

# **INCREASING INTENSITY FOR YOUR PATIENTS WITH GREATER MOBILITY CHALLENGES.**

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## **Learning Objectives**

- 1. Review interventions that safely and effectively progressing patients who have more limited mobility.**
- 2. Compare and contrast a variety of challenging interventions in different functional positions.**

PLEASE ADD YOUR  
IDEAS IN THE CHAT  
AS WE GO ALONG

**WHEN CAN WE START  
PROGRESSING**

## EARLY MOBILIZATION REFERENCES

- Parallel-group, single-blind, randomized controlled trial at 56 acute stroke units in five countries.
- The higher dose, very early mobilization intervention protocol significantly reduced the odds of a favorable outcome 3 months after stroke compared with lower dose usual care starting, on average, 5 h later.

Bernhardt J, Langhorne P, Lindley RI, Thrift AG, Ellery F, Collier J, Churilov L, Moodie M, Dewey H, Donnan G. Efficacy and safety of very early mobilisation within 24 h of stroke onset (AVERT): a randomised controlled trial. *Lancet*. 2015 Jul 4;386(9988):46-55.

**Conclusions: Post-stroke rehabilitation with high intensity physical exercise at 48 h may be beneficial. Very Early Intensive Mobilization did not lead to a favorable outcome at 3 months.**

### High Intensity Physical Rehabilitation Later Than 24 h Post Stroke Is Beneficial in Patients: A Pilot Randomized Controlled Trial (RCT) Study in Mild to Moderate Ischemic Stroke

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**Objective:** Very early mobilization was thought to contribute to beneficial outcomes in stroke-unit care, but the optimal intervention strategy including initiation time and intensity of mobilization are unclear. In this study, we sought to confirm the rehabilitative effects of different initiation times (24 vs. 48 h) with different mobilization intensities (routine or intensive) in ischemic stroke patients within three groups.

**Materials and Methods:** We conducted a randomized and controlled trial with a blinded follow-up assessment. Patients with ischemic stroke, first or recurrent, admitted to stroke unit within 24 h after stroke onset were recruited. Eligible subjects were randomly assigned (1:1:1) to 3 groups: Early Routine Mobilization in which patients received <1.5 h/d out-of-bed mobilization within 24-48 h after stroke onset, Early Intensive Mobilization in which patients initiated ≥3 h/d mobilization at 24-48 h after the stroke onset, and Very Early Intensive Mobilization in which patients received ≥3 h/d mobilization within 24 h. The modified Finklin Scale score of 0-2 was used as the primary favorable outcome.

**In conclusion, pooled data from RCTs concluded that VEM is not associated with beneficial effects when carried out in patients 24 or 48 hours after the onset of a stroke.**

**Definitions:** Very Early Mobility: (VEM) usually defined as intensive out of bed activity -sitting, standing and walking at the earliest possible time no later than 24-48 hrs after stroke. Late Mobility (LM) defined anywhere from 48hrs-7 days after stroke.

Xu T, Yu X, Ou S, Liu X, Yuan J, Chen Y. Efficacy and safety of very early mobilization in patients with acute stroke: a systematic review and meta-analysis. Scientific reports. 2017 Jul 26;7(1):1-8.

## WHAT IS THE PRIORITY

First 48 hours is basic function.

As you progress educate the patient on how much is safe for them to do.

# Potential External Cues and Measures



- **FIST**

- <https://www.samuelmerritt.edu/fist>

- **Modified OWD and Counting Talk test  
(for motivation)**

- *Motivation of external cue of measurement to improve posture*

- **Modified 30 second Sit-to-Stand**

- *McAllister LS, Palombaro KM. Modified 30-second Sit-to-Stand test: reliability and validity in older adults unable to complete traditional Sit-to-Stand testing. Journal of Geriatric Physical Therapy. 2020 Jul 1;43(3):153-8.*

# Monitor Your Patient

## Monitoring Intensity - STOP and contact Physician

### Blood Pressure

- Blood Pressure >180 mmHg/>110 mmHg
- Contact physician even if no symptoms

### Heart Rate

- >150bpm
- Contact physician if <60bpm or 120-150bpm


### Oxygen Saturation

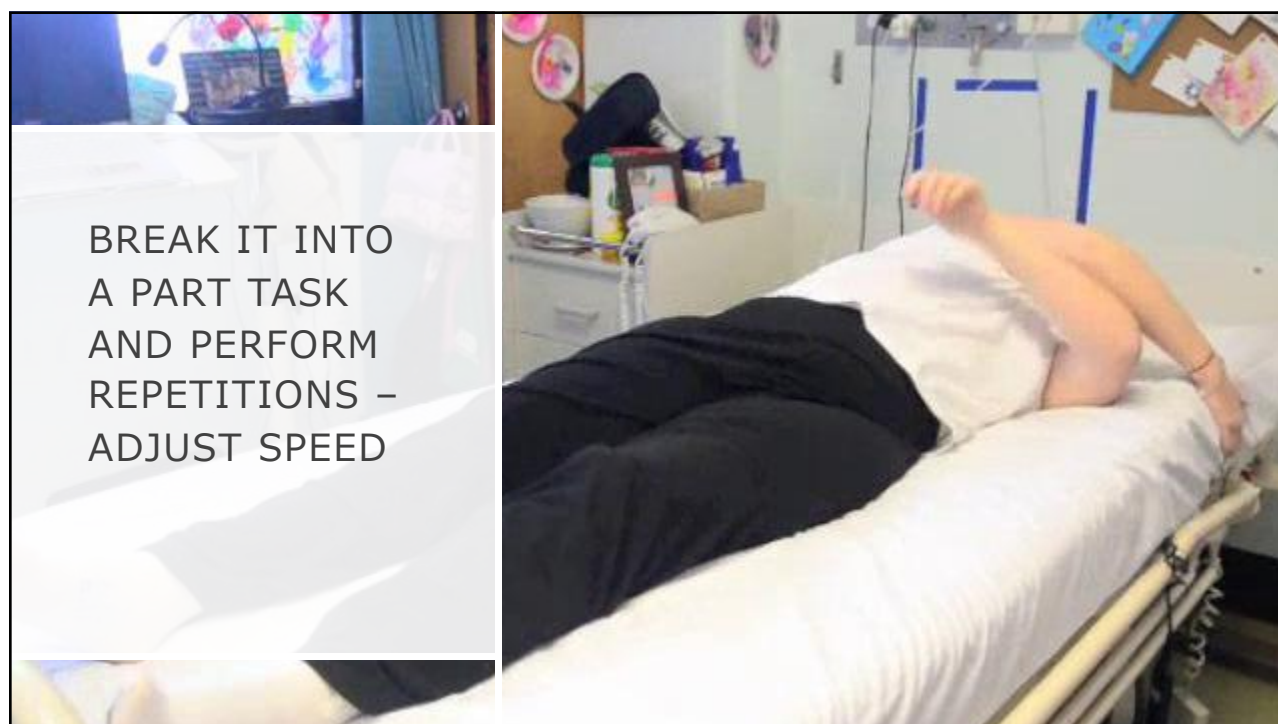
- ≤ 85% add and include oxygen
- 86%-89% contact physician if not diagnosed

ONES APP

Age	82
Resting Heart Rate	85
Max HR	138
KARVONEN FORMULA, USING % HR RESERVE	
100% Red Line Zone, VO2 Max	138
Experienced athletes should only train in this zone for short periods of time.	
90%	133
90% Anaerobic Zone	133
Exercising in this zone burns energy stored in your muscles instead of stored body fat.	
80%	127
80% Aerobic Zone	127
Your "Target heart rate zone." This is the best zone to develop your cardiovascular system.	
70%	122
70% Recovery Zone	122
This zone develops basic endurance and is good for recovery periods.	
60%	117
60% Healthy Heart Zone	117
Low impact. Will reduce blood pressure and cholesterol and is ideal for beginners.	
50%	112

6	No exertion
7	
8	
9	
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard (heavy)
16	
17	Very hard
18	
19	
20	Maximal exertion

	<h2 data-bbox="699 380 1341 432">Utilizing the environment</h2> <ul data-bbox="675 478 1406 852" style="list-style-type: none"> <li>• Look around in the room and utilize aspects of the environment to make the movement easier. Enriched environment provides enhanced motor, cognitive, sensory and social stimulation, relative to the standard conditions</li> <li>• EE may provide a way of increasing non-specific therapy dose, as this treatment paradigm provides a stimulating environment that enhances stroke recovery</li> <li>• Try to find any aspect in the room to enrich the activities. Cards, family members, windows, people in the hallway Put a sign on the wall to ask anyone coming in to: "Ask me about the lighthouse"</li> </ul>
	<small data-bbox="643 915 1422 970">Livingston-Thomas J, Nelson P, Karthikeyan S, Antonescu S, Jeffers MS, Marzolini S, Corbett D. Exercise and environmental enrichment as enablers of task-specific neuroplasticity and stroke recovery. <i>Neurotherapeutics</i>. 2016 Apr 1;13(2):395-402. McDonald MW, Hayward KS, Rosbergen I, Jeffers MS, Corbett D. Is environmental enrichment ready for clinical application in human post-stroke rehabilitation?. <i>Frontiers in Behavioral Neuroscience</i>. 2018 Jul 11;12:135.</small>



Some potential circuit options like:

1. supine to sit (again - may only be able to do 2-3 which is ok). Try to progress to both directions depending on diagnosis. Focus on them taking a deep breath in and blowing out when they come up.
2. Resisted bands hip abductions. TRy doing all directions (like the clock yourself app but without it). Could print up a picture of a clock and put stickies on the floor with numbers to try and work on the challenge and adding the dual task.
3. Could put the theraband under their legs and work on squats with theraband resistance holding the theraband in their own hands to increase resistance as they see fit.
4. Sitting upright and shoulder extension with theraband working on deep breathing and posture in sitting. Getting lats stronger.
5. SIt to stand. Focus on power training if they aren't too bad and keep track of the number of sit to stands in 1 minutes. Make sure they can see how they improve so maybe put a stickie on the wall of the number they got today.
6. Throughout you could do active rests of up on toes but try and switch to power and do fast concentrics when possible.
7. Sitting with them holding on theraband and you pulling in all directions. I call it bad dog (like a dog pulling and going in all directions). You could do sitting on edge of bed or standing.

## Supine Progression





SUPINE  
ACTIVITIES  
WITH EXTERNAL  
CUES



# SHOUT OUT TO MANDY SHINTANI and DIANA OLIVER

<https://urbanpoling.com/activator-poles/>

## LOWER EXTREMITY ACTIVATION

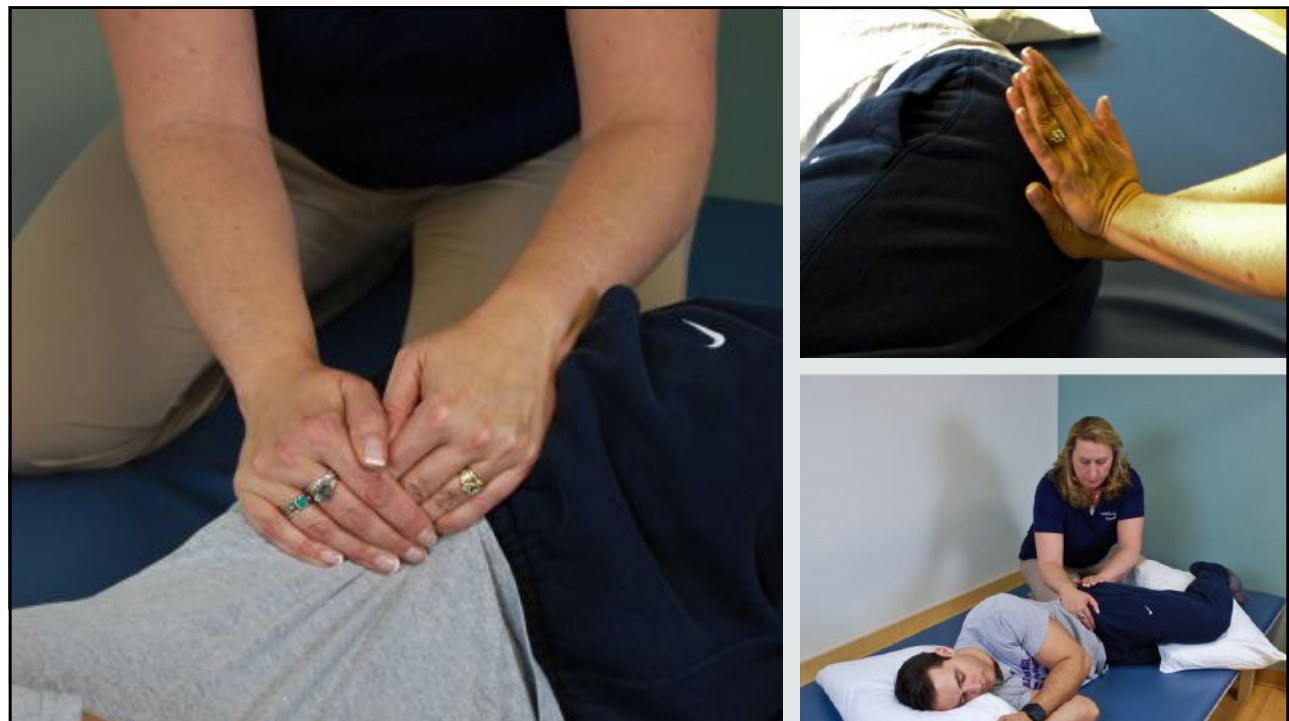
1. ADJUST ANY ACTIVITY YOU DO BY INCREASING THE SPEED AND REPETITIONS
2. MAKE THEM HOLD FOR 6 SECONDS AT END RANGE TO INCREASE ISOMETRIC CONTRACTION
3. PROGRESS TO FAST CONCENTRICS AND SLOW ECCENTRICS
4. ADD UE MOVEMENT OF THE STRONGER SIDE



<h1>Sidelying PNF Pelvic Patterns</h1> <p>Sharma V, Kaur J. Effect of core strengthening with pelvic proprioceptive neuromuscular facilitation on trunk, balance, gait, and function in chronic stroke. Journal of exercise rehabilitation. 2017 Apr;13(2):200.</p>		
	Anterior Elevation	Posterior Depression
Manual Contacts	Iliac Crest, on and just anterior to midline Hands overlapped, lumbrical grip	Ischial tuberosity, hands overlapped, use proximal carpal ridge
Verbal Commands	"Shrug your pelvis up, pull up"	"Sit into my hand, push"

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# UTILIZE THE ENVIRONMENT

- Sara Lift
- Tilt Table
- Sheet/gait belt to align trunk
- Theraband wrap for leg to unweight  
Ace wrap over foot to allow easier facilitation of swing through
- TO GET MORE REPETITIONS



Kim CY, Lee JS, Kim HD, Kim JS. The effect of progressive task-oriented training on a supplementary tilt table on lower extremity muscle strength and gait recovery in patients with hemiplegic stroke. *Gait & posture*. 2015 Feb 1;41(2):425-30.



## EXTRA PAIR OF HANDS

**Environment  
to assist in  
maintaining  
alignment**







**Sitting**



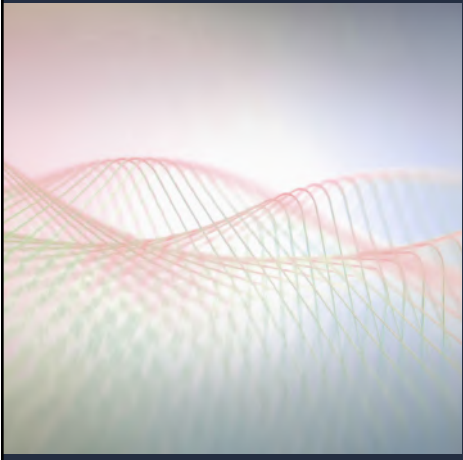


[https://urbanpoling.com/post\\_type\\_products/urban-poles-activator-2/](https://urbanpoling.com/post_type_products/urban-poles-activator-2/)

## IF YOU FEEL STUCK – PREP THE BRAIN WITH MI

What about Motor Imagery?



	<h1>HOW COULD I INTEGRATE IT?</h1>

<h2>What is it?</h2>	<p><b>Motor imagery (MI) is a cognitive function paradigm that involves the mental imitation of the movement without actual execution.</b></p> <p><b>The purpose of MI training is to improve learning ability by repetitive practice of particular tasks</b></p> <p><b>Combine with your priority functional movement</b></p>
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## Practice MI to PRIME the System before the real task.

Helped the patients to improve movement ability, initiating with the awareness of their movement.

This mental representation acted as the preparation phase before the actual movements were trained.

MI was provided with visual and kinesthetic imageries from the first-person perspective.

The tasks practiced in this study included; sit-to-stand, reaching in sitting and standing, marching, walking, turning and transfers.

We recommend physiotherapists to use MI combined with exercise than exercise alone in the management of stroke survivors.

Bovonsunthonchai S, Aung N, Hiengkaew V, Tretriluxana J. A randomized controlled trial of motor imagery combined with structured progressive circuit class therapy on gait in stroke survivors. *Scientific Reports*. 2020 Apr 24;10(1):1-1.



## Suggestions

Visualize movements being performed from inside of their body, as if they are looking at their own eyes while performing the movements.

For kinesthetic imagery, to perceive their body sensations of the movements without any movement. During the MI training, the participants were asked to keep track of the number of repetitions imagined with their fingers. Then, the tasks were progressed by increasing the speed, the rhythm of which was controlled with a metronome.

After each practice, the number of practice performed were entered into a logbook and used as feedback for the next training session.



## How about a progression?

- **Motor Imagery of taking covers off and coming up into sitting (2-3 minutes)**

- *Include the metronome to time the motions*
- *Use the feeling of large motions and being cooler when covers are off.*
- *Use the focus of the breath as they begin to come up in sitting and the increase in the weight through their hip*

**Then practice the large motions of throwing off the covers with the metronome. Add visual tracking and head turns to watch the throwing of the covers**

**Do part task of supine to sit with head of bed elevated for the environmental aspect. Progress to more eccentric contraction by having them count outloud when coming back. Do multiple repetitions with the metronome.**

**Progress to coming all the way to sitting.**

## CVA SIG WEBSITE – INTENSITY

<https://www.neuropt.org/special-interest-groups/stroke/new-and-noteworthy>

<https://www.youtube.com/watch?v=pINqO9ks1fw&feature=youtu.be>

1:38

HOW MUCH IS  
TOO MUCH?



SO MANY OPTIONS...  
THOUGHTS?

