

# **How to Perform the Neurological Exam in Spanish**

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## Introduction

If you are not already conversant in Spanish, then it may seem daunting to evaluate neurological problems in Spanish-speaking patients. However, this manual will show you how far you can get with a minimum amount of effort. An alternative title could be: *How to Get the Most with the Least*.

Let's be practical. Most neurological histories are by nature free-form (although not as free-form as you might at first suppose). By contrast, the neurological exam consists of repetitive action-commands and close-ended questions. So in order to make the most headway in the shortest amount of time, you should focus on this part of the evaluation. You may be surprised to learn how often you use the same phrases when you do your exams. We can turn this to our advantage by learning the Spanish equivalents of these phrases.

As you complete each short lesson, you will be able to take what you have just learned to the clinic or bedside, and use it immediately. Each lesson will enable you to knock more minutes off your exam time, and increase the quality of the time employed. At the end of just nine lessons, you'll be a pro!

Let's begin.

## Chapter One: Three Little Words

There are three, important, two-syllable words (that rhyme): *así*, *aquí* and *allí*. Let's arrange them in a table:

<i>así</i>	like this
ah-SEE	
<i>aquí</i>	here
ah-KEE	
<i>allí</i>	there
ah-YEE	

Before we discuss the many uses of these three words in your exam, let's analyze the words themselves. Underneath each Spanish word is its phonetic representation, and to the right is the translation. You pronounce the phonetic representation as if it were written in everyday English, with the stress on the capitalized syllable. You will notice that the Spanish *i* is pronounced like the English *ee*, and the Spanish *ll* is pronounced like the English *y*. The Spanish language is, in general, very consistent in how its consonants and vowels are pronounced, so you can view these rules as iron-clad.

Another iron-clad rule bears mention here:

**Pronunciation Rule #1:** Not all Spanish words are written with accent marks, but in those that have them, the accented syllable *always* receives the stress.

Unlike some other languages, Spanish has just one kind of accent, the uphill kind. When present, the accent mark always goes over the vowel of the stressed syllable. Because only one syllable can be stressed in each word, you will never see a Spanish word written with more than one accent mark.

Rehearse the three words enough times to fix them in your mind. Don't mix them up. Here is a mnemonic: *así* and *like this* both contain the letter *s*.

Now let's see what these three words can do for your exam. The first word alone can cut your exam time in half. In your cranial nerve and motor exams, any movement that you can perform yourself, when combined with the word *así*, will communicate to your patient what you

wish him or her to do. So you already have a means to test cranial nerves V (jaw movements), XI (neck and shoulder movements) and XII (tongue movements). Most of your strength and coordination testing can be done in like fashion.

Let's see what we can do with the other words—*aquí* and *allí*. In cranial nerve testing, you can use these words (for *here* and *there*) to show patients where to fix their gaze for pupil testing and funduscopic exam. You can also test their eye movements (cranial nerves III, IV and VI) by having them follow your finger or use some other fixation target. While testing coordination, you can use the two words together to demonstrate the intended pairs of targets for finger-to-nose and heel-to-shin maneuvers. In testing gait, you can combine the place words *aquí* and *allí* with *así* to show your patients that you want them to walk, how you want them to do it (on toes, tandem, etc.) and, by pointing, where you want them to go. Finally, these words can be used to direct your patients into and out of your office, from the chair to the examining table, to the business office, etc.

Now you have the tools to test at least portions of cranial nerves II–VII and IX–XII, motor strength, coordination and gait. Testing of mental status and sensation requires different words and needs to await another lesson.

While you may accept my argument that these three words will cut your exam time in half, I recommend you demonstrate it to yourself with your next few Spanish-speaking patients. Once you see for yourself how much return you have gotten for the little bit of effort you have expended thus far, your appetite should be whetted to go on to lesson two.

## Lesson Two: Opposites

If you tried out in the clinic what you learned in lesson one, then you have discovered several things:

1. It is fun to communicate in a foreign language;
2. your patients like you for it;
3. your exam time is shorter; and
4. *así* is a magic word; but
5. at the end of the exam you are worn out because you had to work as hard as the patient.

In the second lesson you will learn some useful words to supplement your first three words. The new words are all adjectives or adverbs, and come in pairs of opposites. They are given in pairs not only because you will often use them that way, but because it is also easier to learn them that way. They are:

*más, menos*

more, less

mahss, MAY-nohss

*igual, diferente*

same, different

ee-GWAHL, dee-fay-REHN-tay

*rápido, lentamente*

rapidly, slowly

RAH-pee-doh, lehn-tah-MEHN-tay

*arriba, abajo*

up, down

ah-REE-bah, ah-BAH-hoh

*derecho, izquierdo*

right, left

day-RAY-choh, ees,kee-AYR-doh

Before we explore the uses of these words, let's analyze the words themselves. The Spanish vowel *e* is usually pronounced like the English *a* in *make*, but depending on the context

in which it appears, the sound sometimes shades over toward the English *e* sound in *get*. You will notice that the Spanish *j* is pronounced like the English *h* (think of *LaJolla* or *Baja, California*). there is no English *z* sound in Spanish; the Spanish *z* and *s* are pronounced like the English *ss*. All the other consonants shown here are pronounced just as in English, except for the *r*. If you can pull it off, pronounce the *r* as a trill between the tip of the tongue and the hard palate. Otherwise, your English *r* will suffice.

Most of the new words do not contain accent marks, which means we need some more rules of pronunciation:

**Pronunciation Rule #2:** When a word ends in a vowel, *s* or *n*, the next-to-last syllable receives the stress.

**Pronunciation Rule #3:** When a word ends in a syllable other than *s* or *n*, the last syllable receives the stress.

Examples of words ending in a vowel, then, are: *difeREnte*, *lentaMENte*, *arRiba*, *aBAjo*, *deREcho* and *izquiERdo*. *Rápido* ends in a vowel, too, but since there is an accent mark, Rule #1 supersedes Rule #2, and the accented syllable is stressed.

*Menos* ends in an *s*, so it is pronounced MAY-nohss. *Más* ends in *s* too, but Rule #2 does not apply both because it is accented and because there is only one syllable anyway.

*Igual* ends in a consonant other than *s* or *n*, so, according to Rule #3, the last syllable receives the stress, making it ee-GWAHL.

Rehearse the new words and their pronunciations; you will use them all, time and time again. You will think of ways to use them in your exam immediately. For example, *arriba*, *abajo*, *derecho* and *izquierdo* are handy for directing eye movements. *Rápido* and *lentamente* lend themselves to tests of alternating movements. *Igual* and *diferente* are most useful in sensory testing. Here are some other uses that may not be so obvious:

1. *Arriba* and *abajo* can be used in position-sense testing, particularly when strung together with the word for “or,” which is *o* (pronounced *oh*). So we have: ¿*Arriba o abajo?*, which means: Up or down?

2. *Más* and *menos* can also be used in sensory testing. With any stimulus modality, e.g. pinprick, touch, vibration, you can use these words to compare sensory perception in different cutaneous areas. You can use them alone, e.g. ¿*Más?* or ¿*Menos?* Or you can be creative and combine them with some other words you have already learned:

¿ <i>Más o menos?</i>	More or less?
¿ <i>Más aquí?</i>	More here?
¿ <i>Menos allí?</i>	Less there?

*¿Más o menos aquí?*

More or less here?

Go ahead and use your new words. The more you use them, the more confidence you will gain. When you are ready to build on these skills, move on to lesson three.

### Lesson Three: Commands

To increase the power of your communications and shorten your examination time still further, the next step is to learn eleven commands. They are:

<i>abra</i>	open
AH-brah	
<i>cierre</i>	close
see-AY-ray	
<i>saque</i>	stick out
SAH-kay	
<i>resista</i>	resist
ray-SEES-tah	
<i>descanse</i>	relax, let it go
days-KAHN-say	
<i>toque</i>	touch
TOH-kay	
<i>camine</i>	walk
kah-MEE-nay	
<i>mire</i>	look
MEE-ray	

*diga* tell, say

DEE-gah

*haga`* do, make

AH-gah

*muestra* show

moo-AYS-tray

For grammar-enthusiasts, these are the third-person, singular, imperative verb-forms. The word for *you (usted)* is understood to be the subject of these commands. You will notice that all the commands end in a vowel, and none have accent marks, so pronunciation Rule #2 applies throughout, and the next-to-last syllable receives the stress.

In some cases we can use these words as single-word commands, perhaps supplemented by pointing at something. However, there are two things we can do with these commands that make them even more useful: 1. we can negate them, and 2. we can provide them with objects.

To negate them, you simply put the word *no* in front of the command, e.g.:

*No resista.* Don't resist.

noh ray-SEES-tah.

*No mire.* Don't look.

noh MEE-ray.

In the next lesson, you will learn a number of valuable objects (body parts) to combine with these action-commands. But there are two pronoun-objects we can introduce now that will also increase the utility of these commands:

*me* me

may



The final, useful permutation is to perform both operations on these command-words, i.e. negate them *and* provide objects:

*No resistame.*

Don't resist me.

*No dígalo.*

Don't say it.

*No muéstreme.*

Don't show me.

Go ahead and try these phrases in your exam. You will find they replace the more imprecise *así*, and keep you from working so hard. However, in order to gain the full use of these words, you need more object-words. You will learn them in lesson four.

## Lesson Four: Body Parts

In most cases (believe it or not!) Spanish grammar is more simple and consistent than English grammar. However, in this lesson you will learn about a notable exception—gender of nouns. Every Spanish noun is either masculine or feminine; even inanimate objects have genders. For most nouns there is no rhyme or reason to the gender assignments; you simply have to memorize them. One trick, however, is that all words ending in *-o* are masculine (except for the word *mano* for *hand*, which is feminine). Another trick is that most nouns ending in *-a* are feminine. The body-part names you use most in your neurological exam are listed below according to gender:

### MASCULINE

<i>un ojo</i>	oon OH-hoh	an eye
<i>el ojo</i>	ehl OH-hoh	the eye
<i>los ojos</i>	lohss OH-hohs	the eyes
<i>los dientes</i>	lohss dee-EHN-tays	the teeth
<i>un brazo</i>	oon BRAH-soh	an arm
<i>el brazo</i>	ehl BRAH-soh	the arm
<i>los brazos</i>	lohss BRAH-sohs	the arms
<i>el pulgar</i>	ehl pool-GAHR	the thumb
<i>un dedo</i>	oon DAY-doh	a finger, toe
<i>el dedo</i>	ehl DAY-doh	the finger, toe
<i>los dedos</i>	lohss DAY-dohs	the fingers, toes
<i>un pie</i>	oon PEE-ay	a foot
<i>el pie</i>	ehl PEE-ay	the foot
<i>los pies</i>	lohss PEE-ays	the feet

## FEMININE

<i>la nariz</i>	lah nah-REES	the nose
<i>la boca</i>	lah BOH-kah	the mouth
<i>la lengua</i>	lah LEHN-gwah	the tongue
<i>una mano</i>	OO-nah MAH-noh	a hand
<i>la mano</i>	lah MAH-noh	the hand
<i>las manos</i>	lahss MAH-nohs	the hands
<i>una pierna</i>	OO-nah pee-AYR-nah	a leg
<i>la pierna</i>	lah pee-AYR-nah	the leg
<i>las piernas</i>	lahss pee-AYR-nahs	the legs

You will notice that the articles change according to gender and number (singular or plural). *Un* and *una* are the masculine and feminine indefinite articles. *El* is the masculine, singular, definite article; *la* is the feminine, singular definite article. *Los* and *las* are the plural forms of the masculine and feminine definite articles.

After you have rehearsed this collection of articles and nouns, you will be ready to combine them with the commands you learned in the previous lesson. A few of the many possibilities are:

<i>Cierre los ojos.</i>	Close your eyes.
<i>Abra la boca.</i>	Open your mouth.
<i>Muéstreme los dientes.</i>	Show me your teeth.
<i>Saque la lengua.</i>	Stick out your tongue.
<i>Toque la nariz.</i>	Touch your nose.

*Mire al\* dedo.*

Look at my finger.

*\*Al* is a contraction of *a + el*, meaning *at the* (or *at my*).

## Lesson Five: To Be

*To be* is a verb that is hard to avoid even in a brief treatment such as this one. The complication for English speakers is that the Spanish language has two such verbs—*ser* and *estar*. Both mean *to be*. Before we get too involved in picking the right verb for the right situation, let's do a partial conjugation of each verb:

### SER

#### First-person singular

(yo) soy	(yoh) SOH-ee	I am
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#### Third-person singular

(él) es	(ehl) ehss	he is
(ella) es	(AY-yah) ehss	she is
(usted) es	(oos-TEHD) ehss	you are

### ESTAR

#### First-person singular

(yo) estoy	(yoh) ehss-TOH-ee	I am
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#### Third-person singular

(él) está	(ehl) ehss-TAH	he is
(ella) está	(AY-yah) ehss-TAH	she is
(usted) está	(oos-TEHD) ehss-TAH	you are

You will notice that the Spanish pronoun subjects are shown within parentheses. This is because they are optional. If I say *estoy*, for example, then a Spanish listener knows that I mean *I am*. There is no ambiguity, even without the *yo*, because *estoy* is the form of the verb that is used only in the first-person singular. However, the pronoun subject can be optional even in the third-person singular, where it could mean *he*, *she* or *you*. We will state the pronoun in situations in which the person referred to would be otherwise ambiguous. In our neurological examinations we will generally leave out the pronoun because we will be always referring unambiguously to the patient.

You may wonder why the Spanish *you* is in the third person rather than in the second (as in English). This dates back to an old, polite form of address meaning *your grace*, which is nowadays contracted to *usted*.

Now let's discuss the differences between *ser* and *estar*. *Ser* expresses an essential characteristic: it tells what the person or thing is. *Estar* expresses an incidental condition; it tells how or where the thing or person is. Here are examples:

*Soy un hombre.* I am a man.

SOH-ee oon OHM-bray.

*Estoy en el hospital.* I am in the hospital.

ehss-TOH-ee ehn ehl ohss-pee-TAHL.

*María es simpática.* Maria is likeable.

mah-REE-ah ehss seem-PAH-tee-kah.

*María está lista.* Maria is ready.

mah-REE-ah ehss-TAH LEES-tah.

Choosing between these two verbs can be tricky. But don't avoid them because you will need both repeatedly in your examinations. This lesson is the only one you can't use right away in the clinic. However, as soon as you combine it with the next one, you will have new, powerful tools at your disposal.

## Lesson Six: Asking Questions

As you have already noticed, one way to change a written Spanish statement into a question is to enclose it in question marks. The spoken equivalent of this is to raise the pitch of your voice at the end of the phrase. Examples are:

*¿Pedro está aquí?*

Pedro is here?

PAY-droh ehss-TAH ah-KEE?

*¿Hoy es el lunes?*

Today is Monday?

OH-ee ehss ehl LOO-nays?

You have also noticed the interesting custom of beginning a question with an upside-down question mark. This is a convenient convention which lets you know, right from the start, that a question is coming. A similar thing is done with exclamation marks placed at the beginnings and ends of exclamatory statements.

A better way to ask questions is to begin your phrases with interrogative words, e.g. *who*, *what*, *where*, *when*, *why*, *how*, *how much*, *how many* and *which*. Here they are:

*quién*

who

kee-EHN

*qué*

what

kay

*dónde*

where

DOHN-day

*cuándo*

when

KWAHN-doh

*porqué* why

pohr-KAY

*cómo* how

KOH-moh

*cuánto* how much, how many

KWAHN-toh

*cuál* which

kwahl

Once you have rehearsed these new words, you will be ready to try them out. Here are some applications:

*¿Quién es el presidente?* Who is the president?

kee-EHN ehss ehl pray-see-DEHN-tay?

*¿Qué es esto?* What is this?

kay ehss EHSS-toh?

*¿Dónde está usted ahora?* Where are you now?

DOHN-day ehss-TAH oos-TEHD ah-OH-rah?

*¿Porqué está aquí?* Why are you here?

pohr-KAY ehss-TAH ah-KEE?

*¿Cómo está usted?*

How are you?

KOH-moh ehss-TAH oos-TEHD?

*¿Cuántos dedos?*

How many fingers?

KWAHN-tohss DAY-dohs?

*¿Cuál está más?*

Which is more?

kwahl ehss-TAH mahss?

## Lesson Seven: Pleasantries

It may seem rude to defer a discussion of pleasantries to the seventh lesson, but the compliment you pay your patients of speaking to them in their own language more than makes up for our tardiness. Learning these little “please and thank you” expressions is really just the icing on the cake.

First let’s discuss forms of address:

*señor (Sr.)*

sir, Mister

sayn-YOHR

*señora (Sra.)*

madam, Misses

sayn-YOH-rah

*señorita (Srta.)*

miss, Miss

sayn-yoh-REE-tah

Notice the new marking which is written over the letter *n*. This new marking only ever appears over the letter *n*. In fact, the combination of *n* and this marking form a new letter, which is alphabetized after the regular *n* in the Spanish dictionary. The name of the letter is *eñe* (EHN-yay). It alters pronunciation by causing an English *y* sound to be inserted after the *n* sound, as illustrated by the above examples.

As indicated by their English translations, these titles are double-purpose words, . You can use them alone to imply *sir*, *madam* or *miss*, or you can couple them with the person’s last name in which case they become *Mr.*, *Mrs.* or *Miss*. The titles are written with lower-case letters, except when abbreviated.

Here are some other salutations and pleasantries:

*Buenos días.*

Good day. Hello.

BWAY-nohss DEE-ahss.

*Adiós.*

ah-dee-OHSS.

Goodbye.

*Por favor.*

pohr fah-VOHR.

Please.

*Gracias.*

GRAH-see-ahss.

Thank you.

*Bueno.*

BWAY-noh.

Good. Okay.

*¿Cómo está (usted)?*

KOH-moh ehss-TAH (oos-TEHD)?

How are you?

*Estoy bien, gracias.*

ehss-TOH-ee bee-EHN, GRAH-see-ahss.

I am fine, thank you.

*Muy bien, gracias.*

MOO-ee bee-EHN, GRAH-see-ahss.

Very well, thank you.

*¿Cómo se llama?*

KOH-moh say YAH-mah?

What is your name? (How do you call yourself?)

*Me llamo \_\_\_\_\_.*

may YAH-moh \_\_\_\_\_.

My name is \_\_\_\_\_. ( I call myself \_\_\_\_\_.)

## Lesson Eight: Pronunciation Review

Thus far, our approach to pronunciation has been haphazard. In this lesson we will consolidate and systematize our guidelines to pronunciation.

### VOWELS

<i>a</i>	is pronounced like the <i>a</i> in <i>father</i> .
<i>e</i>	is pronounced like the <i>a</i> in <i>make</i> , although sometimes more like the <i>e</i> in <i>get</i> .
<i>i</i>	is pronounced like the <i>ee</i> in <i>feet</i> .
<i>o</i>	is pronounced like the <i>o</i> in <i>most</i> .
<i>u</i>	is pronounced like the <i>oo</i> in <i>loot</i> .

### CONSONANTS

<i>g</i>	is always hard, as in <i>go</i> .
<i>h</i>	is silent at the beginning of a word.
<i>j</i>	is pronounced like the <i>h</i> in <i>hat</i> .
<i>ll</i>	is pronounced like the <i>y</i> in <i>yes</i> .
<i>ñ</i>	is pronounced like the <i>-ny-</i> combination in <i>canyon</i> .
<i>r</i>	is trilled between the tip of the tongue and the hard palate.
<i>s</i>	is pronounced like the <i>ss</i> in <i>messy</i> , and never like the <i>s</i> in <i>misery</i> .
<i>y</i>	is pronounced like the <i>j</i> in <i>jail</i> .
<i>z</i>	is pronounced like the <i>ss</i> in <i>messy</i> .

The other consonants are pronounced pretty much like their English counterparts.



## Lesson Nine: Putting It All Together

This lesson will be the most fun of all. We will assemble all that you have learned into a working neurological exam:

### MENTAL STATUS

#### Orientation

*¿Cómo se llama?*

What is your name?

*¿Dónde está usted ahora?*

Where are you now?

#### Memory

*Diga «pulgar, ojo, pie».*

Say: “thumb, eye, foot.”

*Dígame las palabras.*

Tell me the words.

#### Language

Fluency:

*¿Porqué está aquí?*

Why are you here?

Comprehension:

*Muéstreme la mano.*

Show me your hand.

*Muéstreme la boca.*

Show me your mouth.

Repetition:

*Dígame «María está lista».*

Tell me: “Maria is ready.”

Naming:

*¿Qué es esto?*

What is this?

Reading:

*Haga esto: cierre los ojos.*

Do this: close your eyes (written on paper).

## Construction

*Haga esto.*

Do this (design on paper).

## Calculation

*Haga esto.*

Do this (calculation set up on paper).

## CRANIAL NERVES

### II

*¿Cuántos dedos?*

How many fingers?

*Mire aquí.*

Look here.

*Mire allí.*

Look there.

### III, IV, VI

*Mire al dedo.*

Look at my finger.

*Arriba, abajo.*

Up, down.

*Derecho, izquierdo.*

Right, left.

### V

*Abra la boca.*

Open your mouth.

*Cierre la boca.*

Close your mouth.

*¿Igual o diferente?*

Same or different?

### VII

*Muéstreme los dientes.*

Show me your teeth.

*Cierre los ojos. ¡Más!*

Close your eyes. More!

VIII

*¿Cuál está más?*

Which is more?

*¿Igual o diferente?*

Same or different?

IX, X

*Diga «ah».*

Say “ah.”

XI

*Así.*

Like this (shrug shoulders, etc.).

XII

*Saque la lengua.*

Stick out your tongue.

MOTOR EXAM

Strength

*Así.*

Like this.

*Resístame. ¡Más!*

Resist me. More!

Posture-Holding

*Así.*

Like this.

*Cierre los ojos.*

Close your eyes.

*No abra los ojos.*

Don't open your eyes.

*Arriba. Más.*

Up. More.

*Los brazos arribas.*

Your arms up.

### Alternating Movements

<i>Así.</i>	Like this.
<i>Cierre las manos.</i>	Close your hands.
<i>Abra las manos.</i>	Open your hands.
<i>¡Rápido!</i>	Rapidly!
<i>Lentamente.</i>	Slowly.

### Tone

<i>Descanse.</i>	Relax.
<i>No resístame.</i>	Don't resist me.

### CEREBELLAR

<i>Así.</i>	Like this.
<i>Toque la nariz.</i>	Touch your nose.
<i>Toque el dedo mío.</i>	Touch my finger.
<i>Derecho, izquierdo.</i>	Right, left.
<i>¡Rápido! Lentamente.</i>	Rapidly! Slowly.

### TENDON JERKS

<i>Descanse.</i>	Relax.
<i>No mire.</i>	Don't look.

### SENSATION

<i>¿Igual o diferente?</i>	Same or different?
<i>¿Cuál está más?</i>	Which is more?

*¿Más aquí?*

More here?

*¿Menos aquí?*

Less here?

*¿Arriba o abajo?*

Up or down?

*No mire.*

Don't look.

#### GAIT

*Camine aquí.*

Walk here.

*Camine allí.*

Walk there.

*Así.*

Like this.