Principles of Evidence-Based Oral Motor Interventions for Children

Dr Katherine Sanchez

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About me

- Speech pathologist in private practice
- PhD, research, teaching
- Pediatric Medical Editor for the Informed SLP
- Mum of two



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Contents

- Context
- F-words of Childhood Disability
- Neural Plasticity and Motor Learning
- Case Study Examples

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CONTEXT

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Context

- SLTs work with children with oropharyngeal motor feeding challenges including:
  - Autistic children
  - Children with CP and ABI
  - Children with genetic syndromes

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CONTEXT

Authors' conclusions

The review demonstrates that there is currently insufficient high-quality evidence from randomised controlled trials or quasi-randomised controlled trials to provide conclusive results about the effectiveness of any particular type of oral-motor therapy for children with neurological impairment. There is an urgent need for larger-scale (appropriately statistically powered), randomised trials to evaluate the efficacy of interventions for oropharyngeal dysphagia.

INTERPRETATION Based on the results of this evidence-based systematic review, there is insufficient evidence to determine the effects of OME on children with oral sensorimotor deficits and swallowing problems. Well-designed studies are needed to provide clinicians with evidence that can be incorporated into the preferences of the client and the clinicians' knowledge of anatomy, physiology, and neurodevelopment in the management of this group of children.

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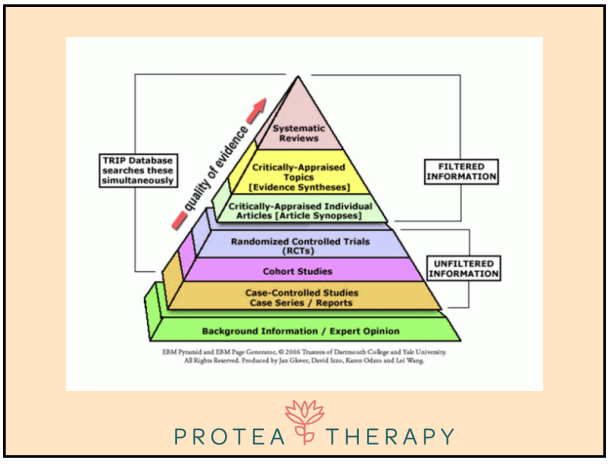
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Context
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TRIP Database searches these simultaneously
quality of evidence
Systematic Reviews
Critically-Appraised Topics [Evidence Syntheses]
Critically-Appraised Individual Articles [Article Synopses]
Randomized Controlled Trials (RCTs)
Cohort Studies
Case-Controlled Studies Case Series / Reports
Background Information / Expert Opinion
FILTERED INFORMATION
UNFILTERED INFORMATION
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F-WORDS OF CHILDHOOD DISABILITY

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F-words

Child: care, health and development

Review Article

The 'F-words' in childhood disability: I swear this is how we should think!

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Abstract

The 21st century is witnessing a sea change in our thinking about 'disability.' Nowhere are these developments more apparent than in the field of childhood disability, where traditional biomedical concepts are being incorporated into – but expanded considerably by – new ways of formulating ideas about children, child development, social-ecological forces in the lives of children with chronic conditions and their families, and 'points of entry' for professionals to be helpful. In this paper, we have tried to package a set of ideas, grounded in the World Health Organization's International Classification of Functioning, Disability and Health (the ICF), into a series of what we have called 'F-words' in child neurodisability – function, family, fitness, fun, friends and future. We hope this will be an appealing way for people to incorporate these concepts into every aspect of clinical service, research and advocacy regarding disabled children and their families.

Introduction

illness after treatment. In this way of thinking, we work towards 'fixing' (one of the 'F-words' traditionally used in childhood

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F-words

~~• Fix~~



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PRINCIPLES OF NEURAL PLASTICITY AND MOTOR LEARNING

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Neural Plasticity and Motor Learning

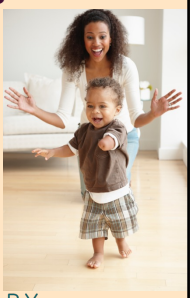
- NP: The ability of the CNS to change, structurally and functionally, in response to stimuli
- ML: The process by which people learn new movement skills

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Principles of Neural Plasticity and Motor Learning

- The conditions under which CNS change and the learning of new movement skills become more efficient and effective

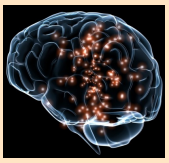


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Principles of Experience-Dependent Neural Plasticity

1. Use it or lose it
2. Use it and improve it
3. **Salience**
4. **Repetition**
5. **Intensity**



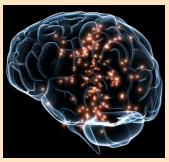
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Principles of Experience-Dependent Neural Plasticity

6. Specificity
7. Age
8. Time
9. Transference
10. Interference



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Principles of Motor Learning

Pre-practice:

- **Motivation**
- Verbal information
- Modelling



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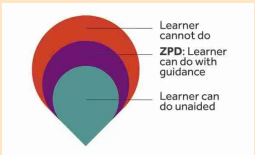
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Principles of Motor Learning

Conditions of practice

- **Motivation**
- Attention
- Goal complexity
- Implicit learning
- Variability



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Principles of Motor Learning

Conditions of practice

- Rehearsal strategies (e.g. simulation, fractionalisation, segmentation, *simplification*)
- Feedback
  - *Intermittent* vs constant
  - *Delayed* vs immediate
  - *Knowledge of result* vs knowledge of performance
  - *Intrinsic* vs extrinsic

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Principles of Motor Learning

Conditions of practice (schedule)

- **Repetitive**
- Massed vs distributed
- Blocked vs random



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Often our job may not be to TEACH motor skills, but to create the ideal conditions for our clients to LEARN motor skills.



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Jasmine

- 11 months old
- Complex cardiac history plus developmental delays
- 6x 210mL bottles/24 hours
- Parents spoon-feed purees once a day after her breakfast bottle, but she mostly spits it out
- Gagged with any increased texture so parents have stopped offering

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Jasmine

- Use it or lose it
- Use it and improve it
- Repetition
- Intensity
- Time
- Motivation
- Implicit learning
- Goal complexity and simplification





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Yusuf

- 2 years old
- Genetic condition affecting development
- Mostly having purees; some dissolvables and soft lumps but doesn't chew
- Parents found an online guide and are doing a range of chewing exercises with non-food items

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Yusuf

- Salience
- Specificity
- Implicit learning
- Motivation
- Modelling
- Goal complexity and simplification







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Ezra

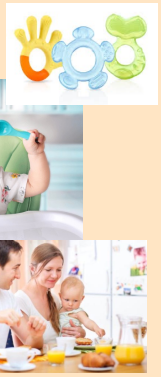
- 8 months old
- Long history of poor feeding, irritability and respiratory compromise
- VFSS showed frank aspiration on all consistencies
- Currently NPO
- Awaiting posterior fossa decompression surgery for Chiari malformation

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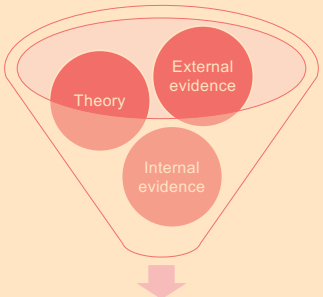
Ezra

- Use it or lose it
- Use it and improve it
- Age
- Time
- Transference
- Pre-practice (motivation and modelling)



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Individualised intervention

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the INFORMED SLP

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