Stroke rehabilitation in South Africa

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Introduction

- Stroke is one of the most **common causes of morbidity** with an estimated 75 000 strokes occurring in South Africa each year (Bertram et al. 2013)

- The burden of stroke is also **high in rural South Africa** with 33 500 strokes occurring in a population of 13 000 000 people in 2011 (Maredza et al. 2015)

- **Africa**, community-based studies: age-standardised prevalence rates of up to 981 per 100 000 (Owolabi et al 2015)

- Considerable number of people who have stroke are **below the age of 55 years** (Wolf et al. 2009)

Aim

To **draw attention to** the South African stroke rehabilitation services and research

- **Identify** and **summarise** current SA stroke rehabilitation services and research (Stroke survivor and caregiver related challenges, stroke rehabilitation services including outcome measures: *not part of this presentation*)
- **Determine** SA stroke rehabilitation related **service** and **research gaps** based on the available literature
- **Establish** if there are **feasible intervention programmes** suited for resource poor clinical facilities and communities like the ones found in South Africa?

Methods

- ✓**Only physiotherapy (PT) related studies** were included or studies that included PT in a multidisciplinary intervention programme.
- ✓Peer reviewed publications, electronic research reports and dissertations and rehabilitation related documents were used.
- ✓**Publications within the past 10 years**
- ✓**Policy documents were included even if more than ten years,** provided they were the latest version.
- ✓**Search**: Wits Health Sciences library catalogue; Pubmed; PEDRO; Medline; Cochrane; hand searches of relevant journals and reports; Google Scholar, and citation tracking.

Number of studies identified

- Stroke SA (839 studies)
- After 2009, humans (437)
- **Rehabilitation: PT (39)**

Findings

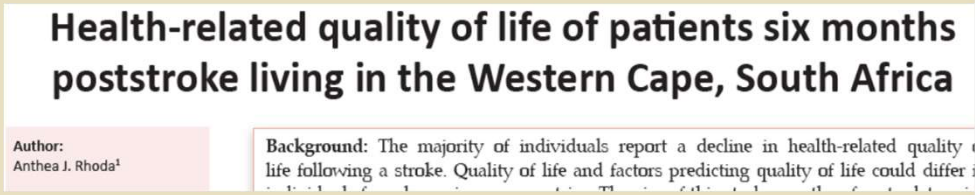
Problems experienced by stroke survivors

- Dependence with **walking** and **stair climbing** at discharge (Joseph & Rhoda 2013)


Activity limitations and factors influencing functional outcome of patients with stroke following rehabilitation at a specialised facility in the Western Cape

*Joseph C, Rhoda A

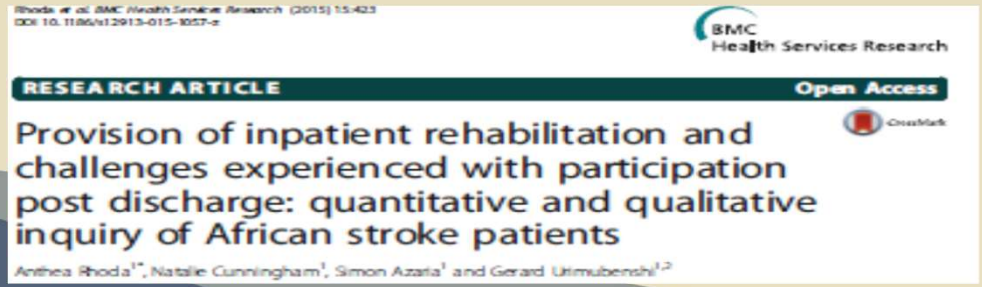
- Poor health related **quality of life** Rhoda (2014)


Health-related quality of life of patients six months poststroke living in the Western Cape, South Africa

Author:
Anthea J. Rhoda[1]

Background: The majority of individuals report a decline in health-related quality life following a stroke. Quality of life and factors predicting quality of life could differ

- Lack of **transport** and **terrains** that are not conducive to wheelchair use (Rhoda et al. 2015)


BMC Health Services Research

RESEARCH ARTICLE Open Access

Provision of inpatient rehabilitation and challenges experienced with participation post discharge: quantitative and qualitative inquiry of African stroke patients

Anthea Rhoda[1*], Natalie Cunningham[1], Simon Azaria[1] and Gerard Uitmulebenshi[1,2]

Problems experienced by stroke survivors...

Shack housing was associated with **poor functional** outcome (de Villiers et al. 2011) – Cape Town

Problems experienced by stroke survivors...

FACTORS AFFECTING POOR ATTENDANCE FOR OUTPATIENT PHYSIOTHERAPY BY PATIENTS DISCHARGED FROM MTHATHA GENERAL HOSPITAL WITH A STROKE

Almost 9 out of 10 stroke patients fail to attend for outpatient physiotherapy because of lack of finances.

is a major cause of disability in
adherence to physiotherapy
pression of data from
ment revealed
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patien...
and health cu...
Objective: *To dete...*
for poor attendance for ou...
Methods: *An observational des...*

Ntamo NP, MPH[1];
Buso D, MSc[2];
Longo-Mbenza B, PhD, DSc[3]

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...lu University.
...nion Professor,
...es, Walter Sisulu University.

African Journal of Disability
ISSN: (Online) 2226-7220, (Print) 2223-9170

AOSIS

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Stroke survivors' levels of community reintegration, quality of life, satisfaction with the physiotherapy services and the level of caregiver strain at community health centres within the Johannesburg area

Authors:
Adrian Kusambiza-Kiingi[1]
Douglas Maleka[2]
Veronica Ntsiea[1]

Affiliations:

Conclusion: Most stroke survivors are reintegrated into their communities except in the areas of work and education and have poor QOL and most of their caregivers are strained; however, they are satisfied with physiotherapy services.

Problems are similar in other countries

DISABILITY AND REHABILITATION, 2016
http://dx.doi.org/10.1080/09638288.2016.1219395

Taylor & Francis Group

ORIGINAL ARTICLE

Prevalence and impact of disability and sexual dysfunction on Health-Related Quality of Life of Nigerian stroke survivors

Olufemi O. Oyewole[a], Michael O. Ogunlana[b], Caleb A.O. Gbiri[c] and Kolawole S. Oritogun[d]

[a]Department of Physiotherapy, Olabisi Onabanjo University Teaching Hospital, Sagamu, Nigeria; [b]Department of Physiotherapy, Federal Medical Centre, Abeokuta, Nigeria; [c]Department of Physiotherapy, College of Medicine, University of Lagos, Lagos, Nigeria; [d]Department of Community Medicine and Primary Care, Olabisi Onabanjo University, OACHS, Sagamu, Nigeria

Miriam Mapulanga 2010 **The University of Zambia**

The results of the study show that stroke has considerable socioeconomic impact on households which can deter the victims' development as well as the household and the nation at large. With its impact on household, stroke victims were all willing to form a support group in Livingstone district.

Journal of Pediatric Neurology & Medicine

Ekeh, J Pediatr Neurol Med 2017, 2:3
DOI: 10.4172/2472-100X.1000128

Review Article Open Access

Challenges of the Management of Stroke in Sub Saharan Africa: Evaluating Awareness, Access and Action

Bertha Chioma Ekeh*

Department of Internal Medicine, University of Uyo Teaching Hospital, Nigeria

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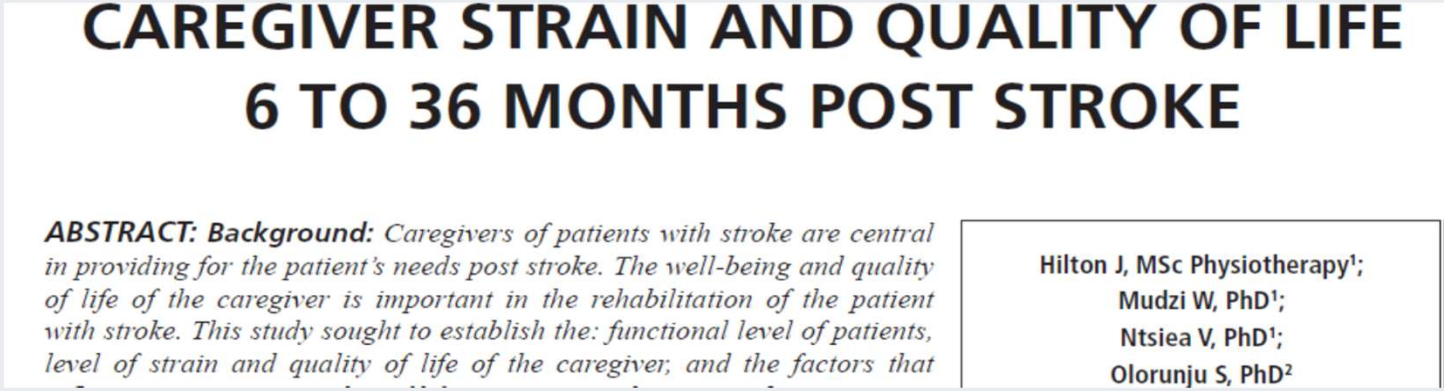
Results: We found few community-based studies. Most of the studies were hospital based. There were more studies on stroke mortality and risk factors in SSA. Few studies dealt with issues of access to stroke care. Most of the studies on stroke care showed that care is still mostly supportive. South Africa however had more stroke units and state of the art stroke care than other countries in SSA.

Caregiver problems

Problems experienced by caregivers

- **Strain and poor quality of life** (Hilton et al. 2013)



CAREGIVER STRAIN AND QUALITY OF LIFE
6 TO 36 MONTHS POST STROKE

ABSTRACT: ***Background:*** *Caregivers of patients with stroke are central in providing for the patient's needs post stroke. The well-being and quality of life of the caregiver is important in the rehabilitation of the patient with stroke. This study sought to establish the: functional level of patients, level of strain and quality of life of the caregiver, and the factors that*

Hilton J, MSc Physiotherapy[1];
Mudzi W, PhD[1];
Ntsiea V, PhD[1];
Olorunju S, PhD[2]

- Difficulties experienced by caregivers of patients who have aphasia are **compounded by communication problems**
  (Masuku et al. 2017: Masuku is one of the presenters today)

Summary of patient and caregiver problems

Patient

- Poor **walking** and **stair** climbing at discharge
- Poor **Quality of Life** (QoL)
- Poor **transport** access and **terrain** is rough
- No **Finances**

Caregiver

- Strain
- Poor QoL
- **Communication** problems or those with **aphasia**

Rehab Journey

Rehabilitation that meets all the needs of a stroke survivor

"a process of active change by which a person who has become disabled acquires the **knowledge and skills** needed for optimum **physical, psychological and social function**."

(British Society of Rehabilitation Medicine 2003)

During rehabilitation:

- Always distinguish between
  - ✓**Behavioural restitution** (spontaneous tissue repair)
  - ✓**Use of compensation strategies** (Bernhardt et al. 2017)

- The **first week until the first month** **post-stroke** is a critical time for neural plasticity (Krakauer et al. 2012)

Stroke rehabilitation services in South Africa

- Specific stroke management and rehabilitation **services vary between facilities** depending on availability of resources

Physiotherapy services offered at all phases of stroke recovery:

- Hyper acute (0-24 hours) - limited
- Acute (1-7 days)
- Early subacute (7days to 3 months)
- Late subacute (3-6 months) – limited
- Chronic stage (>6 months) - limited

- Intravenous thrombolytic therapy, recombinant tissue plasminogen activator **(tPA):** for acute ischaemic stroke within 4.5 hours (Bryer et al. 2010)

- Inpatient rehabilitation services generally focus on the **medical model approach** (impairments and activities) (Mji et al. 2013)

- **Functional independence** is not always reached at discharge

- The average **length of stay** in tertiary hospitals for a stroke survivor is six days (Mudzi, 2009)

- **Post discharge** rehabilitation services are **not satisfactory** (Transport and number of facilities)
- Most pts receive **out-patient physiotherapy sessions** which equate to a **median of 1.8 hours over a six-month period** (Rhoda, Mpofu & DeWeerdt 2009)
- Most pts are **discharged into family care** due to limited rehabilitation facilities (Wasserman, de Villiers, & Bryer 2009)
- Some communities have home based care services, but there is **poor referral and articulation** with these services (Mabunda, London & Pienaar 2017)
- Therapists are supposed to conduct home visits and follow up visits by **midlevel health workers** (Framework and strategy for disability and rehabilitation 2015-2020)

- **Some pts don't use given opportunity to attend outpatient** at the hospital or at primary health care clinics

- Reasons given for missing sessions:
  - ✓**Fear of losing jobs** (time off work for therapy sessions)
  - ✓Unavailability of transport,
  - ✓**Perception of poor services at primary health care clinics**

Mapipa, Wolvaardt, & Senkubuge (2016)

Hope for improved access to Rehabilitation

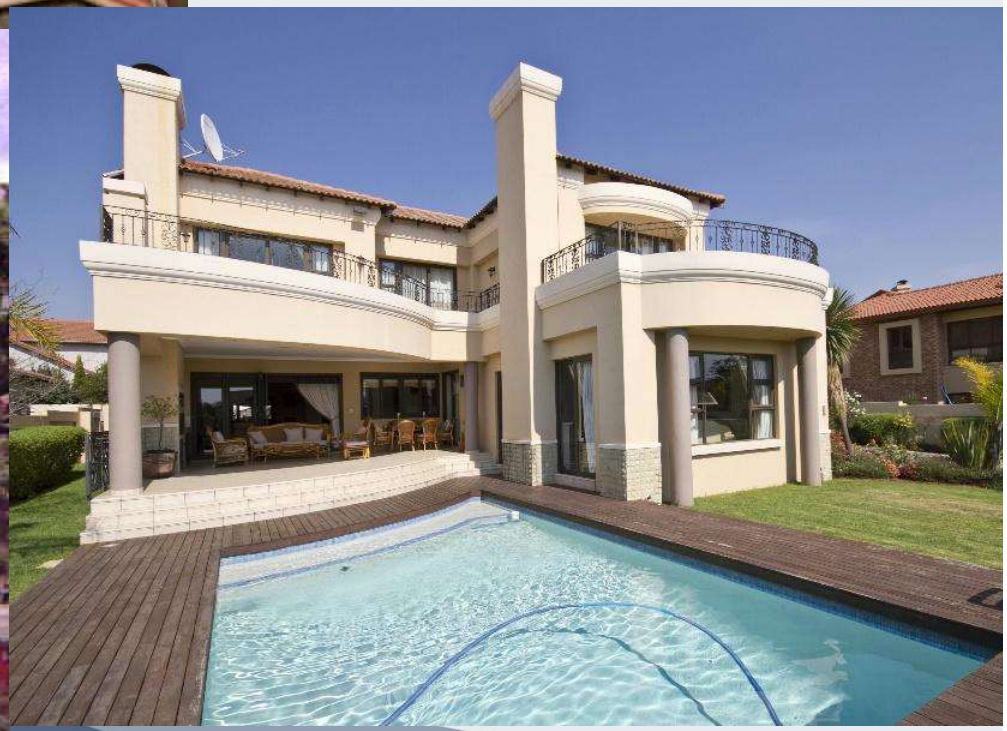
- **Access** to stroke rehabilitation services is **improving** in some communities (community service therapists)
- **More is expected** with the transformation of the South African health system towards universal coverage
- Inclusion of **stroke units in the SA guidelines** (Bryer et al. 2010)
- Working towards **clearly defined referral pathways** and **communication between rehabilitation team members** (including stroke survivor, carer, employer..)

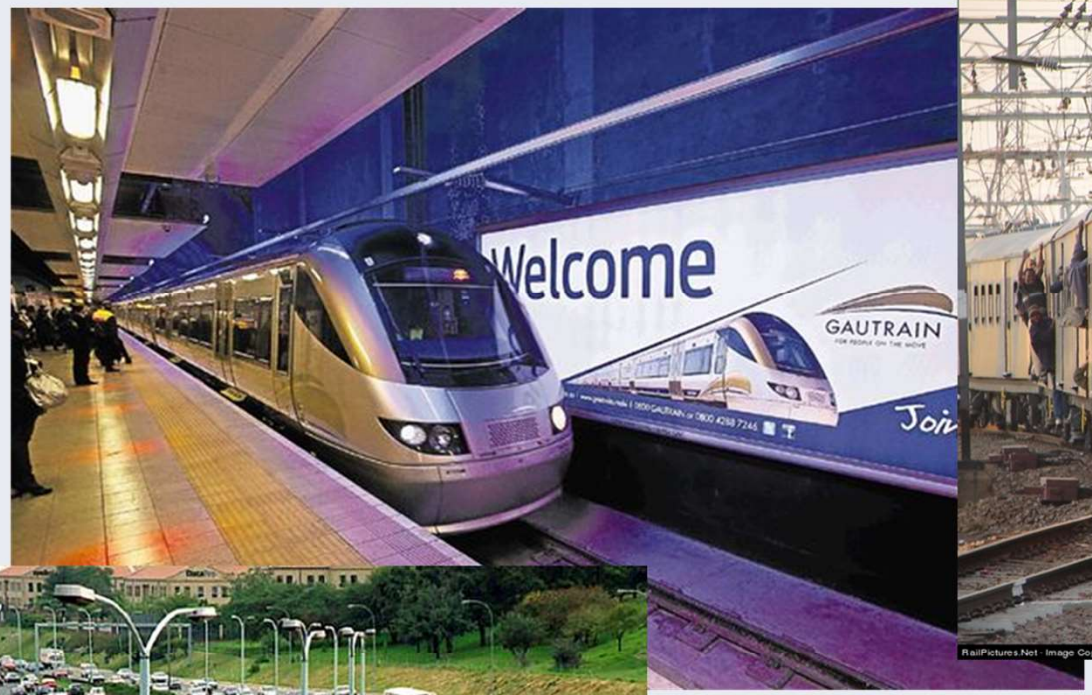
Stroke rehabilitation research (SA)

- There are more observational stroke rehabilitation studies (Describing impairments, activity and participation restrictions)

Let us remind ourselves of the context


2009/02/23





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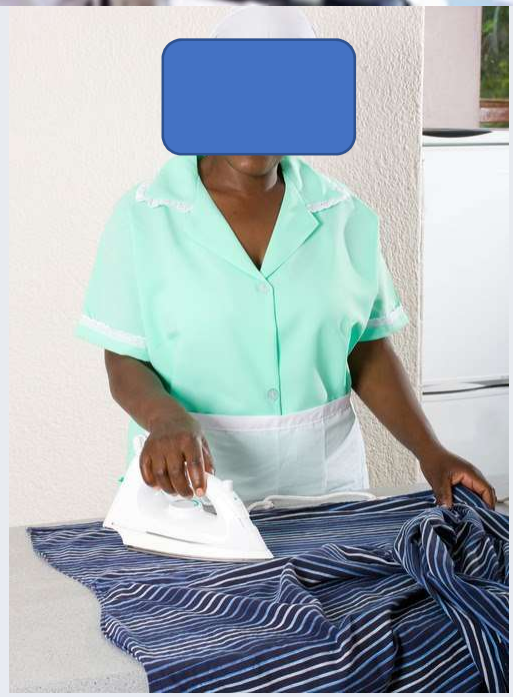

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Treatment approaches

Therapists should:

"use their **expert clinical reasoning** to select individualised, patient-centred, evidence-based physical treatment, with consideration of all available treatment components, and should **not limit their practice to a single "named" approach**."

Mix: neurophysiological/neurodevelopmental, functional task training or musculoskeletal approaches for the same patient - effective for recovery of function after stroke

(Pollock et al. 2014)

Intensity of treatment

- Intensity of rehabilitation **contributes more to functional recovery** than length of stay (Hu et al. 2010)
- Treatment sessions of **30-60 minutes, 5-7 days a week** may provide a significant beneficial effect (Pollock et al. 2014)
- In SA this **may not always be possible** to have daily Rx:
  - Shortage of **therapists** in the gvt hospital
  - **Transport** costs and accessibility if an outpatient

Patient directed activities increase intensity of rehabilitation (Trammel et al. 2016)

Patients are in **their bedroom 76%** of the time and **inactive 62% of the time** (Kimberley et al. 2010)

Article

CLINICAL REHABILITATION

Improving practice with integration of patient directed activity during inpatient rehabilitation

Clinical Rehabilitation
2017, Vol. 31(1) 3–10

DOI: 10.1177/0269215515625100
cre.sagepub.com
SAGE

Molly Trammell[1], Priyanka Kapoor[1], Chad Swank[1,2] and Simon Driver[1]

- Series of pilot trials on single patients of various functional levels and medical complexity to determine feasibility and development of activity grading and intensity
- Sketch gym maps with proposed activity locations to increase patient awareness and safety and protect space
- Limit activities to existing equipment or inexpensive equipment to ensure stewardship of resources (e.g. theraband, cuff weights, velcro, small objects for fine motor tasks)

Examples of SA stroke intervention studies

Shoulder strapping (Comley-White, Mudzi & Musenge 2018)

- Aim: to establish if longitudinal or circumferential strapping techniques would have an impact on tone, subluxation, motor function or pain

- Longitudinal shoulder strapping was more effective than circumferential in managing shoulder subluxation and pain

South African Journal of Physiotherapy
ISSN: (Online) 2410-8219, (Print) 0379-6175

AOSIS

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Effects of shoulder strapping in patients with stroke: A randomised control trial

Authors:
Nicolette Comley-White[1]
Witness Mudzi[1]
Eustasius Musenge[2]

Background: Disability post stroke remains a global problem, with upper limb involvement playing a key role. Shoulder strapping is one of the techniques used clinically to address this.

Objectives: To compare the effect of two shoulder strapping techniques in patients with stroke.

Balance re-education in a resource poor setting

(Puckree & Naidoo 2014)

Aim: To compare the effect of a balance and stability-focused outpatient **community-based rehabilitation** and a regular physiotherapy programme on balance, stability, and perceptions (acute stroke)

Example of activities:

Sitting upright with two feet on the ground and reaching for objects with upper limbs;

Kneeling to a half kneeling position and holding for 10 seconds (s); alternate both lower limbs;

Standing erect, flexion of both hips and knees (as if into squatting), hold for 10 s;

Standing on one leg and raising other leg to a stair; alternate both lower limbs;

Standing with two feet on the ground and reaching for objects with upper limbs .

Puckree, T., Naidoo, P., 2014, 'Balance and stability-focused exercise program improves stability and balance in patients after acute stroke in a resource-poor setting', PM&R 6(12), 1081-7. doi: 10.1016/j.pmrj.2014.06.008. https://www.pmrjournal.org/article/S1934-1482(14)00298-6/pdf


Original Research

CME

Balance and Stability—Focused Exercise Program Improves Stability and Balance in Patients After Acute Stroke in a Resource-poor Setting

Threethambal Puckree, PhD, Pooveshni Naidoo, MPhty

Task-orientated circuit gait training (Knox et al. 2018)

Aim: To evaluate a minimal dose intervention of **six** 1-hour sessions of task-oriented circuit gait training including a caregiver **over a 12-week period** to persons post stroke in the South African public health sector

A minimal dose task-oriented circuit training programme with caregiver help improved locomotor recovery and walking competency

Intervention

Circuit group with caregiver: task-oriented circuit gait training (to improve strength, balance, and task performance while standing and walking)

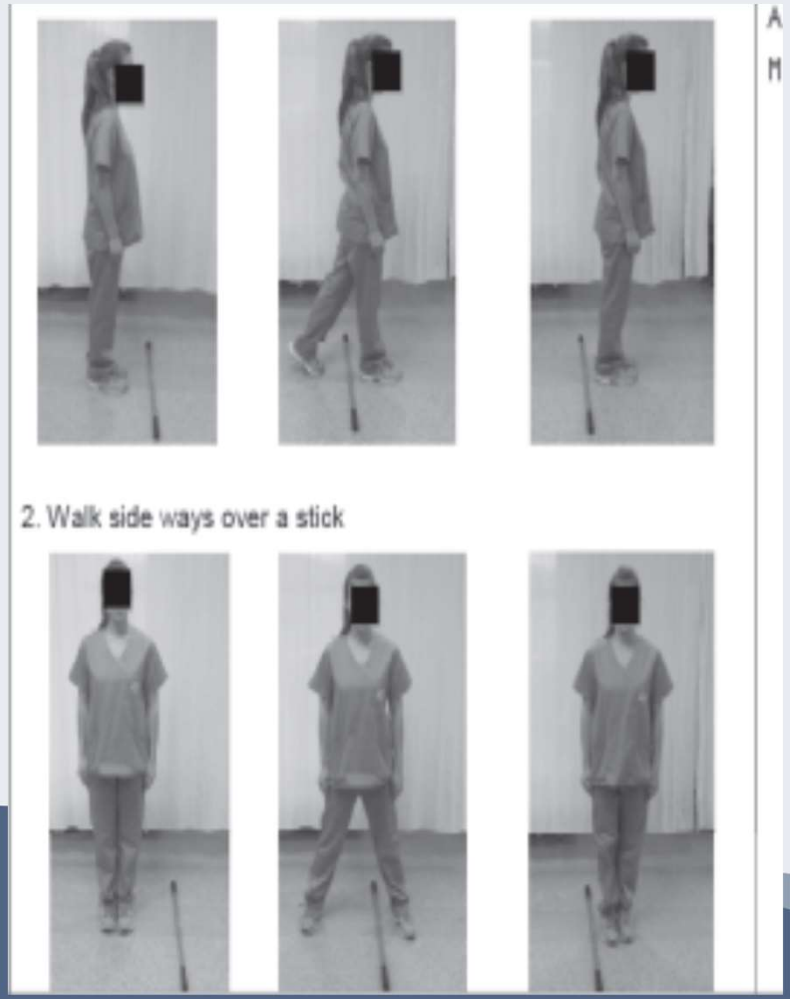
Strength group: strength training of lower extremities while sitting and lying

Control group: got one 90-minute educational session on stroke management.

Knox, M., Stewart, A., Richards, C.L., 2018, 'Six hours of task-oriented training optimizes walking competency post stroke: a randomized controlled trial in the public health-care system of South Africa', Clinical Rehabilitation 1:269215518763969. doi: 10.1177/0269215518763969.

Written and pictorial home exercise prescription

(Kara & Ntsiea 2015)



2. Walk side ways over a stick

Hand stretch	1.Sit with your hands on your lap	_____ Times Morning / Afternoon/ Night	
	2. Take your __ hand and place it on top of your __ hand		
	3. Use your _____ hand to open your fingers on your _____ hand		
	4. Stretch out the thumb		

Written and pictorial home exercise prescription

(Kara & Ntsiea 2015)

Aim: to determine the effect of a **written and pictorial home exercise** prescription on adherence to a home exercise programme

The addition of a written and pictorial home exercise prescription **did not lead to better adherence** to a home exercise programme.

The **use of a logbook** served as reminder and motivational track record for both groups

- Control group received a home exercise programme with verbal instructions
- Intervention group received the same but with additional written and pictorial instructions for the exercises
- An exercise logbook was used to monitor adherence.

Kara, S., Ntsiea, M.V., 2015, 'The effect of a written and pictorial home exercise prescription on adherence for people with stroke', Hong Kong Journal of Occupational Therapy 26, 33-41.

Saccadic eye movement training with visual scanning exercises (van Wyk, Eksteen & Rheeder 2014)

Aim : To determine the effect of saccadic eye movement training with visual scanning exercises (VSEs) integrated with task-specific activities on **unilateral spatial neglect poststroke**.

van Wyk, A., Eksteen, C.A., Rheeder, P., 2014, 'The effect of visual scanning exercises integrated into physiotherapy in patients with unilateral spatial neglect poststroke: a matched-pair randomized control trial', Neurorehabil Neural Repair 28(9), 856-73. doi: 10.1177/1545968314526306.

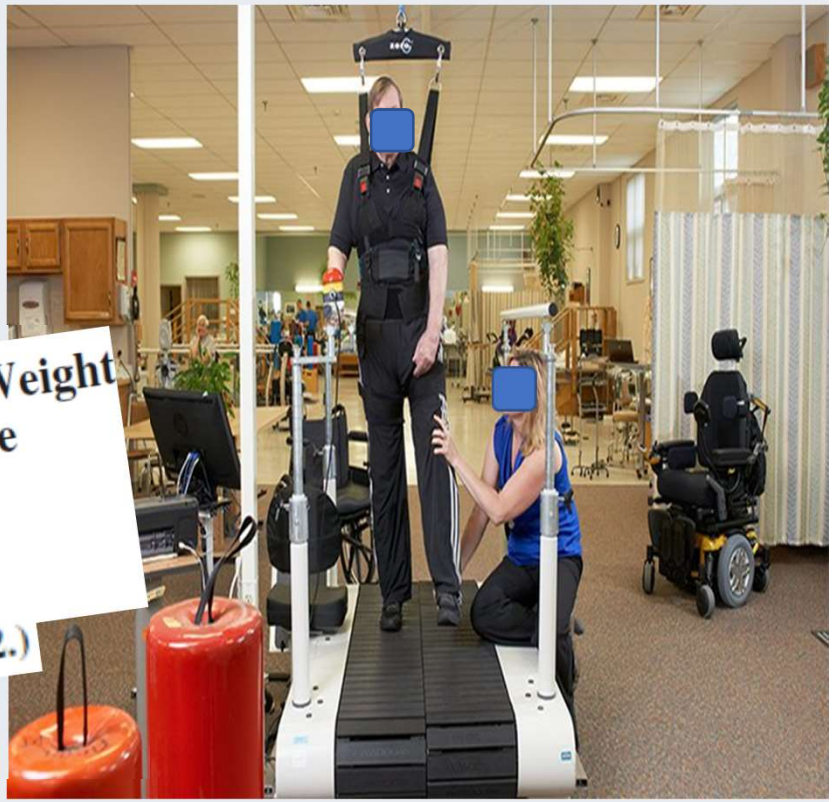
Return to work after stroke (Ntsiea et al. 2015)

- A **multidisciplinary** randomised controlled trial in Gauteng
- To determine the **effect of a workplace intervention programme on the rate of return to work** of previously employed stroke survivors
- Six weeks workplace intervention programme: tailored according to functional ability and workplace challenges of each stroke survivor
- **Week 1 (Assessment), Week 2-6 (Work visits) ?Feasibility**
- Intervention was effective in facilitating return to work

Ntsiea, M.V., Van Aswegen, H., Lord, S., Olorunju, S., 2015, 'The effect of a workplace intervention programme on return to work after stroke: A randomised controlled trial', Clinical Rehabilitation 29 (7), 663 – 73.

No treadmill walking studies in SA

Treadmill walking **with** body weight support (**BWS**) **improves walking** speed for patients who **cannot** walk
(Ada et al. 2010 a,b)



Randomized Trial of Treadmill Walking With Body Weight Support to Establish Walking in Subacute Stroke

The MOBILISE Trial

Louise Ada, PhD; Catherine M. Dean, PhD; Meg E. Morris, PhD; Judy M. Simpson, PhD; Pesi Katrak, MD

(*Stroke*. 2010;41:1237-1242.)

Mechanically assisted walking with body weight support results in more independent walking than assisted overground walking in non-ambulatory patients early after stroke: a systematic review

Journal of Physiotherapy 56: 153-161

Louise Ada, Catherine M Dean, Janine Vargas and Samantha Ennis

The University of Sydney, Australia

Over ground walking or treadmill walking **without BWS** is recommended for patients who are **already walking**
(Polese et al. 2013)

Treadmill training is effective for ambulatory adults with stroke: a systematic review

Journal of Physiotherapy 59: 73–80

Janaine C Polese[1,2], Louise Ada[1], Catherine M Dean[3], Lucas R Nascimento[1,2] and Luci F Teixeira-Salmela[2]

[1]*Discipline of Physiotherapy, The University of Sydney, Australia,* [2]*Discipline of Physiotherapy, Universidade Federal de Minas Gerais, Brazil,* [3]*Department of Health Professions, Macquarie University, Australia*

↑ walking speed and distance

Conclusion

- ✓Impairments, activity and participation restrictions **observational studies – well covered**

- ✓We **need more SA** stoke rehabilitation **intervention studies**

  Examples: to test effectiveness of interventions when:

  - ✓Using modified **CIMT**
  - ✓Less therapy sessions
  - ✓Incorporating **more home exercise** using items that can be found in most households
  - ✓Using technology (telemedicine**, virtual reality**)
  - ✓**Self directed activities**/programmes
  - ✓Secondary prevention

- ✓Do we need a **central repository** of titles of completed and ongoing studies to avoid repetition?

Conclusion

- Use 'expert clinical reasoning' to have a balance between **treatment approaches/theories**?
- Pay **attention to the barriers that hinder the full social integration** of the patient **including return to work**?
- We need to continue playing an **advocacy role** for our pts (Rehabilitation beds/home visits/RTW)

- Assess the patient using standardized outcome measures

NB! Ax - Collecting data may be a waste of resources at times *IF*:

- ✓Assessment **does not add anything** to the process of rehabilitation (not influencing any actions or decisions)
- ✓'Routine' testing: **collecting more data than needed** to achieve the purpose
- ✓E.g. Using Functional Independence Measure (**resource intensive global measure**) when information required can be collected by a simple Barthel ADL Index (Houlden et a 2006)
- ✓Results in lost opportunity for more therapy or other activities.

Editorial by Derick Wade (2009): Clinical Rehabilitation Journal Editor

Where to from now? Easy usual care or challenge status quo (Post discharge rehabilitation, Midlevel workers, Stroke Units…)


THANK YOU :)