

# Different Types of Foot Drop and Rehab Strategies.

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# Outline

1. What is Foot Drop?
2. The Different Types of Foot Drop
3. Rigid Foot Drop
4. Flaccid Foot Drop
5. Spasticity Foot Drop
6. Poor Core Control
7. Muscles Imbalance
8. Question and Answer

# Disclaimers

- I'm not your physiotherapist, and I have not done any assessments on you.
- So all my advice here are not personalized to you but more of a general advice that come from my experience.
- If you are not confident in performing any of these exercises, please do not attempt.
- If you are in doubts, please do not perform any of these exercises.
- You can discuss with your therapist, and suggest if they can try it out with you.
- I, as well as SNSA, do not hold any responsibility that results from trying out these exercises.

# What is Foot Drop?

There is no fixed or standardized definition for foot drop.

Problem:

Stroke survivors might get confused and end up adopting wrong rehab strategies for their foot drop

# What is Foot Drop?

Umbrella term

- Difficulty lifting up the front part of the foot

# Different Types of Foot Drop / Different Causes of Foot Drop

1. Rigid Foot Drop
2. Flaccid Foot Drop
3. Spasticity Foot Drop
4. Poor core control,
5. Muscles imbalance

	Rigid Foot Drop	Flaccid Foot Drop	Spastic Foot Drop	Poor Core Control / Muscle Imbalance
With the help of another person, able to lift foot up more than 90 degree easily	No	Yes	No	Yes
Heel able to be in contact with the ground when standing	No	Yes	Mostly No	Yes
Pain with stretching	Yes	No	Yes	No
Degree or severity of foot drop remain the same all the time	Yes	Yes	No	No
Degree or severity of foot drop worsen when tired, fatigue or with negative emotion	No	No	Yes	Yes

# Rigid Foot Drop

**Moderate:** Foot dorsiflexion is limited to 5-10 degrees less than neutral

**Severe:** Foot cannot dorsiflex and is fixed in a "toes down" or plantarflexed position

**Mild:** Foot can get to the neutral position, but cannot dorsiflex any further

**Ideal:** Foot should be able dorsiflex 10-20 degrees beyond neutral to allow optimal gait

- Limited range over ankle





# Rigid Foot Drop

The only type of foot drop that is not the direct result of the stroke.

Commonly seen in patients who are

- Bedbound for too long
- Chronic stroke patient who does not stand or walk frequently

# Rigid Foot Drop

- Muscles at the back of the leg become shortened
- Ankle joint become very stiff and hard to move
- If managed early, still has the potential to improve the range
- If does not manage early, when the range will be fixed and the potential to improve will be very low
- Most of the time, has underlying “Flaccid Foot Drop” but is being masked by the limited range



# Rehab Strategies for Rigid Foot Drop

< 3 - 6 months	> 6 months – 1 year
<ul style="list-style-type: none"><li>• Use of ankle foot orthosis, both walking and resting.</li><li>• Regular intensive stretching to the calf muscles</li><li>• Stand as much as possible</li><li>• Adopt rehab strategies for Flaccid Foot Drop</li></ul>	<ul style="list-style-type: none"><li>• Use of heel raise</li><li>• Surgery option to release contracture muscles</li></ul>

# Exercises for Mild Rigid Foot Drop

1. Standing – with towel underneath the front part of the affected foot
2. Forward backward stepping with affected foot in (1) position.
3. Sit to stand with affected foot in (1) position

# Exercises for Moderate to Severe Rigid Foot Drop

1. Standing – with bed blocking at the back of your leg

# Flaccid Foot Drop

Mild :

Able to lift the front part of the foot up to 90 degree but not more than 90 degree

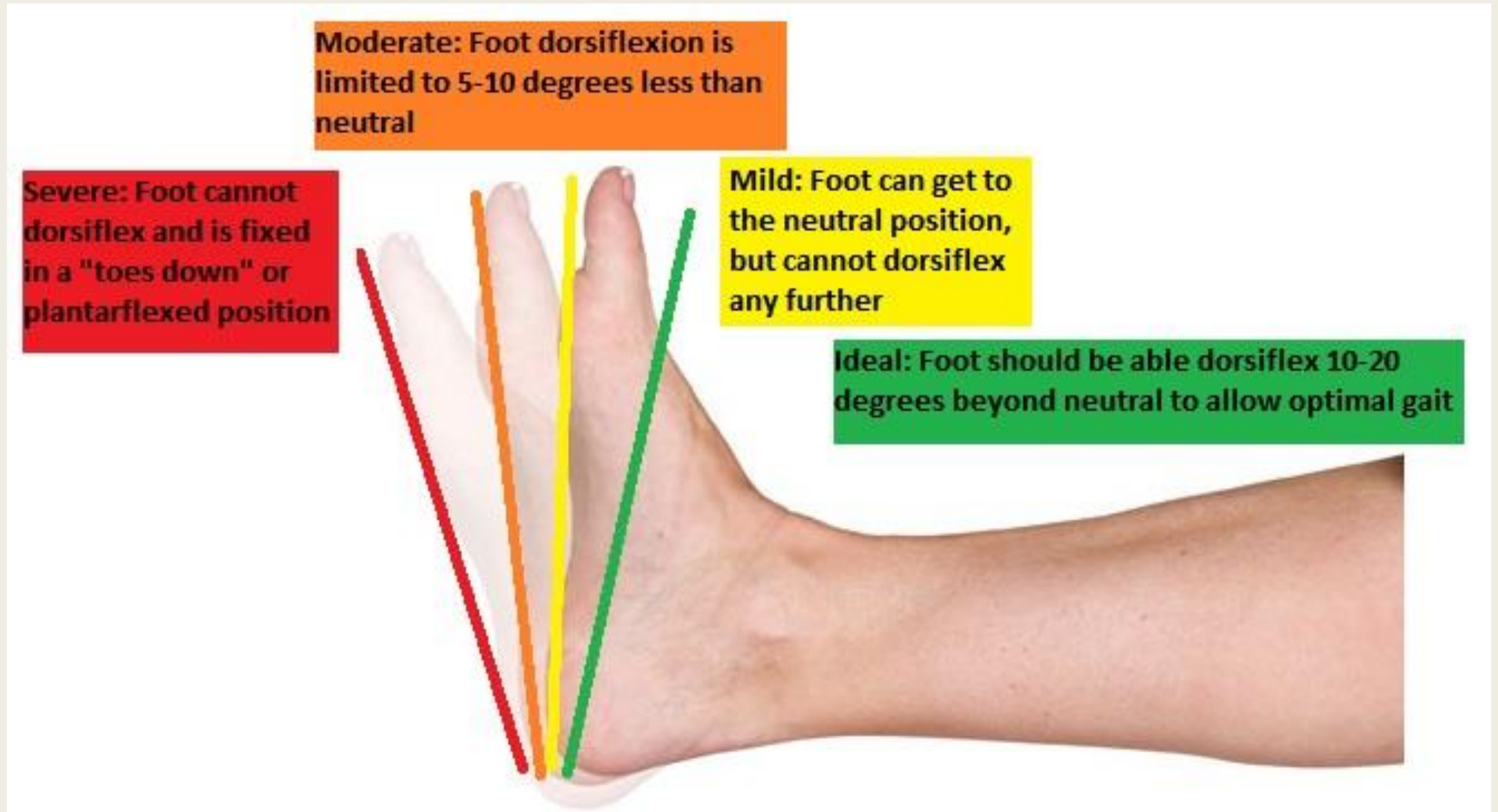
Moderate:

Able to lift the front part of foot but not able to reach 90 degree

Severe:

Unable to lift the front part of foot at all. No movement at all

# Flaccid Foot Drop



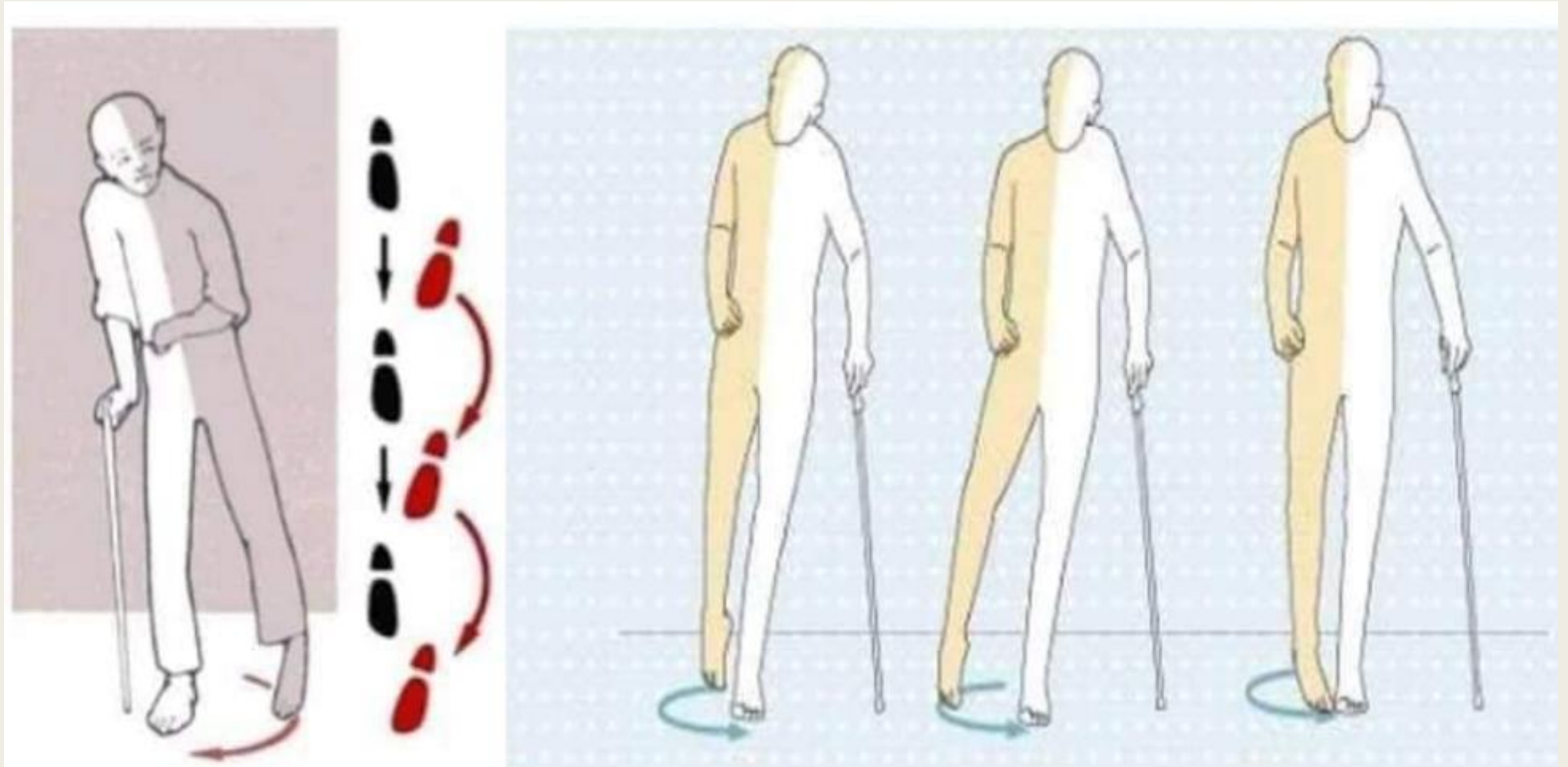


# Flaccid Foot Drop

- A common complication directly resulted from stroke
- Due to the weakness of the muscles at the front part of the leg: Tibialis Anterior
- Has the potential to become “rigid foot drop” if the person does not have sufficient standing and walking time

# Flaccid Foot Drop

# Circumduction Gait



# Rehab Strategies for Flaccid Foot Drop

Walking as daily task	Walking as exercises only
<ul style="list-style-type: none"><li>• For moderate to severe case, use AFO for daily walking <b>AND</b> set aside exercise time to walk without AFO.</li><li>• For mild case, avoid and reduce compensation, reduce usage of AFO or stop using AFO</li><li>• Functional Electrical Stimulation, example Bioness</li><li>• Regular stretching</li></ul>	<ul style="list-style-type: none"><li>• Regular intensive stretching</li><li>• Use of resting AFO and walking AFO</li><li>• Functional Electrical Stimulation, example Bioness</li></ul>

# Exercises for Flaccid Foot Drop

1. Pull towel back with affected foot – knee flexion and dorsiflexion (Seated)
2. Rolling with foot – hard bottle, water bottle, toilet paper roll (Seated)

# Spastic Foot Drop

Spasticity:

Involuntary contraction of the muscles

Spastic Foot Drop:

Foot drop that caused by involuntary contraction of the calf muscles

# Spastic Foot Drop

- Usually has underlying “Flaccid Foot Drop”.
- Has the potential to become “Rigid Foot Drop”.

# Medical Treatment for Spasticity

- Botox injection
- Effect lasts for 3 to 6 months
- Electrical Stimulation and intensive rehabilitation within this period

# Rehab Strategies for Spastic Foot Drop

Without contracture	With contracture
<ul style="list-style-type: none"><li>• Standing as much as possible</li><li>• Adopt rehab strategies of rigid foot drop</li><li>• Adopt rehab strategies of flaccid foot drop on “good days”</li><li>• Initiate botox injection as soon as possible</li><li>• Functional electrical stimulation</li></ul>	<ul style="list-style-type: none"><li>• Stretching to maintain range and manage pain</li></ul>

# Exercises for Spastic Foot Drop

1. Standing with bed blocking at the back of the leg (Exercises for moderate to severe rigid foot drop)
2. Forward leaning for weight bearing



# Foot Drop due to poor core stability

- When someone loses balance, there will be a reflex that causes the muscles to stiffen up and prepare to “react”
- In healthy people, you might just feel a “stiff up” reaction
- In stroke survivors with poor core stability, this “stiff up reaction” happens more frequently, and is being magnified like a “foot drop” due to lack of core stability.

# Rehab Strategies for Foot Drop due to poor core stability

- Balance training
- Improve confidence by frequent practice
- Multi-tasking

## Exercises for Poor Core Stability

1. Pull towel back with affected foot in standing– knee flexion and dorsiflexion
2. Rolling with foot in standing – hard bottle, water bottle, toilet paper roll

# Foot Drop due to muscles imbalance

- Usually happens in patients who have adopted certain way of compensated walking, for example circumduction
- Certain group of muscles overworked, while the opposite group of muscles underwork.
- Lead to poor alignment or poor movement
- Muscles that rotate and bring the hip VS muscles that rotate and bring the hip in
- Can be mistaken as Spastic Foot Drop sometimes

# Rehab Strategies for muscles imbalance

- Stretch and release the overworked muscles
- Strengthen the underworked muscles

# Exercises for muscles imbalance

1. Hip adductor activation

2. Sit to stand with hip adductor activation

# Thank you!

- Question and Answer

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