theoretical knowledge such as "Techniques of technical and scientific translation" (Hurtado, 2001) and "Methods of translation of informative texts" (Nord et al., 2022) was applied. The translation process was divided into three stages.

First, several meetings were held with the research group "Grupo de Estudio del Dolor" (GED) in which the necessary information to carry out the translation process was imparted. Additionally, a terminological extraction of the source texts was carried out, as well as a parallel bilingual corpus to find the equivalent of the terminology found.

Secondly, appropriate translation strategies were applied to each of the documents to be translated. Following this, during the translation process, some obstacles were evidenced such as words that seemed to be misspelled and grammatically incorrect sentences. To overcome these difficulties, a reading of the rest of the document as well as the parallel texts was done to detect similar issues. Once these elements were found, the respective adjustments were made in the final text and a note was made of some terms to consult with the members of the GED for their correct use.

Finally, the instrument was validated using the translated texts and a general revision was made. Toward the end of the assignment, a final meeting was held with the members of the GED to review the draft of the final product. During this meeting, the text was read aloud so that the experts could listen to the translation and determine the clarity and fluency of the text. It is hoped that this translation product will serve as a guide or reference point for future research in the field of translatio

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* Bachelor Thesis

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Resumen

Título: Traducción técnica y científica: Wolf Motor Function Test (WMFT)

Autor(es): Juan Sebastián Arciniegas García, Miguel Ángel Vargas González, Sergio Andrés Chinchilla Verjel.

Palabras clave: Traducción técnica y científica, tipología textual, técnicas de traducción técnica y científica, accidente cerebrovascular, función motora, fisioterapia.

Descripción: En esta pasantía de investigación, se tradujeron del inglés al español los documentos que conforman el Test de Función Motora de Wolf (WMFT). Para ello, se llevó a cabo un proceso de traducción técnica y científica en el ámbito de la fisioterapia, centrado en el uso de instrumentos de evaluación de las funciones motoras. Además, se aplicaron conocimientos teóricos como "Técnicas de traducción técnica y científica" (Hurtado, 2001) y "Métodos de traducción de textos informativos" (Nord et al., 2022). El proceso de traducción se dividió en tres etapas.

En primer lugar, se realizaron mantuvieron varias reuniones con el grupo de investigación "Grupo de Estudio del Dolor" (GED) en las que se impartió la información necesaria para llevar a cabo el proceso de traducción. Además, se realizó una extracción terminológica de los textos fuente, así como un corpus paralelo bilingüe para encontrar el equivalente de la terminología encontrada. En segundo lugar, se aplicaron estrategias de traducción adecuadas a cada uno de los documentos a traducir. A continuación, durante el proceso de traducción, se evidenciaron algunos obstáculos, como palabras que parecían estar mal escritas y frases gramaticalmente incorrectas. Para superar estas dificultades, se realizó una lectura del resto del documento, así como de los textos paralelos, para detectar problemas similares. Una vez encontrados estos elementos, se hicieron los ajustes correspondientes en el texto final y se anotaron algunos términos para consultar su correcto uso con los miembros del GED.

Por último, se validó el instrumento utilizando los textos traducidos y se hizo una revisión general. Hacia el final de la tarea, se realizó una última reunión con los miembros del GED para revisar el borrador del producto final. Durante esta reunión, el texto se leyó en voz alta para determinar la claridad y fluidez del texto. Se espera que este producto de traducción sirva de guía o punto de referencia para futuras investigaciones en el campo de la traducción.

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* Trabajo de Grado

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1. Introduction

1.1. Contextualization of Physiotherapy in Colombia and the World

The origins of physiotherapy can be traced back to ancient civilizations, where various forms of manual therapy and exercise were employed to treat injuries and provide healing. However, the modern practice of physiotherapy began to take shape in the late 19th and early 20th centuries. One influential figure in this period was Per Henrik Ling, a Swedish educator and practitioner who developed a system of therapeutic exercises known as the Ling System, which formed the basis for contemporary physiotherapy techniques (Sharma, 2012: 20).

World War I and World War II also played pivotal roles in shaping the field of physiotherapy. During these conflicts, the demand for rehabilitative care increased dramatically, leading to the establishment of specialized physiotherapy units within military hospitals (Linker, 2005: 105). The expertise gained during wartime significantly contributed to the development of modern physiotherapy techniques, such as hydrotherapy and electrotherapy.

Throughout the 20th century up until now, the scope of physiotherapy has expanded, encompassing various areas of specialization. The emergence of new technologies, such as ultrasound and therapeutic exercise equipment, further propelled the field's growth. Additionally, the adoption of evidence-based practice became increasingly prevalent, with physiotherapists incorporating research findings into their clinical decision-making processes (Pynt et al., 2009: 28).

Similarly, prior to its institutionalization in Colombia back in 1952, physiotherapy as a practice in our country can be traced back to the likes of ‘sobadores’, nurses and medical volunteers, who relied mostly on empirical knowledge to respond to patients’ needs (Celis et al., 2004: 23). Physiotherapy as a career was heavily inspired by the North American model in its initial stages. Same as with other countries, physiotherapy was adopted to respond to the

demands of the sociocultural, political, and economic context of the country at the time (Silva et al., 2015: 40). In order to meet these demands, the modern physiotherapist is the professional who not only develops the physiotherapeutic act, with the objective of preventing, treating and restoring functional movement, but also takes into account the biopsychosocial sphere where their patient is involved (Juan, 2016: 44).

1.2. The Role of Physiotherapy in stroke recovery

One of the most frequent causes of physical disability is cerebrovascular accidents, which affect the life quality of patients and reduce their motor and sensory functions (Kanase et al., 2014: 227)**.** In 2022, The Global Stroke Factsheet revealed that, over the last two decades, the risk of suffering a cerebrovascular accident, mostly known as stroke, had grown by 50%, and a quarter of the population is expected to have a stroke in their life. (World Stroke Day 2022, para. 2). Being cerebrovascular diseases the "leading cause of disabilities worldwide", it is of vital importance for physiotherapists and researchers to find strategies that help the community improve their physical mobility.

There are two main types of stroke: Ischemic stroke and Hemorrhagic stroke. First, the term "Ischemic stroke" indicates a central nervous system thrombosis which implies "brain, spinal cord, or retinal cell death" (Sacco et al., 2013: 2064). It occurs when there is an obstruction of the blood flow in a blood vessel connected to the brain or neck, which results in a "loss of neurologic function" (Phipps & Cronin, 2020: 1). Three causes of this block include thrombosis, obstruction of blood vessels caused by blood clots; embolism, the blockage of an artery by blood clots or other elements; and stenosis, the narrowing of an artery connected to the brain (National Institute of Neurological Disorders and Stroke [NINDS], 2016, as cited in Randolph, 2016: 444).

Second, the term "hemorrhagic stroke" consists of the break of a blood vessel causing "bleeding into the brain". Two main types of hemorrhagic stroke include intracerebral

hemorrhage (ICH); the "bleeding into the brain parenchyma" and subarachnoid hemorrhage (SAH); "bleeding into the subarachnoid space" (Unnithan et al., 2022: 1).

These two types of stroke are both associated with many risk factors, such as: "hypertension, diabetes, dietary risks, impaired glucose intolerance, obesity, smoking, air pollution, alcohol use, hypercholesterolemia, and physical inactivity" (Kanase et al., 2014: 227). In general, the population with a lifestyle that does not include physical activity and good eating habits is prone to suffer a stroke.

The consequences of cerebrovascular disorders are mainly affected by elements including the neurological recovery process of the patient, the area of damage in the brain, the premorbid health conditions of the patient, and the "environmental support systems" (Robert & Hussein, 2016: 3). Depending on the hemisphere affected, there may be different impairments. For example, left hemispheric injuries include visual-spatial perceptual, emotional, and communication disorders. On the other hand, right hemispheric lesions include Aphasia, which hinders communication abilities such as reading and writing; apraxias, a neurological disorder that implies the loss of mobility capabilities; and emotional disorders including "rage and frustration" (Robert & Hussein, 2016: 15).

Finally, the main signs or symptoms of a stroke include

> Numbness or weakness in the face, arm, or leg; sudden confusion or trouble speaking or trouble understanding others; sudden trouble seeing in one or both eyes; sudden dizziness, difficulty walking, or loss of balance or coordination; and sudden severe headache with no known cause (CDC, 2015, as cited in Randolph, 2016: 444).

The partial loss of strength of the upper or lower extremity and face is called hemiparesis, which is normally contralateral to the cerebral hemisphere affected and depending on the artery involved.

It is important for the public, in general, to be aware of these signs as their recognition in

a proper lapse of time allows patients to receive immediate medical care, improving the outcomes of stroke survival and reducing the risk of motor function loss (Wall et al., 2008: 2).

Among the most common impairments of stroke including loss of mobility capabilities is "upper extremity (UE) paralysis", which affects around 50% to 80% of the total population of stroke survivors. UE paralysis drastically reduces the upper extremity motor functions that allow people to perform daily life activities involving reaching, grasping, and manipulating objects (e.g. eating, getting dressed, writing, driving, handing in, cleaning, and the like), thus affecting their lifestyle and independence. (Lin et al., 2022: 1).

Since one of the main roles of a physiotherapist is to assist patients in restoring and improving their physical movement capacity, as well as to ease body pain and treat physical deterioration caused by injuries or diseases (Sahu and Bharati, 2014: 133), their presence on the stroke survivor recovery process is of vital importance. Sehatzadeh (2015: 32) revealed that physiotherapy applied to stroke patients was more effective when hourly intensity was higher, resulting in improvement of motor functions.

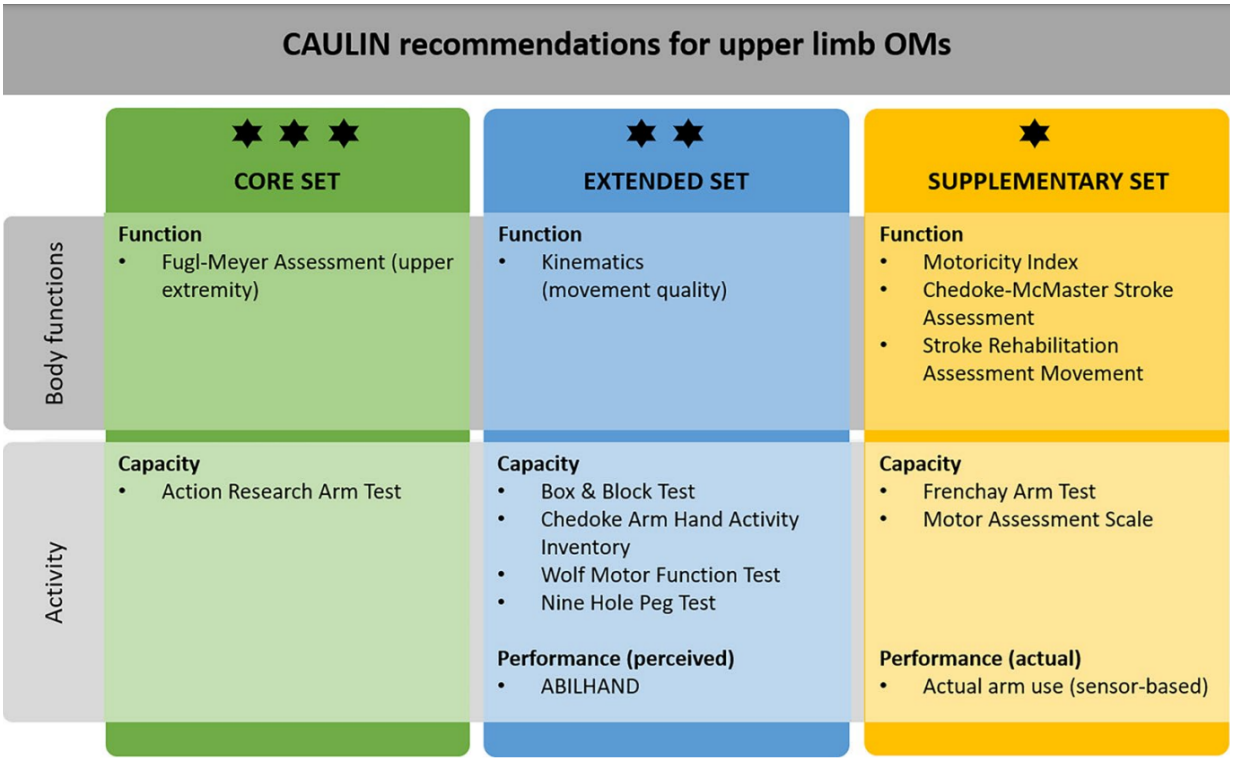
The process of evaluation and assessment of the upper extremity motor function plays an important role in the rehabilitation of stroke patients. Over the last decade, it has been progressively demonstrated that "measurement of stroke recovery" is important for researchers so as to analyze "recovery mechanisms" (Kwakkel et al., 2017: 785), therefore, high-quality standardized assessment tools are required. As for clinicians to provide a precise analysis of the outcomes of patients' recovery, it is necessary to have access to reliable and well-founded "clear assessment guidelines" (Prange-Lasonder et al., 2021: 2).

Some "Outcome measures (OM)" recommended by Clinical Assessment of Upper Limb In Neurorehabilitation (CAULIN) are included in Figure 1. They are divided into three categories depending on the star rating (the score takes into consideration that "OM must be valid, reliable, responsive, clinically available and useful"). Each category is divided into two

groups: OMS that cover body function and those that cover activity level, following the International Classification of Functioning, Disability and Health (ICF). First, *the core set* includes highly recommended OMs with "good psychometric properties"; second, *the extended set* presents six different OMs suggested for "clinical practice and/or clinical research"; finally, *the supplementary set* includes 6 OMs that can serve as a tool for the research field. Three different sources of evidence were taken into consideration, including: "existing scientific literature, clinical practice guidelines and expert consensus" (Prange-Lasonder et al., 2021: 5).

Figure 1

CAULIN recommendations for upper limb OMs



1.3. Characterization of the Research Group

The Pain Study Research Group (GED for its Spanish acronym) was created in 2001 and operates at Universidad Industrial de Santander in Bucaramanga. This group is led by physiotherapist Esperanza Herrera Villabona, MSc, PhD., in Physiology. It is registered in Minciencias, in the Health Sciences knowledge discipline, and basic sciences as a secondary area. The objectives of the GED are:

To develop basic and clinical research tending to deepen the mechanisms involved in the perception and modulation of pain, as well as in the validation of evaluation and diagnostic methods.

- To determine the frequency and factors associated with pain in the population, to formulate proposals aimed at promoting health & preventing deficiency and disability.
- To validate the methods of physiotherapeutic intervention aimed at pain management.

1.4. Justification

The need for reliable assessment tools that evaluate the recovery of stroke patients' motor functions has resulted in the translation and adaptation of the Wolf Motor Function Test (WMFT) in many languages. As an illustration of this, a group of researchers from different universities in Brazil; including the UFSCar, CEUNSP, USP, and the UDESC, developed a translation and adaptation of the instrument to Brazilian Portuguese, along with an application to assure the reliability of the translated text. (Pereira et al., 2015: 674). Similarly, a French version of the WMFT instrument (Bürge et al., 2013: 292), as well as an Italian developed by specialists in the field (Berardi, 2018: 229), were applied to stroke patients and their reliability and criterion validity were demonstrated through multicenter studies.

However, there is no register of an official translation of the WMFT from its original language to Spanish, making it difficult to apply this instrument in Spanish-speaking countries. For this reason, it is imperative to develop a Spanish translation of this test.

The translation, validation and adaptation of this instrument, as well as all the documents necessary for its implementation (Instructions, Test objects list, Functional Ability Scale, Template, and Data collection form), will allow physiotherapists personnel who do not master the English language to apply it to people with impairment of upper limb motor function as a result of hemiparesis following stroke and, therefore, improve the assessment of their recovery process. In addition, it is expected that future researchers of the field and technical and scientific translators are able to use this project as a reference or guide as it applies different translation techniques and methodologies.

Furthermore, this translation study will pave the way for future translation projects that involve the participation of the Semillero de Traducción (SETRA), including the translation of research papers and academic documents on Physiotherapy, especially from UIS, and thus enhance their visibility and allow more people to have access to them.

1.5. Objectives

General objective

To translate the WMFT instrument and its application protocol from English to Spanish.

Specific objectives

a) To translate all WMFT instrument components (Instructions, Test objects list, Functional Ability Scale, Template, and Data collection form)

b) To make use of strategies and necessary tools for the comprehension of medical texts.

c) To acquire knowledge about the conceptual and terminological structuring of the field's terminology and the subject matters of the text to be translated.
d) To systematize the work phases of scientific and technical translation.
e) To solve translation problems posed by the source texts based on the selection of the theoretical concepts and tools available to translators.
f) To produce translations of the assignments with professional quality (clarity, accuracy, fluency, and adequacy).

2. CHAPTER I: Theoretical Framework

2.1. Theoretical basis

Physiotherapy plays a huge role in the medical field since it is an extremely beneficial specialist treatment of injury, disease, and disorders. People are able to reestablish movement and function in the damaged area by physical means through physiotherapy. It also helps in preventing the previously injured body part from subsequent harm or injury. As with any other field of medicine, physiotherapy is constantly evolving not only in its processes but also in its terminologies and concepts, this creates the necessity for its new discoveries to be as accessible as possible, especially for professionals who speak a different language. As a result, the role of the translator becomes imperative in the interest of successfully carrying out a quality language transfer. Đorđević (2017: 35) explains that the field of translation studies has advanced to the point where phenomena, issues, and aspects associated with translation are now analyzed and described inside the area itself using methodologies and techniques created just for it. For that reason, the capacity to select the appropriate translation technique is a crucial skill for translators (Awal & Zainudin, 2012: 328).

2.1.1 *Technical translation*

Translation can be defined as a socially oriented interlingual communication process carried out by a mediator (translator) with the objective of approximating multilingual communication to a monolingual one (Sokolovsky, 2010: 287). Among the different types of language transfer, technical translation can be found. According to the Merriam-Webster dictionary the word 'technical' means "having special and usually practical knowledge, especially of a mechanical or scientific subject" (n.d.). Therefore, in the term "technical translation", "technical" does not refer to the tools used but to the actual content (Doorslaer & Gambier, 2010: 350). Olohan (2016: 1) explains that this type of language transfer "focuses on texts that are typically translated in scientific and technical domains, such as technical instructions, data sheets and brochures, patents, scientific research articles and abstracts, popular science press releases, and news reports". Hurtado (2001: 61) argues that the translator must have knowledge about the specific field to be translated. However, this is just limited to a comprehension level, meaning that the translator does not need to produce this type of texts on their own. Unfortunately, this is not always the case, as there are prevalent misconceptions about translation as well as the people behind it. "It is generally believed that a college degree [or the equivalent] in a foreign language qualifies one to be a translator for just about any material whatsoever" (Slocum, 1985: 2), but in truth, a translator's aptitude only goes as far as a few areas of expertise, like politics and science. Hence, a technical translator is trained in the few areas in which they will be translating. Translations in technical areas make up to 90% of translations in the professional world. They require not

only foreign language competence, but also a good understanding of the subject matter, and the use of the correct register for the target text (Kingscott, 2002: 248).

2.1.2 *Translation techniques for technical and scientific translation*

Translation techniques are practical actions performed to overcome issues that arise for translators during the translation process. They are also known as translation procedures and are defined as "a specific technique or method used by the translator at a certain point in a text (e.g. the borrowing of a word from the SL)" (Munday, 2016:88). Vinay & Darbelnet (1958:55) distinguish seven techniques used for technical & scientific translation, classified into direct and oblique translation. The first term refers to the type of translation that allows an exact correspondence between two languages regarding their lexicon and structure, only possible with very close cultures and languages, whereas oblique translation makes reference to the type of language transfer that does not permit a word-by-word translation.

Direct translation encounters three of these techniques (borrowing, calque, and literal translation) while oblique translation maintains the other four procedures (transposition, modulation, equivalence, and adaptation). Hurtado (2001: 259) better defines them as follows:

a. **Borrowing:** The word or phrase is used by the professional in the target text exactly as it is in the source text. When there is no equivalence of the word in the target language or when the author of the source document created a new term, this technique is used. For instance, English borrowed the expression **"bon voyage"** from French.
b. **Calque:** A word or phrase is directly borrowed, and translated, word-for-word from the original language. E.g. The English term "flea market" is a calque of the French term "marché aux puces*"*.

c. **Literal translation:** When using this technique, each word is translated literally from the source text to the target text. For example, the English phrase “I want a glass of water” would be translated literally into “Je veux un verre d’eau” in French.

d. **Transposition:** It is a change from one grammatical category to another that keeps the meaning intact. For instance, the phrase “Je l’ai vu avant la rentrée” can be translated into English as “I saw her before school started”. This changes the noun ‘la rentrée’ into a verb.

e. **Modulation:** Expressing the same idea with a phrase that is different in the source and target text. This translates the text in a manner that follows the target language's natural patterns. E.g. A French speaker would say “dernier étage” while an English speaker would refer to the “top floor”.

f. **Equivalence (or idiomatic translation):** The translator uses the equivalent in the target text of a certain word in the source text. For example, “química” in Spanish and “chemistry” in English.

g. **Adaptation:** A cultural element is replaced by another characteristic of the receiving culture. For instance, translating “April fool's day” from English into “día de los inocentes” in Spanish.

Finally, there can be multiple translation techniques used in a single sentence. Hence, it is key to select the right one in order to carry out a quality language transfer. For instance, Nugroho & Restiana (2021: 727) show that Equivalence is the most used methodology when translating medical terms contained in the COVID-19 guidebook. Not using the appropriate technique depending on the text to be translated, may result in poor-quality language transfer.

2.1.3 *Textual typology in the translation field*

For a technical translator, it is important to identify the purpose of the source text, its role, and its author's intention in order to produce an accurate target text. Thus, the proper use of textual typology is necessary, since it allows translators to recognize the text characteristics and therefore select accurate techniques and strategies to accomplish the task of translation. (Puchala, 2011: 364). In the translation field, the German linguist Katharina Reiss proposed a text typology based on the function of a text. These functions are divided into three categories: “informative function; expressive function and appellative function” Each type of text has its own characteristic: “Informative function” focuses on the transmission of information and facts; “expressive function” addresses the creative and “aesthetic dimension of language”; and “appellative function” aims to persuade the receiver of the text (Chen & Zhang, 2020: 34). Since scientific and technical texts' intention is to communicate knowledge, they are classified into the informative function category.

2.1.4 *Translation methods of informative texts*

Reiss states that the text type determines the translation method that must be adopted. As for informative texts, it is suggested to use “plain prose” that transmits the message of the source text in the clearest way possible (Nord et al., 2022: 102). Here, the translator must avoid redundancy or ambiguity and must focus on the content and terminology of the text. (Chen & Zhang, 2020: 35). Criteria for an informative text, which Reiss refers to as 'linguistic category', include “equivalence of semantic instructions”; the correct use of grammatical instructions, and “adequacy of lexical instructions” (Nord, 1996: 84). Deep understanding of text typology and translation techniques is crucial for enriching the translation process since it allows translators to identify the specific characteristics of

different text types and to effectively convey the intended meaning of the source text in the target language.

2.2. Background

2.2.1 *Technical translation in the medical field*

In the medical field, new discoveries and terminology are created constantly, resulting in the necessity to spread the knowledge developed worldwide. However, communication seems to be a critical issue in this process since, according to The 1995 State of the Nation Report (Travaglia et al 1995, as cited in Lee et al., 2005: 161), communication is one of the major obstacles to sharing information with non-English speaking countries. Considering that a great majority of terminologies and documentation are written in English (Vincent, 2008: 684), translation takes a primary role in "disseminating knowledge and new discoveries in the medical field" (Karwacka, 2015: 272) as it facilitates the use of medical terms in multiple languages (Hakami & Bollegala, 2017: 31).

However, a technical translator may encounter several challenges when translating medical texts into another language. These difficulties include translation of medical terminology and readability of medical texts" (Karwacka, 2015: 272), these issues are further explained below.

2.2.2 *Translation of medical terminology*

As stated before, new terminology is created constantly within the field of medicine, therefore, there is a need to translate such terminology into other languages to assure the "flow of knowledge" (Hakami & Bollegala, 2017:31). In order to allow the use of terminology on the "international level" the technical terms must be standardized. However,

the lack of standard terminology available in languages other than English obligates people to depend on the work of translators (Deléger et al., 2009: 692).

The process of manual translation requires a lot of time, effort, and skills from technical translators, consequently, several researchers develop systems and strategies to facilitate this process. One of the most common tools in translating medical terminology is Machine translation. It helps translators to have access to translated terminology that is automatically detected "across biomedical lexicons", instead of manually translating each term (Hakami & Bollegala, 2017:32). In their investigation, the latter propose a process focused on detecting equivalent words from two different languages by using two different features: character n-grams, which refers to a sequence of characters in a word, and contextual features, consisting of the context in which a word can be found. Similarly, Vincent (2008: 684) proposes the automatic detection of regularities seen in morphologically similar word pairs by using machine-learning techniques in order to translate emergent terminology.

In addition, technical translators can have access to different instruments to facilitate terminology translation, such as books like the *Dictionary of Health Related Terms: English - Spanish*, focused on facilitating communication between "Spanish-speaking populations and the health workers serving them" (Osorio, 2005).

2.2.3 *Readability and Quality Issues*

The translation of medical texts is focused on the audience, who are generally experts in the field. For this reason, translators assume that the readers are familiarized with terminology found in medical documents such as "discharge summaries, case studies and case notes, imaging reports and research papers" and that further explanation is not required (Karwacka, 2015: 273). However, in some cases, the audience of translated medical texts

may also include the general public; this audience is different and requires accurate information in a lower register about their own health condition to be able to understand and to make decisions about their lifestyle (Brøgger, 2014: 2). In both cases, the translator must edit translated texts in a comprehensible and accurate way.

2.3 Project Methodology

The translation process consisted of three phases: Pre translation process, translation process, and proofreading and feedback. In the first stage, we had two reunions with GED to receive information about the documents to be translated and to create a translation brief, terminology extraction and bilingual corpus. During the second stage, we applied theoretical knowledge and translation techniques to the translation of the WMFT. Finally, the target text was validated by experts in the field of physiotherapy and the suggestions made by them were added to the final version of the text.

2.3.1 *Role of the Translator*

During the internship, we offered our technical translation services in order to cooperate with The GED research group's investigation. To do that, we undertook the task of translating a total of 5 documents that conform the Wolf Motor Function TestTM © model. For this, we did a process of bilingual terminology extraction of the documents and topic-related papers. The word "terminology" refers to a group of specific words or concepts that are used when talking about a scientific or technical domain. To do a bilingual terminology extraction, two steps were followed. First, the translators recognized specific key terms from a corpus and made a list, then, they found some candidate translation equivalents (Zhang & Wu, 2012: 3). In most terminology extraction systems, translators find such equivalents in parallel texts (bilingual corpus). This process allows technical translators to

create bilingual glossaries, which might help them with future translations of texts from the same domain (Macken & Hoste, 2013: 5).

In addition, we used a formal equivalence approach, which implies that the target text must maintain fidelity to the source text and that translators must do a literal translation of words and stay as close as possible to the source text's structure, register, grammar, and vocabulary. This term, along with "dynamic equivalence", is part of a systematic approach proposed by Eugene Nida, in which the type of equivalence depends on the users of the target text (Panou, 2013: 2). Formal equivalence does not include personal opinions of the translators and assumes a "moderate degree of familiarity" of the reader with the scientific domain of the text (Shakernia, 2014: 2). Formal equivalence's main focus is on both the form and content, as well as the correspondence between the message conveyed in the target text and the source text. (Gwarzo, 2018: 145).

Gwarzo (2018: 147) states that there are some formal elements that identify formal translation, including "grammatical units, consistency usage and meaning in terms of the source text". First, the production of "grammatical units" means maintaining the structure and grammatical structure of the texts intact, which means sticking to the word category, sentence structure and formal indicators of a text. Second, the "consistency usage of words" implies the use of translation equivalents of terms systematically across the text, from beginning to end. Finally, "meanings in terms of the source text" suggest that the translator does not adjust the translation of idiomatic expressions but rather maintains the literal meaning. The use of these elements will depend on the type of equivalence intended by the author.

2.3.2 *Resources*

The resources that were used during the internships consisted of a couple of online dictionaries such as the Cambridge Dictionary for general terminology, and the Oxford

Medical Dictionary for more technical terms, as well as some computer-aided translation tools like Phrase TMS, MadTranslations and Linguee. Furthermore, we made use of a computer program for terminology extraction (TermSuite) and some websites for the adequate use of synonyms (thesaurus.com, synonim.com, etc.).

3. CHAPTER II: Activities carried out before, during and after translation process

3.1 Pre-translation process

3.1.2 *Meetings and Contextualization*

A total of two pre-translation meetings between our group of translators and The Pain Study Research Group (GED) were carried out in order to exchange information about the Instrument WMFT (the source text) and to define the details necessary for a translation brief. In addition, several meetings between us and the thesis director took place in order to set deadlines and provide instructions about the documentation and translation process.

The first meeting was held on November 9th, 2022 and consisted of a conference about how stroke survivors' neuronal and muscular processes are affected. Here, various terminology was presented and then added to the contextualization of the document. In addition, the WMFT instrument was first mentioned, and its function and definition were briefly explained. The objective of this reunion was to receive general information about the documents to translate and to outline the key concepts related to motor and neuronal functions in individuals and get acquainted with the research team.

The second meeting took place on December 14th, 2022 and consisted of an explanation of how some functions of the brain are affected in stroke survivors, including upper motor functions. In addition, one of the members of the group was asked to perform a task from the instrument in order to demonstrate and exemplify its functioning. For this

activity, the members of GED presented and used the WMFT Template, one of the documents to be translated, and some objects from the list of test objects. In this manner, we were able to become acquainted with some elements that constitute the WMFT and its actual technical use.

Considering the information provided by the research group, we added some of the main concepts to the theoretical framework and justification of this thesis, including a definition of stroke, a description of the role of physiotherapy on stroke survivors' recovery, and a definition of the WMFT.

3.1.2. *Translation Brief*

Once the basic information about the translation process was communicated, we were ready to organize the information and create the translation brief document. First, the source texts consisted of all the documents necessary to apply the WMFT instrument, including Instructions, Test objects list, Functional Ability Scale, Template, and Data collection form. Second, it was set that the target language of the translation process would be Spanish and that the audience consisted of specialists in the field of Physiotherapy that needed to apply the test on stroke survivors. Since the target audience includes exclusively professionals, we opted for a formal and technical writing style. Third, the purpose of the translation was to enable physiotherapists who are not proficient in the English language to apply the test for individuals experiencing upper limb motor function impairment due to hemiparesis following a stroke. The information previously described is included in Annex A.

The initial plan consisted of translating the documents in the following order: First, the "Data collection form" and "WMFT Instructions" documents required to be completed by January 27th, 2023. Then, the documents “List of test Objects” and “Template” were due for

February 24th. Finally, the deadline for the "Functional Ability Scale" translation was set for April 21st, 2023.

Nevertheless, internal and external factors led to alterations in the timelines and anticipated outcomes. Different documents' characteristics such as variations in structure and length led us to change and adapt the order of the translation process. As an example, the "WMFT Instructions" had a total of 25 pages (8036 words), making it the longest of the five documents and resulting in more time required to complete the translation process and variations in the deadlines.

3.1.3. *Parallel texts and term extraction*

As it has been stated, a bilingual corpus is necessary to find a proper equivalent of domain-specific terminology in another language. For this reason, we undertook a process of term extraction on the documents that compose the WMFT, subsequently, we looked for different parallel texts that included the terms listed and checked their equivalent, as it is exemplified in Table 1.

Table 1

Term extraction in parallel text

Term	Source text	Target text
Motor function, Upper limb	The evaluation of the **motor function** of the **upper limb** will allow to know the interactions that occur during the execution of grabs and reaches considering the global elements in the production and feedback of the movement.	La evaluación de l**a función motora** de **miembro superior** va a permitir conocer las interacciones que se producen durante la ejecución de agarres y alcances considerando los elementos globales en la producción y retroalimentación del movimiento.

In order to maintain consistency across the translation of the different source texts, the term extraction needed to be developed before starting the translation process. However, it is important to clarify that the translation of some terminology was changed during the process of proofreading and validation by the research group. Once most of the terminology was identified, the list was organized in a glossary, including Spanish equivalence. The matrix of the bilingual corpus can be found in Annex B.

3.2 During-translation process

During the translation process, we gradually spotted some challenges that could affect the development of our internship project. These difficulties were found in the source texts and included words that appeared to be wrong and sentences that appeared to be grammatically incorrect.

3.2.1. *Words that appeared to be wrong*

Most of the terms that appeared to be wrong were found in the last text (Wolf Motor Function Test instructions). The main mistake identified in this case was the misspelling of words. Sofyan & Tarigan (2016:125) explain that “a small mistake, even a silly mistake such as misspelling/mistyping, can influence the quality of the translated text.”. See Table 2 below for its illustration. The words referenced are shown in **bold.**

Table 2

Words that appeared to be wrong

Source text sample (English)	Target text translation (A word-to-word version)	Final translation
A) Hand not tested in **lab**.	A) Mano no testeada en **laboratorio**.	A) Mano no examinada sobre el **muslo**.

Source text sample (English)	Target text translation (A word-to-word version)	Final translation
B) Again some shoulder flexion will probably also be necessary to get arm **past** the edge of box.	B) Una vez más, probablemente también sea necesaria cierta flexión del hombro para que el brazo **pasado** el borde de la caja.	B) De nuevo, Puede que se necesite cierta flexión del hombro para que el brazo **sobrepase** el borde de la caja.
C) The **tested** cues the start of the timed tasks by saying, "Ready!, Set!, Go!" This should be said quickly and vigorously	C) El **examinado** indica el comienzo de las tareas cronometradas diciendo "¡Preparados!, ¡Listos!, ¡Ya!" de manera rápida y enérgica.	C) El **examinador** indica el comienzo de las tareas cronometradas diciendo "¡Preparados!, ¡Listos!, ¡Ya!" de manera rápida y enérgica.

When coping with these challenges, we decided to firstly check the rest of the text in order to look for similarities that could provide a wider context about what the author was intending to express. After doing so, it was found that the word "lab" from example A, was a typo of the word "lap" since the same statement with the right spelling was repeated several times in the paper, which completely changes the meaning. In addition, the word "past" in example B, was a misspelling of the past tense "passed". This was found after checking the complete text for similitudes as well as examining the source texts that gave the proper context needed to correct the word. Finally, the word "tested" in example C, was a typing error of the word "tester". This was concluded due to the context of the paper, given that since its objective is to evaluate the quality of upper extremity mobility based on "timed single- or multiple-joint motions", the person who is being tested should not be the same individual who gives the instructions and times the activity

3.2.2. *Sentences that appeared to be grammatically incorrect*

There were some phrases that appeared to be grammatically incorrect. The Wolf Motor Function Test instructions had several phrases that lacked coherence due to the

absence of auxiliary verbs as well the presence of certain contradictions in some other sentences. These helping verbs meet the function of established type of primary predicates that add modality to an action (Nilufar et al., 2020: 59). These errors reinforced the original idea of the text not being originally written in English but poorly translated from a different language instead. See Table 3 below for its illustration. The symbol (X) is used in the space where a helping verb should have been placed. Contradictions are shown in **bold.**

Table 3

Absence of auxiliary verbs and contradictions

Source text sample (English)	**Target text translation (A word-to-word version)**	**Final translation**
A) Shoulder of test arm abducted with forearm resting flat on table in a pronated position. Palmar surface of hand **(X)** need not be flat on table.	A) Hombro de brazo examinado en abducción con antebrazo en pronación y apoyado sobre mesa. Palma de mano **(X)** necesita no estar plana sobre mesa.	A) El hombro del brazo examinado en abducción con el antebrazo en pronación y apoyado sobre la mesa. La palma de la mano no necesita estar plana sobre la mesa.
B) It is very important that you use the appropriate grasp **is not allowed** (demonstrate both grasp).	B) Es importante que use el agarre apropiado **no está permitido** (mostrar ambos agarres).	B) Es muy importante que utilice el agarre adecuado, **este no está permitido** (demostrar ambos agarres).

These challenges were approached by reading carefully all the texts contained in the instrument and tracing similar commands or related sections. Once the right uses were acknowledged, we added the necessary particles based on both the context and objective of the text. For instance, *example A* shows a lack of articles and the sentence “need not be flat on table” was missing an auxiliary verb that made it hard to understand. As mentioned, based on the objective of the particular exercise that contained the aforementioned phrase, the correct grammatical form was applied in the final translation. Whereas for example B, both a punctuation mark and a subject that should have divided the sentence into two clauses were missing, and these would have made it sound much more logical. Subsequently, the phrase “It is very important that you use the appropriate grasp is not allowed” was translated as “Es muy importante que utilice el agarre adecuado, este no está permitido (demostrar ambos

agarres)" by using the same strategy as *example A*, adding the missing particles to the final translation based on the objective of the specific exercise.

3.3 Proofreading and validation process

During and after the translation process, we could identify minor errors and inconsistencies within the source text that had to be corrected or accounted for to ensure an accurate and grammatically correct rendition. For the most part we were presented with lack of determiners, register variations, and to a lesser extent, capitalization errors. Additionally, we received feedback on the target text from experts in the field of Physiotherapy. In the following subsections, we describe the lexical and syntactic challenges found in the reading, comprehension and translation process and how we coped with them.

3.3.1 *Lack of determiners*

Throughout the source text, the author utilizes bare nouns to a high degree; this overuse of bare nouns can be best showcased in the Wolf Motor Function Test Instructions. The following extract from the source text highlighting the lack of determiners:

Wolf Motor Function Test Instructions *(Page 9) Figure 2*

SET UP	TASK	VERBAL INSTRUCTIONS
Starting Position: • Chair Position (side) • Hips against back of chair • Table surface should be lightly dusted with baby/talcum powder • Hand not being test in lap • Shoulder of test arm abducted with forearm resting flat on table in a pronated position. Palmar surface of hand need not be flat on table. • Forearm being tested is resting on, adjacent and parallel to front edge of table; elbow at 14-cm line. • 1 lb. weight placed at ulnar edge of wrist; distal end of the weight is aligned with ulnar	Task Description: Participant attempts to push the weight across the 40-cm line on template by extending the elbow (to a lesser extent) externally rotating shoulder. Elbow should be kept on the table throughout the task (different from the previous task), shoulders should be kept level to prevent leaning with the trunk. Again, the examiner needs to be aware of participant's trunk leaning and/or excessive external rotation at the shoulder to perform task (especially true for taller men). Note: the weight is to remain in contact with the forearm throughout the task. Repeat the task if the subjects swats the weight. Timing Procedure: Starts on word "Go" and ends when any part of the thumb crosses the line. Measure: The time elapsed from the starting point to the time any part of the thumb initially crosses the line.	Verbal Instructions while demonstrating slowly: • "Push the weight across the table by moving your hand away from your body and straighten your elbow to its fullest extent; like this. Your thumb should cross this line (point to the 40-cm line). Your forearm should remain in contact with the weight until your thumb crosses the line. Also, please keep your shoulders level and just move your arm; just like this (demonstrate). Do not lean over; keep your body as straight as possible. Do this as quickly as you can." Verbal Instructions while demonstrating quickly: • "While your elbow is resting on the table, straighten your arm – pushing the weight your thumb crosses this line (point to 40-cm line) as fast as you can; like this." • "Do you have any questions?" • "Ready!, Set!, Go!" (said quickly and vigorously). Scoring: • FA scoring should take into account: 1) the extent to which the head and trunk are maintained in normal alignment, 3) whether the forearm remains in contact with the weight, and 3) the speed, fluidity, and precision with which movements are performed.

Even though in Spanish, the target language, bare nouns can be found in the form of 'sujetos implícitos', we still found their presence in the source text in such a large quantity problematic for our translation efforts. Whether a matter of semantics or syntax, we, as native speakers of the target language, considered that a literal translation of these segments was not grammatically sound, as Spanish tends to rely more heavily on explicit nouns in comparison to English . Which is why we made some alterations, and decided that some nouns would

remain implicit, while others would be made explicit in the target text, to ensure clarity and completeness.

3.3.2 *Register variations*

The target audience for both source text and target text are professionals in the field of physical therapy. However, these professionals are expected to relay information and instructions found within the text to their patients. Because of this, we reflected on the register and tone that we should keep throughout the text. Unable to reach a consensus, we got in contact with the experts in the field that were working alongside us. Following their advice, we decided to maintain a formal register and tone for both, while considering writing the instructions for the patients in easy-to-understand terms when translating them.

3.3.3 *Capitalization Errors*

Mistakes of this kind throughout the text, although present, are few and far between. The only major example of said mistakes is the lack of capitalization for certain words. In the following extract, we highlighted some instances of the aforementioned error in the source text:

-Filming position (Side-Close): *- profile of expanded view of limb being tested. Camera in same position as Side-Side, but the camera view should be zoomed in to focus on fine motor skills. The view should include the participant's entire upper extremity.*

-Filming position (Front): *- the camera should be placed approximately 3 feet in front of the desk and the camera view should include the participant's upper body (trunk and head).*

We came to find out that, although it is true that capitalization rules vary according to the style guide chosen by the author, it is also true that most of them agree on the notion that capitalization should be added after colons. For this reason, we decide to capitalize the words that came after colons in the target text.

3.3.4 *Terminology correction*

Some of the corrections given by the experts included but were not limited to terminology changes, meaning that after translating a technical term into its Spanish translation, it needed to be changed because, even though the final term in the target text was not wrong, it was not adequate for the context. This is an example that shows that even though the terminology is important, its most remarkable feature is the context that encompasses the term and not the word by itself (Hurtado, 2001: 61). See Table V below for its illustration. The words referenced are shown in **bold.**

Table 4

Terminology correction

Source text sample (English)	**Target text translation (A word-to-word version)**	**Final translation**
A.) **Cuff weight(s)** in place around forearm to be tested	A.) **Pesa muñequera** colocada alrededor del antebrazo que se examinará	A.) **Brazaletes con peso** colocados alrededor del antebrazo que se examinará
B.) Hands in **lap**	B.) Manos sobre **el regazo**	B.) Manos sobre **los muslos**
C.) Elbow of arm to be tested extended, forearm in mid-	C.) Codo del brazo examinado extendido, antebrazo	C.) Codo del brazo examinado extendido, antebrazo en posición

Source text sample (English)	**Target text translation (A word-to-word version)**	**Final translation**
position of **pronation**	en posición media **pronada**	media **de pronación**

3.3.5 Validation and Feedback

After having finished a complete draft of the target text, we met on two different occasions with our accompanying experts in the field to get feedback from them in regard to the translation performed and get the translation product validated. We decided to work both times on the 'Wolf Motor Function Test instructions' text, as it was the longest one. For this particular test, the research team found all the instruments and equipment and set up a setting as realistic as possible in order to validate the translation product and see if it worked in a real physiotherapy session.

The way the sessions worked is as follows: We read the text out loud, so the experts could get a 'feel' for how the text would sound like coming from somebody else. Then, whenever they thought something did not sound right or was unclear, they would request we stop, and all of us would try to come up with a solution. The solutions ranged from looking for a better suited synonym, to adding or omitting parts of a sentence. We then wrote the corrections down and made the appropriate changes after the feedback session ended.

The feedback and validation sessions were two in total and they lasted two hours each. Even though our original draft did not have any major inaccuracies and inconsistencies, it did have several minor ones, which is why we found ourselves short on time and did not receive feedback on the whole text. Due to these time constraints, we receive feedback on 16 out of the 28 pages of the text. The way we worked around the lack of feedback on these last

batch of pages was by looking at the past corrections that were done, looking for similar mistakes, and modifying the text based on the correction of said mistakes.

4. Conclusion

Medical translation plays an essential role in the dissemination of medical information, as well as in the enhancement of the communication of knowledge in this field. The translation of medical documents such as the *Wolf Motor Function Tes*t allows specialists to explore new findings and innovative tools that will let them improve patient care and ensure broader access to healthcare.

This internship translation project consisted of the translation from English to Spanish of the five different documents that compose the WMFT: Test instructions, Test objects list, Functional Ability Scale, Template, and Data collection form. The standardization of this instrument allows its implementation across different linguistic contexts and, therefore, helps to improve the recovery process of the upper motor functions of stroke survivors.

The translators divided the project into the following steps: First, to gain information and context about the source text, an investigation of the main concepts regarding the WMFT was carried out (Including a definition of stroke, a description of the role of physiotherapy in stroke recovery, and a definition of the WMFT). Second, by employing various theoretical approaches, including translation techniques for technical and scientific translation, translators were able to develop the project based on their theoretical expertise. Third, after two meeting sessions with GED where background information was provided, translators were ready to start the translation process. The translation consisted of different sequential steps, as follows: translation brief, terminology extraction and creation of a bilingual corpus, translation process, proofreading and feedback, and correction of grammar mistakes, cohesion, and coherence. Finally, all the information about the translation process was

collected and added to this document, including detailed descriptions of the activities carried out, challenges encountered during the development of the project, and strategies used to cope with them.

The correct use of translation techniques for technical and scientific translation, along with translation strategies including translation brief, terminology extraction, and the creation of a bilingual corpus permitted translators to ensure the coherence and cohesion of the text, to maintain terminology consistency, and to overcome challenges during the translation process. The objectives defined during the first part of the internship project were accomplished, and this work is expected to serve as a valuable point of reference for future translation projects.

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Annexes

Annex A

Translation brief

Source Text	Target audience	Text typology	Purpose	Length	Deadline
WMFT Data collection form	Specialists in the field of physiotherapy who want to apply the WMFT to evaluate upper motor functions on stroke survivors.	Instructional text	Present the information to register after the application of the test.	205 words (One page)	January 27th
WMFT Instructions	Specialists in the field of physiotherapy who want to apply the WMFT to evaluate upper motor functions on stroke survivors.	Instructional text	Provide clear instructions to the evaluators that monitor the application of the test. Here, information like position of the chair, position of the camera and description of each task is included.	8036 words (25 pages)	January 27th
WMFT Template	Specialists in the field of physiotherapy who want to apply the WMFT to evaluate upper motor functions on stroke survivors.	Instructional text	Indicate the place in which each test object must be placed during the application of the instrument.	100 words approx. (2 slides)	February 24th
WMFT list of items	Specialists in the field of physiotherapy who want to apply the WMFT to evaluate upper motor functions on stroke survivors.	Explanatory texts	Present a list of all the test objects necessary to the application of the test, along with their characteristics.	308 words (1 page)	February 24th
Functional Ability Scale (FAS)	Specialists in the field of physiotherapy who want to apply the WMFT to evaluate upper motor functions on stroke survivors.	Explanatory text	Indicate the parameters considered for scoring task performance of patients.	194 (1 page)	April 21st

Annex B

Matrix of parallel texts

Title	Author(s)	Type of text	APA citation
Automovilización activa-pasiva bilateral como neuromodulación para mejorar el uso de la mano en la hemiplejía del adulto	Fernando Sotelano,Verónica Mendonça Paz y Soledad Alvarado.	Research article	Sotelano, F., Mendonça Paz, V., & Alvarado, S. (2016). *Automovilización activa-pasiva bilateral como neuromodulación para mejorar el uso de la mano en la hemiplejía del adulto. Neurología Argentina, 8(3), 165–172.* doi:10.1016/j.neuarg.2016.02.006
Eficacia del sistema Armeo®Spring en la fase crónica del ictus. Estudio en hemiparesias leves-moderadas	C. Colomer, A. Baldoví, S. Torromé, M.D. Navarro, B. Moliner, J. Ferri y E. Noé	Research article	Colomer, C., Baldoví, A., Torromé, S., Navarro, M. D., Moliner, B., Ferri, J., & Noé, E. (2013). Eficacia del sistema Armeo® Spring en la fase crónica del ictus. Estudio en hemiparesias leves-moderadas. *Neurología*, *28*(5), 261-267.
Eficacia de la intervención con videoconsolas en pacientes con ictus: revisión sistemática	J. Hilario Ortiz-Huerta, Marta Pérez-de-Heredia-Torr es, Valeriana Guijo-Blanco, Montserrat Santamaría-Vázquez	Research article	Ortiz-Huerta, J., Pérez-de-Heredia-Torres, M., Guijo-Blanco, V., & Santamaría-Vázquez, M. (2018). Eficacia de la intervención con videoconsolas en pacientes con ictus: revisión sistemática. Rev Neurol, 66(2), 49-58.
Escalas de medición de la función motora y la espasticidad en parálisis cerebral	Dr. Raúl Fernando Calderón-Sepúlveda.	Review article	Calderón-Sepúlveda, R. F. (2002). Escalas de medición de la función motora y la espasticidad en parálisis cerebral. Rev Mex Neuroci, 3(5), 285-9.
Efectos de la terapia física intensiva sobre la función motora de un niño con hemiparesia espástica	María Eugenia Serrano-Gómez, Julieth Andrea Forero-Umbarila, Lina Betzabe Méndez-Sánchez	Research article	Serrano-Gómez, M. E., Forero-Umbarila, J. A., & Méndez-Sánchez, L. B. (2016). Efectos de la terapia física intensiva sobre la función motora de un niño con hemiparesia espástica. *Revista de la Facultad de Medicina*, *64*, 157-163.
Consenso sobre accidente cerebrovascular isquémico agudo	Santiago G. Pigretti et al.	Research article	Pigretti, S. G., Alet, M. J., Mamani, C. E., Alonzo, C., Aguilar, M., Álvarez, H. J., ... & Zurrú, M. C. (2019). Consenso sobre accidente cerebrovascular isquémico agudo. Medicina (Buenos Aires), 79, 1-46.
Accidente cerebrovascular isquémico en mayores de 80 años	Juan I. Rojas, Maria C. Zurru, Marina Romano, Liliana	Research article	Rojas, J. I., Zurru, M. C., Romano, M., Patrucco, L., & Cristiano, E. (2007). Accidente cerebrovascular isquémico en mayores de 80 años.

	Patrucco, Edgardo Cristiano		*Medicina (Buenos Aires)*, *67*(6), 701-704.
La grafomotricidad en el desarrollo de habilidades motoras finas en niños y niñas de 2 a 3 años de edad comunidad de Mogato	Troya Ortiz, Elsa Verónica Lic. Mg. Naranjo de la Cruz, Diana Maricela	Research article	Naranjo de la Cruz, D. M. (2017). *La grafomotricidad en el desarrollo de habilidades motoras finas en niños y niñas de 2 a 3 años de edad comunidad de Mogato* (Bachelor's thesis, Universidad Técnica de Ambato-Facultad de Ciencias de la Salud-Carrera de Estimulación Temprana).
Calidad de vida y capacidad funcional en pacientes con artritis reumatoide	Denisse Espinosa-Balderas, María del Carmen Hernández-Sosa, Manolo Cerdán-Galán	Research article	Espinosa-Balderas, D., del Carmen Hernández-Sosa, M., & Cerdán-Galán, M. (2017). Calidad de vida y capacidad funcional en pacientes con artritis reumatoide. *Atención Familiar*, *24*(2), 67-71.

Annex C

Term extraction

B-

Back edge: *Borde posterior*

An edge that connects a vertex to a vertex that is discovered before its parent.
(Stack overflow)

Blinded evaluation*: Evaluación a ciegas, evaluación cegada*

The information that could impact the participants of the experiment is kept hidden until the experiment concludes.

C-

Cerebral hemisphere: *Hemisferio cerebral*

One half of the cerebrum, the part of the brain that controls muscle functions and also controls speech, thought, emotions, reading, writing, and learning.
(National Cancer Institute)

F-

FA Scoring: *Puntaje de habilidad funcional, puntaje de capacidad funcional*

Functional ability: *Habilidad funcional, capacidad funcional*

"The intrinsic capacity of the individual, relevant environmental characteristics and the interaction between them."
(World health organization)

Functional Ability Scale: *Escala de capacidad funcional*

Functional position: *Posición funcional*

Fine motor skills: *habilidades motoras finas, motricidad fina*

Fine motor skills are the ability to make movements using the small muscles in our hands and wrists.
(understood.org)

M-

Midsagittal plane: *Plano medio sagital*

The midsagittal plane or median plane divides the body into two parts.
(biology dictionary)

P-

Pre-morbid: *Premorbido*

Occurring or existing before the occurrence of physical disease or emotional illness.
(Merriam-webster)

Pre-morbid upper extremity dominance: *estado premórbido de la extremidad superior dominante.*

Pronated: *Pronado, en posición pronada*

S-

Sinergy: *Sinergia*

Scrub suit top: *Top de traje médico, top de uniforme, camisa de uniforme.*

Set-up recording form: *Formato de registro, formato de registro de configuración.*

T-

Task instructions: *Instrucciones de tarea, instrucciones de la tarea.*

Time score: *Puntuación de tiempo*

U-

Upper extremity: *Extremidad superior*

The part of the body that includes the arm, wrist, and hand.
(National Cancer Institute)

Ulnar edge: *borde cubital*

The bone on the little-finger side of the human forearm
(Merriam-webster)

Annex D

Source text sample

SET UP	TASK	VERBAL INSTRUCTIONS
Starting Position: • Chair Position (side) • Hips against back of chair • Table surface should be lightly dusted with baby/talcum powder • Hand not being test in lap • Shoulder of test arm abducted with forearm resting flat on table in a pronated position. Palmar surface of hand need not be flat on table. • Forearm being tested is resting on, adjacent and parallel to front edge of table; elbow at 14-cm line. • 1 lb. weight placed at ulnar edge of wrist; distal end of the weight is aligned with ulnar	Task Description: Participant attempts to push the weight across the 40-cm line on template by extending the elbow (to a lesser extent) externally rotating shoulder. Elbow should be kept on the table throughout the task (different from the previous task), shoulders should be kept level to prevent leaning with the trunk. Again, the examiner needs to be aware of participant's trunk leaning and/or excessive external rotation at the shoulder to perform task (especially true for taller men). Note: the weight is to remain in contact with the forearm throughout the task. Repeat the task if the subjects swats the weight. Timing Procedure: Starts on word "Go" and ends when any part of the thumb crosses the line. Measure: The time elapsed from the starting point to the time any part of the thumb initially crosses the line.	Verbal Instructions while demonstrating slowly: • "Push the weight across the table by moving your hand away from your body and straighten your elbow to its fullest extent; like this. Your thumb should cross this line (point to the 40-cm line). Your forearm should remain in contact with the weight until your thumb crosses the line. Also, please keep your shoulders level and just move your arm; just like this (demonstrate). Do not lean over; keep your body as straight as possible. Do this as quickly as you can." Verbal Instructions while demonstrating quickly: • "While your elbow is resting on the table, straighten your arm – pushing the weight your thumb crosses this line (point to 40-cm line) as fast as you can; like this." • "Do you have any questions?" • "Ready!, Set!, Go!" (said quickly and vigorously). Scoring: • FA scoring should take into account: 1) the extent to which the head and trunk are maintained in normal alignment, 3) whether the forearm remains in contact with the weight, and 3) the speed, fluidity, and precision with which movements are performed.