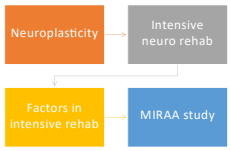
Intensive Aphasia rehabilitation

Marika Schütz, Leg logoped, MSc, PhD Uppsala universitet

1

Road map lecture



2

Evidence for aphasia rehab

- Aphasia rehab works **but must be intensive** to be effective

(Cochrane review, Brady et al., 2016)

- Intensive treatment improvements in **both verbal communication and communicative quality of life**

(Berthier & Pulvermüller, 2011; Bhogal et al., 2003; Brady et al., 2016; Breitenstein et al., 2017; Dignam et al., 2016;)

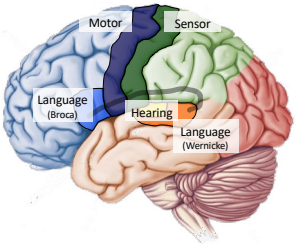
- Aphasia rehab distributed on **5 days of training per week, in total 50 h**, give the largest effect on language function and functional communication meta data from 25 larger studies, n= 959. (RELEASE, 2022)

3

Anatomical structures

Left hemisphere dominant for language





BUT…

4

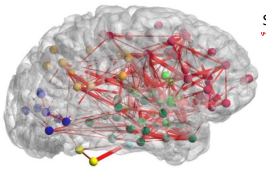
Functional networks



Salience Network
"Traffic controller"



Default mode network (DMN)
"Day dreamer"





Language Network
"The talker"

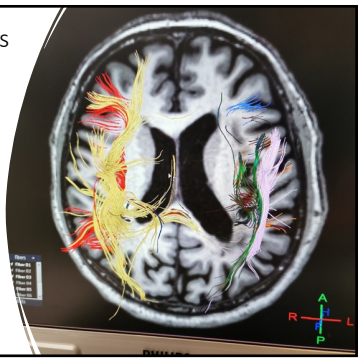
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Can we see differences in the brain after 2-3 weeks of rehab?

Yes!

Increased density

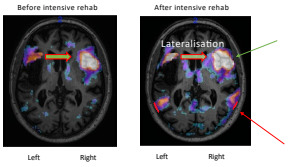
Increased connectivity



6

Increased connectivity and density





Increased connectivity – More communication between the hemispheres and different areas

Increased density – more voxels

ROI Left Insula (injury)

7

10 principles for neuroplasticity

Use it or lose it	Use it and improve it	Specificity	Repetition matters
Intensity matters	Time matters	Salience matters	Age Matters
	Transference or Generalization	Interference	

Kleim & Jones (2008); Kiran & Thompson (2019)

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Neuroplasticity - changes neuro rehab

CI-therapy (Constraint induced)

Training of the weak side

Intensive, many repetitions

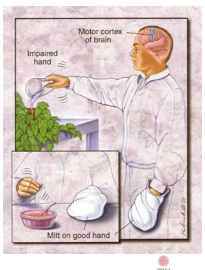
Goal centred

Personalised

Use it or lose it

Use it and improve it

Taub, Uswatte & Pidikiti (1999)



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Neuro rehab for aphasia

CIAT
(Constraint-induced aphasia therapy)

- Support spoken language
- Game format
- Intensive
- Many repetitions
- Small group, 3-4 pers

Pulvermüller et al. (2001)



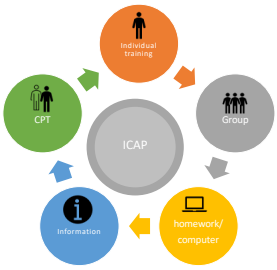
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Intensive Comprehensive Aphasia Programs
ICAPs

INTENSIVE
4-20 hour /week

COMPREHENSIVE
Individual
Group
Information
Computer

(Rose et al. 2013)



APHASIA
Language
Communication

PROGRAM
A cohort of patients
Goal driven
Individualised

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Big CACTUS
(computerized aphasia therapy)

> 4 months post stroke. 3 arms:
- Rehabilitation
- Rehabilitation + home training with computer
- Rehabilitation + attention training

- Naming improved, but functional communication didn't improve

Compared to the other two groups

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Timing

Acute phase

- Animal studies, neuro plasticity

Early rehab favorable



- But more intensive aphasia rehabilitation in the acute phase does not result in increased functional improvement!

RATS-3 (Nouwens et al., 2013) (n=152) + VERSE (Godecke et al., 2021) (n=246)

But patients are different, optimal dosage not known

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Timing

Chronic phase

Increased rehabilitation brings more improvements

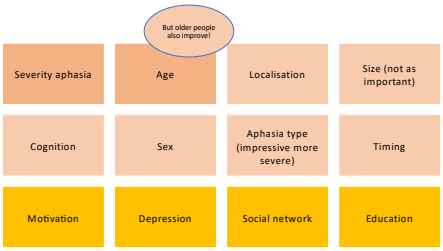


At least half of all people with aphasia can improve many years after stroke (Johnson et al., 2019).

25% risk serious cognitive impairment

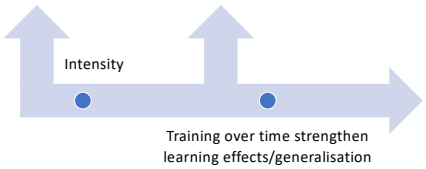
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Important factors aphasia rehab



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Intensity and learning effects



Training over time strengthen learning effects/generalisation

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What is enough repetition?

- 400 repetitions for 3 hours
- 160 repetitions / session
- 40 repetitions / session

More studies are needed

Dignam JK, Rodriguez AD, Copland DA. Evidence for intensive aphasia therapy: consideration of theories from neuroscience and cognitive psychology. PMR. (2016) 8:254–67

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National guidelines for stroke
Aphasia rehab after stroke (2018, uppdated 2020)

Prio 3

Intensive rehab (>4 h weekly)

Communication partner training

Socialstyrelsen

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But…

- People with aphasia doesn't receive enough rehab
- The care is unequally distributed
- Almost no SLPs in primary care and community care

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Participants in the MIRAA-study

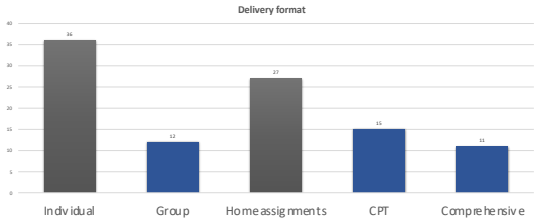
- 40 SLPs (14)
- People with aphasia/Apraxia of speech
- Next of kin

Goal level 60 hours for 6 weeks
ICAP-format
The clinics designed the schedule



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How do SLPs deliver rehab general care



21

Perceived barriers

(1) understaffing

(2) patient factors

(3) teamwork/scheduling

(4) prioritization

(5) Accessibility

Large variations in intensive speech-language rehabilitation post stroke –descriptions of practices, and perceptions of barriers and enablers from 26 clinics in Sweden
(Schütz et al., 2024)

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Suggested enablers for increasing intensive rehabilitation

(1) Increase staffing and financial compensation

(2) Implement pre-planned rehabilitation programs

(3) Use a comprehensive rehabilitation approach

Large variations in intensive speech-language rehabilitation post stroke – descriptions of practices, and perceptions of barriers and enablers from 26 clinics in Sweden
(Schütz et al., 2024)

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Barriers to intensive rehabilitation

SLPs often perceive different person-level factors as barriers

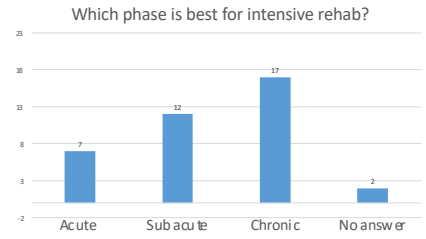
- Chronicity of the aphasia
- Motivation
- Health status and comorbidities
- Fatigue
- Cognition and insight
- Readiness for rehabilitation,
- Family support

(Babbitt et al., 2013; Monnelly et al., 2023, Schütz et al., 2024 Shrubsole et al., 2023; Trebilcock et al., 2019)

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Questionnaire after intervention, patients

Results



It's fun and hard work – and we want more! Exploring patients' experiences from a modified intensive comprehensive aphasia program using mixed method design, Schütz et al, in manuscript

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Comparison SLPs - patients

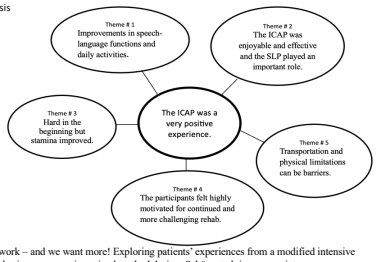
	SLPs	Patients
Goal setting	Hard	Set together with SLP
Improvements	Yes	Yes
Intervention	It is fun	It is fun
Fatigue	is a big barrier	is not a barrier
Barriers	Many big barriers	Minor barriers
More rehab	Shorter periods	Longer periods

It's fun and hard work – and we want more! Exploring patients' experiences from a modified intensive comprehensive aphasia program using mixed method design, Schütz et al, in manuscript

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It's fun and hard work – and we want more! Exploring patients' experiences from a modified intensive comprehensive aphasia program using mixed method design

Thematic analysis



It's fun and hard work – and we want more! Exploring patients' experiences from a modified intensive comprehensive aphasia program using mixed method design, Schütz et al, in manuscript

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Resources online

- Center for Study of Aphasia Recovery (C-STAR) https://cstar.sc.edu
- Centre of Research Excellence in Aphasia Recovery and Rehabilitation https://www.youtube.com/@aphasiacre
- CATs Collaboration of Aphasia triallists https://www.aphasiatrials.org
- Pathways - Best practice for aphasia services across the continuum of care https://www.aphasiapathway.com.au

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