

How to use the NIH Stroke Scale to Get Your Stroke Recovery Prognosis – Part 1

May 8, 2017



The best way to determine your stroke recovery prognosis is by understanding the **NIH Stroke Scale**(National Institutes of Health Stroke Scale).

It can be tricky to provide a stroke recovery prognosis that applies to everyone because **every stroke is different**, and therefore every stroke *recovery* will be different.

Using the NIH Stroke Scale, however, can help you determine your unique stroke recovery prognosis by assessing your stroke side effects.

Since this is a *very wide* topic, we turned it into a 6-part series:

- Part 1: How to use the NIH Stroke Scale to get your stroke recovery prognosis
- Part 2: How to treat the physical side effects of stroke
- Part 3: How to treat the cognitive side effects of stroke
- Part 4: How to treat the emotional side effects of stroke

- Part 5: How to estimate the length of your stroke recovery
- Part 6: How to speed up your recovery

As you can see, there's a lot to get into. So get nice and cozy, and let's dive in.

What Is a Stroke?

Before we dive into the NIH Stroke Scale, let's quickly address some important basic information.

A stroke is a "brain attack" that occurs when the supply of blood in the brain is cut off. This can either happen by a clogged artery (ischemic stroke) or a burst artery (hemorrhagic stroke).

The area where the stroke occurred will become damaged due to the lack of oxygen. This brain damage causes stroke side effects. We will discuss the physical side effects in part 2 and the cognitive/emotional side effects in part 3.

A stroke can happen on either the right side or the left side of the brain, or in the brain stem or cerebellum. Since each area of the brain controls different functions, everyone's stroke side effects are different.

Determining the Likely Outcome of Stroke Using the NIH Stroke Scale

As soon as possible after stroke, a medical professional will assess the impact of the stroke using the NIH Stroke Scale.

The NIHSS is a neurologic assessment that determines the severity of a stroke. It assesses your bodily functions to determine how much and which part of the brain was damaged and the likelihood of recovery. The areas of assessment are:

1. Level of consciousness

This evaluates the level of alertness and responsiveness of the stroke patient.

- A mild stroke may leave a patient totally responsive
- A severe stroke may leave a patient totally unresponsive

2. Horizontal extraocular movements

This assesses how well a patient can move their eyes horizontally.

- A mild stroke may not affect eye movement
- A moderate stroke may affect peripheral or central vision
- A severe stroke may result in the gaze being fixed to one side

3. Visual fields

This tests a patient's ability to see what's not directly in front of them (peripheral vision). Each eye is tested separately.

- A mild stroke may result in no vision loss
- A severe stroke may result in blindness in one eye

4. Facial palsy

Facial palsy is partial or complete paralysis of portions of the face. Symmetry is inspected while patients make various facial expressions. (One of the indicators that someone is having a stroke is that half their face begins to droop.)

- A mild stroke may leave a patient with normal, symmetric movement
- A severe stroke may leave a patient with total paralysis on one side of the face

5. Motor Arm

This tests a patient's ability to hold their arm up (at a 90 or 45 degree angle) for a certain amount of time.

- A mild stroke may result in slight arm drift where the arm slowly starts to drift down
- A severe stroke may result in total arm paralysis

6. Motor Leg

The leg is also tested for mobility by asking the patient to lift their leg and keep it lifted for a certain amount of time.

- A mild stroke may result in slight leg drift where the leg begins to drift downward
- A severe stroke may result in total leg paralysis

7. Limb Ataxia

Ataxia refers to the loss of bodily movement and control. It manifests as rigid or inaccurate movement. All four limbs are assessed for ataxia to see if there was damage to the cerebellum, which is the motor center of the brain.

- A mild stroke may result in mild ataxia in one limb
- A severe stroke may result in ataxia in 2+ limbs

8. Sensory

A sensory test is performed using pinpricks on all 4 limbs. This tests a patient's ability to feel sensation.

- A mild stroke may result in no sensory loss

- A moderate stroke may result in a difference in sensation on the affected side
- A severe stroke may result in total sensory loss on one side of the body

9. Language

This assesses a patient's language skills. If language is affected by stroke, it can result in a stroke side effect called **aphasia**.

- A mild stroke may result in no speech impairment
- A moderate stroke may result in slight aphasia
- A severe stroke may result in severe aphasia

10. Speech

This measures the amount of dysarthria in a patient. Dysarthria is the lack of motor skills required to talk. It is purely a motor problem, not a language problem.

- A mild stroke may leave a patient with normal, clear speech
- A moderate stroke may leave a patient with some slurring of the speech
- A severe stroke may leave a patient with intense slurring of speech that makes it hard to understand

11. Extinction and Inattention

This part of the NIHSS further assesses a patient's visual, tactile (touch/feeling), auditory, spatial, or personal attention. While tactile and auditory abilities have already been assessed, this section allows the practitioner to assess a patient's spatial awareness (i.e. awareness of their body and environment). We will discuss this in greater detail later.

- A mild stroke may result in no extinction or inattention
- A severe stroke may result in lack of attention on one side of the body (**one-sided neglect**) or both sides of the body

How Your Stroke Recovery Prognosis Is Assessed

Based on these factors, patients are given a score between 0-4 for each test. All scores are then added up and used to determine the severity of the stroke as follows:

- 0 = no stroke symptoms
- 1-4 = minor stroke
- 5-15 = moderate stroke
- 16-20 = moderate to severe stroke
- 21-42 = severe (or "massive") stroke

You can use this NIHSS calculator (<https://www.mdcalc.com/nih-stroke-scale-score-nihss>) to get your score and stroke recovery prognosis.

Important Indications & Contraindications:

The NIHSS has a particular focus on language and speech, which are left-brain tasks. This implies that the NIHSS is **more accurate** for predicting outcomes of left-brain strokes.

[One study](#) showed that the NIHSS inaccurately predicts outcomes for upper extremity. This implies that the NIHSS is **less accurate** for assessing upper extremity outcomes.

Now, Let's Start Working on Healing These Side Effects

The NIH Stroke Scale gave you a good idea of how stroke side effects are measured. But you may still be wondering how to treat these side effects.

And we will discuss all of that and more in part 2.