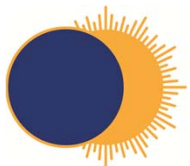


‘You’re once, twice, three times
stepping’- Music Therapy and
Physiotherapy Working in Tandem
for Gait Rehabilitation
11.05.2017

Taryn Holman tholman@rhn.org.uk
Helen Lane hlane@rhn.org.uk



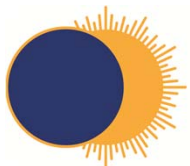
Royal Hospital for Neuro-disability

A national medical charity

01.11.2016

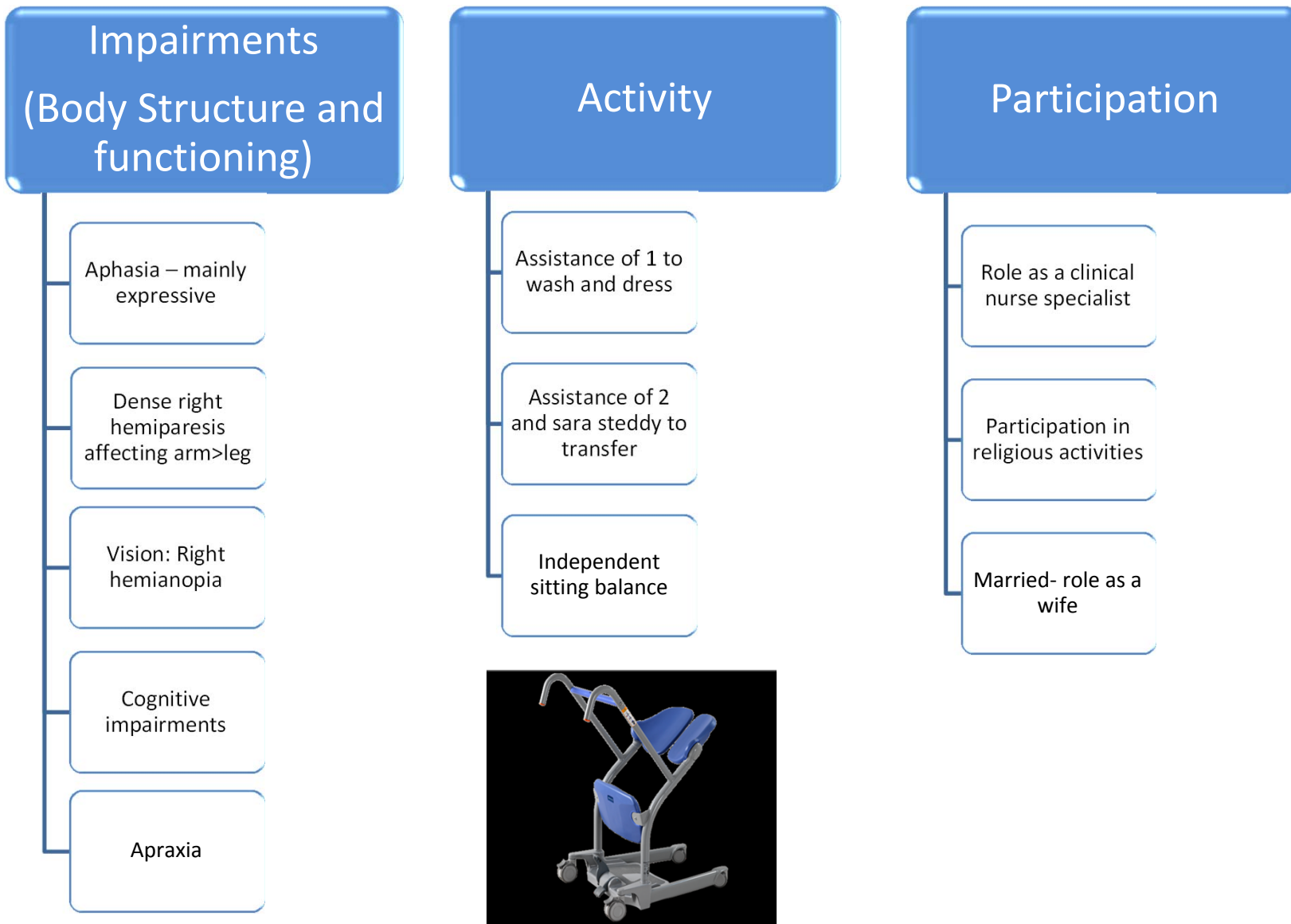
Background

- 51 year old female
- Clinical Nurse Specialist
- Left MCA stroke May 2016
- Admitted to The Royal Hospital for Neuro-disability August 2016



Royal Hospital for Neuro-disability

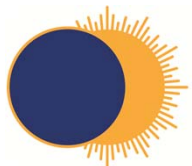
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Referral to Music Therapy



- Primary focus upon speech and expression
- Melodic Intonation Therapy:
 - Expressive aphasia
 - Good comprehension
- Rhythmic and melodic shaping
- Step wise progression
- Functional use of phrase



Linking

Positive
response to
Melodic
Intonation
Therapy



Positive
response in
physical
rehabilitation?



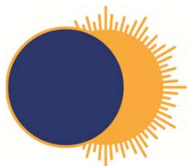
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Gait Impairments

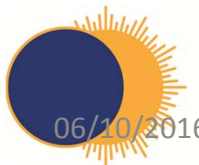


- Lacking symmetry in gait pattern
- Formal muscle testing- flickers of activity right lower limb
- Reduced stance phase right lower limb
- Unable to initiate swing with right lower limb
- Reduced step length and cadence



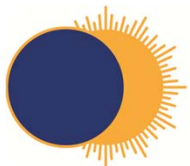
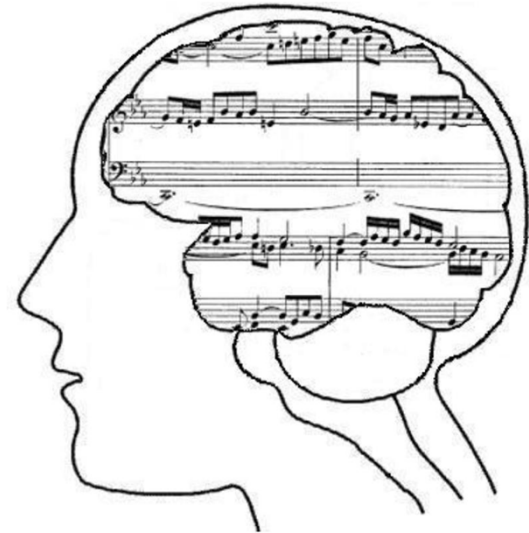
Neurologic Music Therapy (NMT)

- *'The therapeutic application of music to cognitive, sensory and motor dysfunction due to neurologic disease of the human nervous system'*
- Techniques are directed towards functional therapeutic goals
(Thaut 1999)



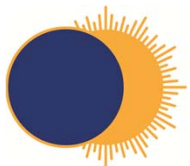
Neurologic Music Therapy

- 19 standardised techniques (NMT)
 - Sensorimotor
 - Speech and language
 - Cognition
- Intensive training course



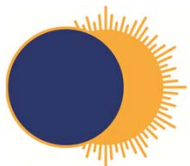
The Technique

- Sensorimotor realm
- Patterned Sensory Enhancement (PSE)
- External temporal cueing through music



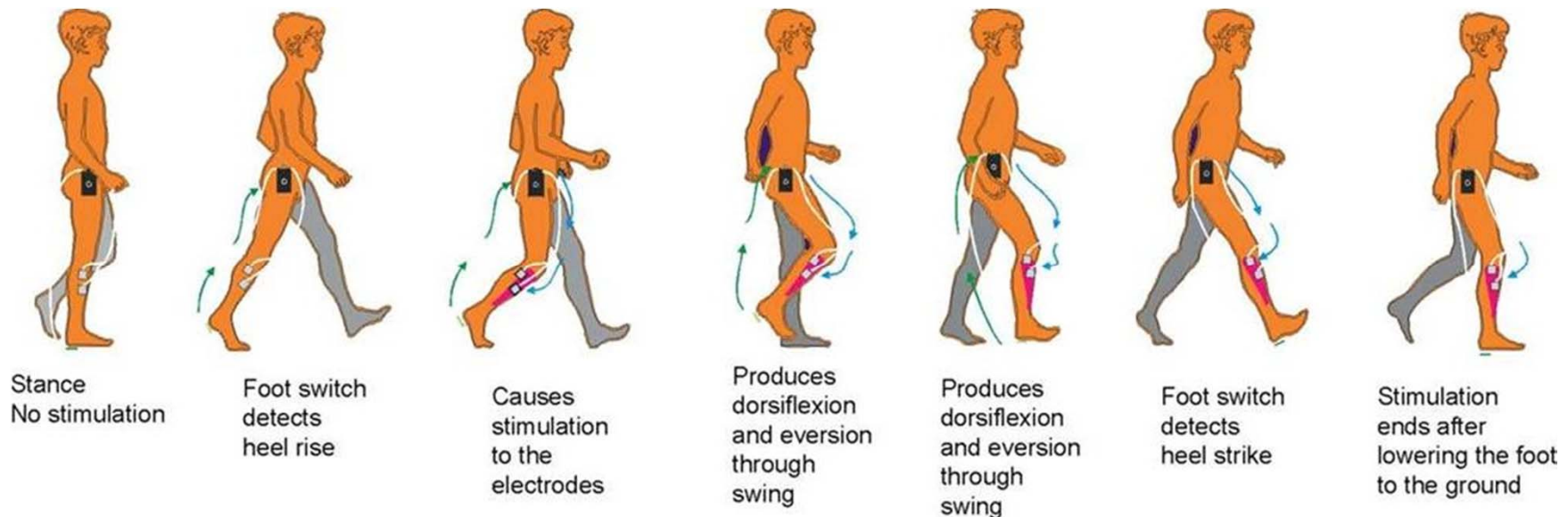
PSE Elements

- Metronome
- Meter and melody
- Sung cues



Sessions

- Joint sessions with music therapy & physio
- Partial body weight support (PBWS) gait training + FES
- Aquatic Therapy, motormed bike, plinth based exercises (+/- FES), treadmill training



Phase 1: Weight transfers

Music Therapy

- Improvised 2/4 melody
- Dominant to tonic
- Simple and repetitive
- Sung cues

Physiotherapy

- Improving stance stability
- + / - FES glutes
- With and without use of partial body weight support
- Additional gym sessions



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Video 1 forward and back.wmv



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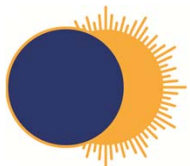
Phase 2: Partial bodyweight supported walking

■ Music Therapy

- Adapted familiar song introduced
- Metronome baseline
- Waltz meter (3/4) → March (2/4)
- Sung cues
- Lyrics

■ Physiotherapy

- Improving stance stability
- + / - FES glutes
- Improving swing phase right leg
- Reduced manual handling for therapists



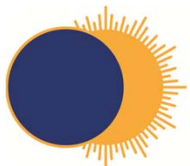
Phase 3: Walking with support of two

■ Music Therapy

- Flexible meters
- Familiar song
- Therapist modelling

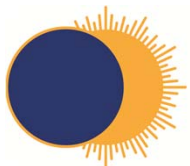
■ Physiotherapy

- Remained challenging
- Various orthoses trialled to support right stance phase and ankle stability / dorsiflexion

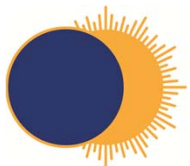
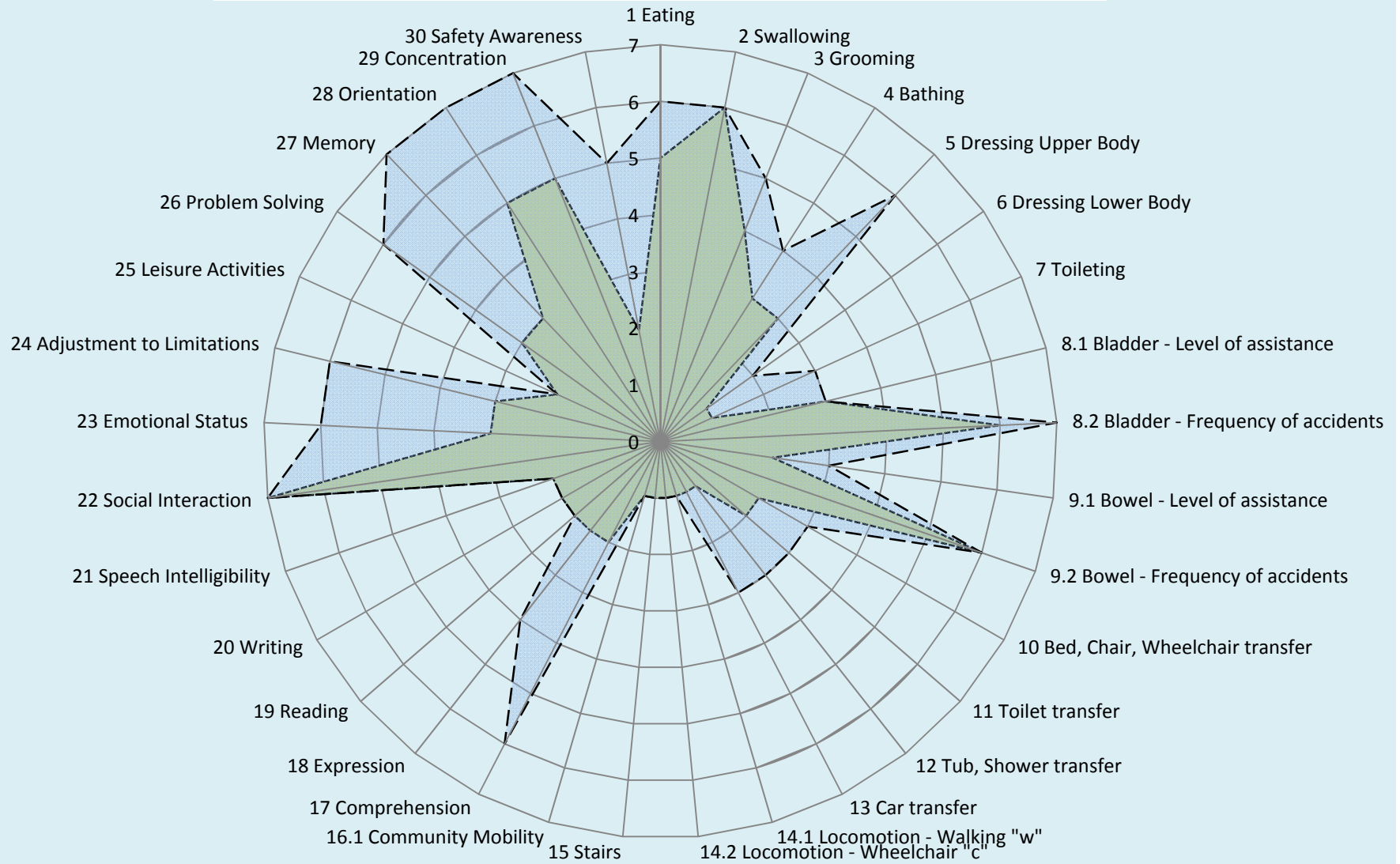


Outcomes & Reflections

- Formal outcomes
- With music versus without in sessions
- Endurance
- Fluidity- swing phase
- Patient goal
- Strength
- Treadmill
- Therapist load
- Mood and motivation



■ Admission ■ Goal ■ Discharge ■ CAG ■ CAG Evaluation



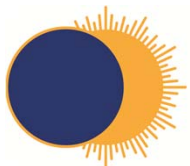
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-



References

PSE / Neurologic Music Therapy

- Thaut, M (1999) Training Manual for Neurologic Music Therapy Training Institute
- Bukowska et al. *Neurologic Music Therapy Training for Mobility and Stability Rehabilitation with Parkinson's Disease – A Pilot Study*. [Front Hum Neurosci](#). 2015; 9: 710.
- Yoon-Kyum Shin et al. *Effect of Rhythmic Auditory Stimulation on Hemiplegic Gait Patterns*. *Yonsei Medical Journal*. 2015; 56 (6): 1703-1713

Partial Body Weight Support

