

**Effects of rhythmic-melodic voice training SIPARI®
on language and speech motor capabilities, and associated
reorganization in patients with chronic aphasia and apraxia of speech**

M. Jungblut, C. Mais, A. Schüppen, W. Huber, F. Binkofski



IZKF Aachen
Brain Imaging Facility

UNIKLINIK
RWTHAACHEN



- **S** singing
- **I** intonation
- **P** prosody
- **A** Atmung (breathing)
- **R** rhythm
- **I** improvisation

www.SIPARI.com

In 2010

**a controlled clinical SIPARI®- study
was included in a Cochrane Review.**

Summary of main results:

***“The results of one trial (Jungblut and Aldridge, 2004)
indicated that SIPARI®, a rhythmic-melodic voice training
technique, significantly improved the speech profile of people
with chronic aphasia” (Bradt et al., 2010, p.10).***

Bradt, J. et al. (2010): Music therapy for acquired brain injury
[Review], Cochrane Database of Systematic Reviews, 7. 1-42.



Treatment objectives

encouragement of planning, programming,
and sequencing capabilities
as the basis of
improvement of speech-motor processes as well as
speech-systematic processes



Jungblut, M., Huber, W., Pustelniak, M., Schnitker, R. (2012): The impact of rhythm complexity on brain activation during simple singing - an event-related fMRI study. *Restorative Neurology and Neuroscience*, 30 (1), 39-53.

Apraxia of speech is characterised by:

difficulties in **temporal coordination or sequencing**
of speech movements
resulting in

- temporal and prosodic distortions
- distortion of consonant and vowel segments
- slowed speech with visible
and audible groping

Definition:

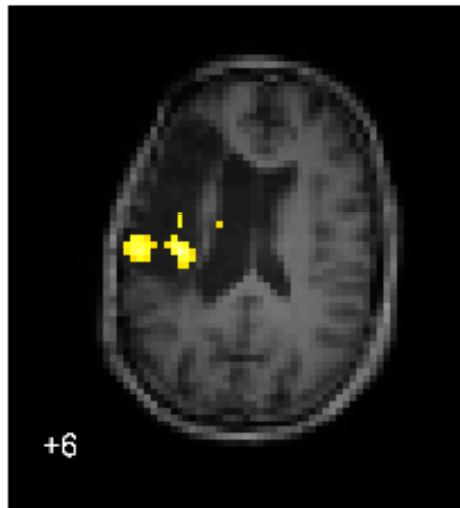
„ apraxia of speech“

deficit in motor planning or programming of speech movements...

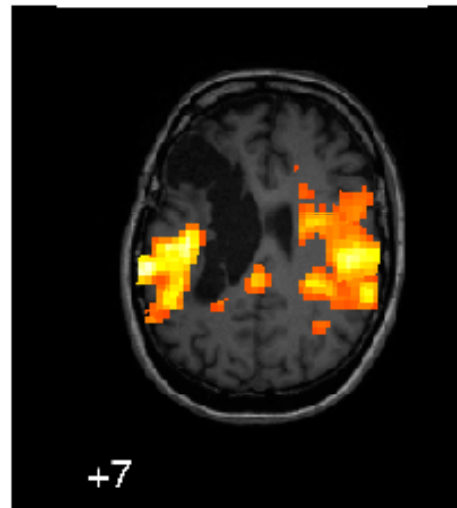
...affecting the translation of an intact phonological representation of a message into the phonetic-motoric representation prior to execution by the articulators

(McNeil et al., 1997; Van der Merwe, 1997; Brendel and Ziegler, 2008)

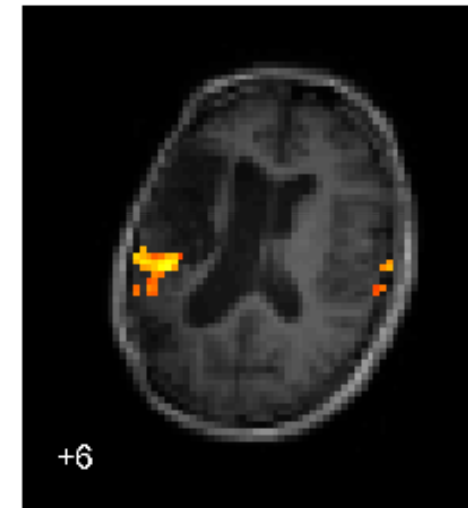
Condition (1)



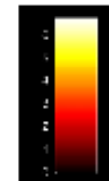
Mr. U.



Mrs. A.



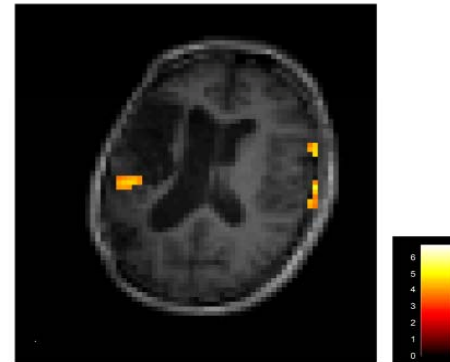
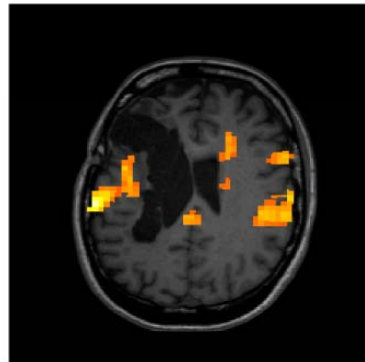
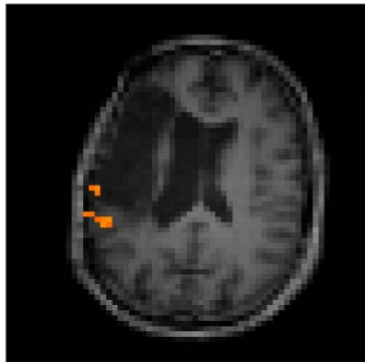
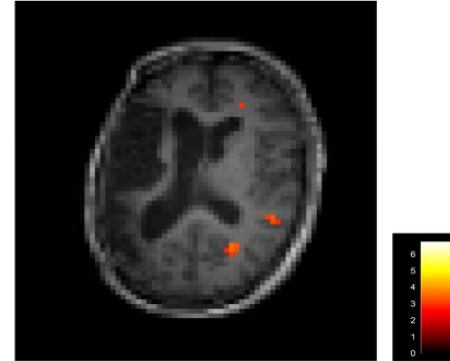
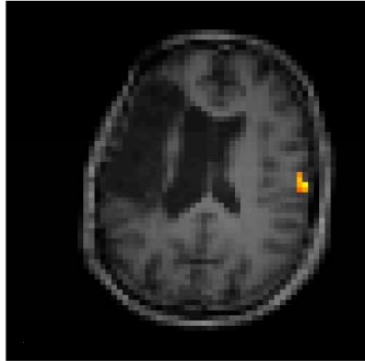
Mr. H.



Jungblut, M, Huber, W., Mais, Ch., Schnitker, R. (2014):

Paving the way for speech: Voice-training-induced plasticity in chronic aphasia and apraxia of speech – three single cases. *Neural Plasticity* Article ID 841982, 14 pages, <http://dx.doi.org/10.1155/2014/841982>

Condition (2)



Mr. U.

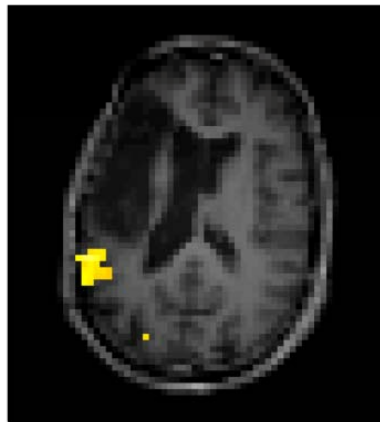
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ID 841982, 14 pages, <http://dx.doi.org/10.1155/2014/841982>



Condition (3)



Mr. U.

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Procedure

SIPARI[®] therapy (10 patients)

specific speech therapy (10 patients)

- treatment duration: 4 months (2 single therapy sessions per week)
- pre- and post-therapy assessments:
 - AAT
 - Diagnostic assessment of spontaneous speech (focus on articulatory and prosodic capabilities) as well as rhythmic and melodic capabilities
 - analyses of vocal production
 - fMRI paradigm (Jungblut et al., 2012, 2014)



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Inclusion criteria

- patients with chronic nonfluent aphasia and apraxia of speech
- duration of aphasia: 1-7 years
- right-handed
- German-speaking
- age (max. 70 years)

Research questions

- Will the reported effects also be evident in a larger group of patients?
- Does a diagnostic assessment of spontaneous speech, which specifically assesses articulatory and prosodic capabilities serve to get further findings, which might be important with regard to directed therapy interventions for patients with concomitant AOS?

Research questions

- Will changes in language and motor speech performance also correlate with changes in brain activation, as the results of our previous research suggest?
- How do results of cognitive tests and imaging data differ in both groups?



Many thanks for your
attention!

