

Low Tech Equipment Options to Enhance Mobility

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Disclosures

None

I am not endorsing specific products, nor do I have a financial relationship with any products presented in this presentation.

Objective

Describe patient interventions and modifications used to increase independence of the post-acute stroke patient as it relates to mobility and ADLs.

Neuroplasticity

“Mechanism by which the damaged brain relearns lost behavior in response to rehabilitation” -Kleim 2008

Table 1. Principles of experience-dependent plasticity.

Principle	Description
1. Use It or Lose It	Failure to drive specific brain functions can lead to functional degradation.
2. Use It and Improve It	Training that drives a specific brain function can lead to an enhancement of that function.
3. Specificity	The nature of the training experience dictates the nature of the plasticity.
4. Repetition Matters	Induction of plasticity requires sufficient repetition.
5. Intensity Matters	Induction of plasticity requires sufficient training intensity.
6. Time Matters	Different forms of plasticity occur at different times during training.
7. Salience Matters	The training experience must be sufficiently salient to induce plasticity.
8. Age Matters	Training-induced plasticity occurs more readily in younger brains.
9. Transference	Plasticity in response to one training experience can enhance the acquisition of similar behaviors.
10. Interference	Plasticity in response to one experience can interfere with the acquisition of other behaviors.

Use it and Improve It

Training that drives a specific brain function can lead to an enhancement of that function

Bilateral Devices

Bilateral Devices



Modified Hand Grips



Modified Hand Grips

Carpal Tunnel wraps
Fabrifoam



https://www.rehabmart.com/product/fabrifoam-nustimwrap-3957.html?gad_source=1&gclid=CjwKCAjwqmwBhBVEiwAL-WAYUNHZ9g3RzUMRKRL5ZgXQExw2N3Btltc6gXtsWZUYi1-UiBqV1jKUhoCLVcQAvD_BwE



Sliders

Sliders

Bowling slider



https://www.bowlersmart.com/product/brunswick-shoe-slider-black/?gad_source=1&gclid=Cj0KCQjwn7mwBhCiARIsAGoxjaJh7qIVg6boXx5vETdid6U6JGT8R0U7_jCJOgR28n0inVdrlLx8NncaAoXZEALw_wcB

Curling slider



Non-AFO Foot Assist Devices



Photo taken from:
<https://www.dictusband.com/Where-to-Buy-DB.html>



Photo taken from: https://www.amazon.com/Walking-Lifting-Improved-Prevent-Injuries/dp/B09Y5WBQGR/ref=sr_1_30?crid=3DWX5SA3QLSF1&dib=eyJ2Ijo1MSJ9.pNhgashHb-iE7f8RTSWoycAivpIQ1tWGBY-oeGTaF8FnrgWhOarpbm-fb0oBDrpeBQusHvZ4eg4e6gzszilg4t1xYRLqHQUSzVAPKWzU5V_pUlwqWmJLEd35RhZakHZx9EX32v54GMQ-8Oodxl7Hedj0JHEDDjoTTN8buUGEDDC88xB0LiKWUiQq2s99WYmTfBJOUDJX1sxwwNhUO0rILm-Mjb-TUqV7DV1sdGUE5jo8cD6VW_ZCuMLMTV0PDOPG2TO2tFdaVcFYwT3uh1cgJvDmbVMMf6upogoLWwYT6BE.Naz79atYmDSbSHxuYvIXRjwDqWdE0kFM0vT3nXi7ol&dib_tag=se&keywords=dictus+band&qid=1712028819&s_prefix=dictus%2CCaps%2C124&sr=8-30



Photo taken from: https://www.amazon.com/Bauerfeind-CaligaLoc-Stabilize-Lateral-Ligaments/dp/B007XAJAWY/ref=asc_df_B007XAJAWY/?tag=hyprod-20&linkCode=df0&hvadid=309760615398&hvpos=&hvnetw=g&hvrand=2263339356368927350&hvpon=&hvptwo=&hvqmt=&hvdev=c&hvdcmdl=&hvlocint=&hvlocphy=9017777&hvtargid=pla-668805808963&psc=1&mcid=818bc5f70fd8318e88505dca1b36996c&gclid=CjwKCAjwqtqmwBhBVEiwAL-WAYf5AAvDLJqPEGVmko2s6nRUGxboiLFzufflirIUPjTymMvP5_k3SoxCfNoQAVD_BwE

External Focus – Laser systems



Photo taken from: <https://www.motionguidance.com/pages/products>

Intensity

Induction of plasticity requires sufficient training intensity

Intensity Matters

APTA Clinical Practice Guideline to Improve Locomotor Function Following Chronic Stroke, Incomplete Spinal Cord Injury, and Brain Injury

“Recommendations: Aerobic (moderate to high) intensity walking training (intensities $> 60\%$ HR reserve or $70\% \text{Hr}_{\text{max}}$) *should be performed*”

Intensity tracking

Heart Rate Monitors



Photo taken from:

https://www.google.com/search?q=heart+rate+monitor&rlz=1C1GC EU_enUS969US970&oq=heart+rate+moni&gs_lcrp=EgZjaHJvbWU qCggAEAAySgQMYgAQyCggAEAAySgQMYgAQyBggBEEUYOTIHC AIQABiABDIHCAMQABiABDINCAQQLhjHARjRAXiABDIHCAUQAB iABDIHCAYQABiABDIHCACQABiABDIHCAGQABiABDIHCAkQABi ABKgCALACAA&sourceid=chrome&ie=UTF-8

Step Counters



Photo taken from:

https://www.google.com/search?q=pedometer&sca_esv=62a6ce05eaac911e&rlz=1C1G CEU_enUS969US970&sxsrf=ACQVn0-z4Nf9iDYVxLuAPEtoKYhikFhGtA%3A1712285210984&ei=GmYPZsf08r9ptQPurK2gAo &ved=0ahUKEwjH1IS-h6qFAXXKvokEHTqZDaAQ4dUDCBA&uact=5&oq=pedometer&gs_lp=Egxn3Mtd2l6LX NlcnAicXBIZG9tZXRlcjIOEAAySgQMYgAQyYkQIYsQMYDRAAGIAEGloFGEMySgQMyDhAA GIAEGloFGJECGLEDMggQABiABBixAzlFEAAySgQyBRAAGIAEMgUQABiABDIFFAAy gAQyBRAAGIAEMgUQABiABEj7EVDsCViGEXABeAGQAQCYAYgBoAHJBaoBAzUuMr gBA8gBAPgBAZgCCKAC3QbCAgoQABhHGNYEGLADwgINEAAySgQYigUYQxiwA8IC ChAjGIAEGloFGCfCAgoQABiABBiKBRhDwgILEC4YgAQYxwEY0QPCAgSgQABiABBixA xiDAcICDhAuGIAEGLEDGMcBGNEwgILEAAySgQYigUYkQLCAgoQLHiABBiKBRhDw giLEAAySgQYsQMYyQPCAgSgQABiABBiKBRiSA8ICCBaUgIAEGLEDmAMaiAYBkAYK kgcDMi42oAf0OA&sclient=qws-wiz-serp

Intensity Matters

Active Rest



Intensity Matters

Tactile Metronomes



Photo taken from: <https://www.soundbrenner.com/pulse/>

Specificity

The nature of the training experience dictates the nature of the plasticity

Specificity

Recliners or soft armchairs

Area rugs



Photo taken from:
https://www.ashleyfurniture.com/p/movie_man_recliner/6380329.html?cgid=reclining-furniture&ttdeeplink=reviews



Photo taken from:
<https://beyondbasicplay.wordpress.com/2013/03/05/tips-and-tricks-tuesdays-walking-over-uneven-surfaces/>

Specificity

Car canes

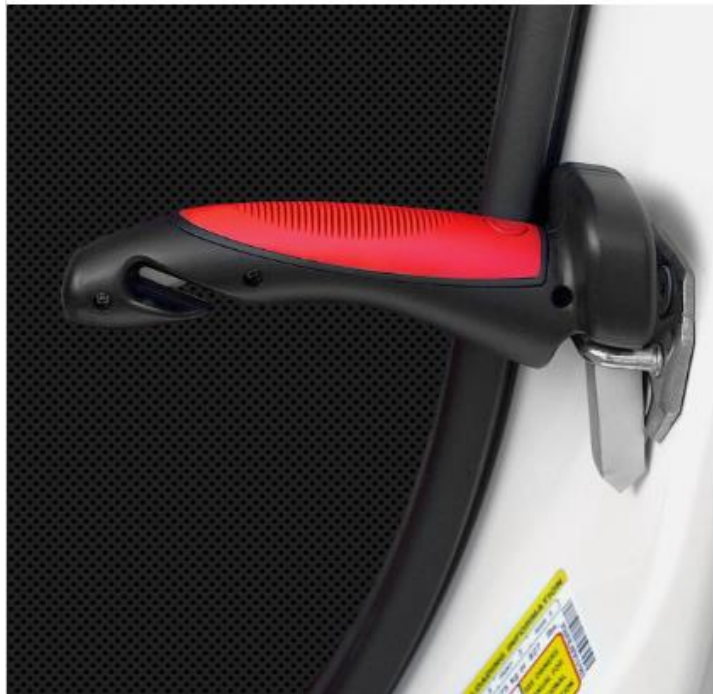


Photo taken from: <https://www.hsn.com/products/bell-howell-2-pack-car-cane-elite-window-breaker-led-bel/20629353>



Photo taken from: <https://stander.com/product/handybar-auto-grab-bar/?radius=10>

Repetition Matters

Induction of plasticity requires sufficient repetition

Repetition

Gamification based apps

- Clock Yourself App

Repetition Matters

Repetition counter



Photo taken from:

https://www.google.com/search?q=repetition+counter&rlz=1C1GCEU_enUS969US970&oq=repetition+counter&gs_lcrp=EgZjaHJvbWUqBwgAEAAyGAAQyBwgAEAAyGAAQyBwgBEAAyGAAQyBwgCEAAyGAAQyBwgDEAAyGAAQyBwgEEAAyGAAQyBwgFEAAyGAAQyCAGGAAyFhgeMggIBxAAGBY YHjIKCAgQABgPGBYYHjIKCAkQABgPGBYYHtIBCDMwMThqMG05qAIAsAIA&sourceid=chrome&ie=UTF-8

Reaction trainers



Photo taken from:

https://www.google.com/search?q=blaze+pods&sca_esv=62a6ce05eaac911e&rlz=1C1GCEU_enUS969US970&biw=1276&bih=557&tbm=shop&sxrsf=ACQVn08SZPAx4ebYMIBvv81huBrZUpZl0w%3A1712287694871&ei=zm8PZqq_NI6HptQPw6mR6Ac&ved=0ahUKEwiq3rjekKqFAxW0g4kEHcNUBH0Q4dUDCAg&uact=5&oq=blaze+pods&gs_lp=Egtwcm9kdWN0cy1jYyIKYmxhemUgcG9kczlFEAAyGAAQyBxAAGIAEGAoyBRAAGIAEMgUQABiABDIFEAAyGAAQyBRAAGIAEMgUQABiABDIFEAAyGAAQyBRAAGIAEMgUQABiABEjaC1AAW0sKcAB4AJABApBtAWgAYsTqgELMC4yLjEuMS4yLjG4AQPIAQD4AQGYAgWgArEKmAMAKgcJMC4yLjEuMS4xoAetlQ&scient=products-cc

Repetition

Music Glove

Randomized Controlled Trial > J Neuroeng Rehabil. 2014 Apr 30;11:76.

doi: 10.1186/1743-0003-11-76.

Retraining and assessing hand movement after stroke using the MusicGlove: comparison with conventional hand therapy and isometric grip training

Nizan Friedman¹, Vicky Chan, Andrea N Reinkensmeyer, Ariel Beroukhim, Gregory J Zambrano, Mark Bachman, David J Reinkensmeyer



Video taken from:

https://www.flintrehab.com/product/musicglove-hand-therapy/?utm_source=google&utm_medium=cpc&utm_term=hand%20therapy%20gloves%20for%20stroke%20patients&gad_source=1&gclid=Cj0KCQjwn7mwBhCiARIsAGoxjaK8zSzbv7dUquHFXBf7TpMN4vdHCnG30CnX3tVEbZRkNfYANM3UiQaAqGREALw_wcB

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