HOW TO MAKE EVIDENCE-BASED DECISIONS ABOUT TREATMENTS FOR POOR READERS

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Outline

Believe in the evidence and not anecdotes (ie how bad it can get)
Inspiration by evidence-based champions (ie it’s getting lonely out here)
How to make evidence-based decisions about treatment for poor readers (ie a step-by-step guide)
Examples (ie hammering it home)
BELIEVE IN EVIDENCE - NOT ANECDOTES

How bad it can get

“INSTINCTIVE CORRECTNESS”
Flossing

ANECDOTES

6 Reasons Why Flossing is So Important

by Ashley. Ashley April 4, 2020

Flossing is an important and often overlooked practice. It helps clean areas between your teeth that your toothbrush can't reach, and it prevents tooth decay and gum disease.

The Truth About Healthy Teeth: Your Guide

Flossing More Important Than You Think, Dentists Say

Conclusions can only be drawn for a small sample population. More research needs to be done to make this generalization.

Flossing to reduce gum disease and tooth decay


Published Online: April 18, 2012

It is assumed that removing plaque (a layer of bacteria in an organic matrix which forms on the teeth) will help prevent gum disease (gingivitis) and tooth decay (dental caries). Gum disease, which appears as red, bleeding gums, may eventually contribute to tooth loss. Untreated tooth decay may also result in tooth loss. Toothbrushing removes some plaque, but cannot reach in between the teeth, where gum disease and tooth decay are common. This review looks at the added benefit of dental flossing, in people who brush their teeth regularly, for preventing gum disease and tooth decay.

12 trials were included in this review which reported data on two outcomes (dental plaque and gum disease). Trials were of poor quality and conclusions must be viewed as unreliable. The review showed that people who brush and floss regularly have less gum bleeding compared to toothbrushing alone. There was weak, very unreliable evidence of a possible small reduction in plaque. There was no information on other measurements such as tooth decay because the trials were not long enough and detecting early stage decay between teeth is difficult.
INSPIRATION FROM EVIDENCE-BASED CHAMPIONS

Ben Goldacre
IMPORTANCE OF EVIDENCE IN GENERAL

https://www.youtube.com/watch?v=h4MhbWJzKk
Ben Goldacre
IMPORTANCE OF EVIDENCE IN EDUCATION
https://www.youtube.com/watch?v=nuiywlVP9I

Dorothy Bishop
IMPORTANCE OF EVIDENCE FOR POOR READERS
https://www.youtube.com/watch?v=2tBX-1RE2FI
HOW TO MAKE EVIDENCE-BASED DECISIONS ABOUT TREATMENTS FOR POOR READERS

Not all scientific evidence is equal
EVIDENCE PYRAMID
Step 1: Find a systematic review

A review of controlled trials of a treatment in poor readers

Google search

“treatment x” AND systematic review OR meta analysis OR review

At least 1

Poor readers? Independent? Peer reviewed? English?

Yes

Use conclusion

Go to step 2

No

None

Go to step 2

Step 2: DIY systematic review

DIY review of controlled trials of a treatment in poor readers

Google search

“treatment x” AND randomised controlled trial OR RCT OR controlled trial OR study

At least 1

Poor readers? Independent? Peer reviewed? English?

Yes

Control

Treated improve more than control

No

No controls

Treated improve same as control

Go to step 3

None

No poor readers

Go to step 3

No

Go to step 3

Go to step 3
Step 3: Use indirect evidence
DIY review of controlled trials of what a treatment claims to train in poor readers

Step 3a: Find out what a treatment claims to train
Step 3b: Find out if that training improves poor reading

Step 1: Find a systematic review
A review of controlled trials of a treatment in poor readers

Step 2: DIY systematic review
DIY review of controlled trials of a treatment in poor readers

Step 3: Use indirect evidence
DIY review of controlled trials of what a treatment claims to train in poor readers
Step 4: Strike out

No systematic review
No studies for DIY systematic review
No indirect evidence

Conclusion: no scientific evidence

Do not try treatment
Evidence-based decision

Try treatment
Stab in dark

Beware of the brain

Brain data cannot tell us if an educational treatment works or not
If a program did not improve language, but did change the brain, would you buy it?
If a program did improve language, but did not change the brain, would you not buy it?
Focus on the behaviour (i.e., speaking, understanding) and not the brain
Beware of the anecdote

Biased
Subjective
Confounded by other factors (e.g., treatments)
Cognitive dissonance

EXAMPLES (IE HAMMERING IT HOME)
## Distal and proximal treatments of poor reading

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<th>Distal (indirect) treatments</th>
<th>Proximal (direct) treatments</th>
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### FAST FORWORD (STEP 1)

15/06/17
The Fast ForWord Program

The Fast ForWord program is a learning acceleration software based on over 30 years of neuroscience research, designed for education institutions, English language learning centers, and clinical specialists worldwide.

The Fast ForWord program develops the cognitive skills that enhance learning. The strengthening of these skills results in a wide range of improved critical language and reading skills such as phonological awareness, phonemic awareness, fluency, vocabulary, comprehension, decoding, working memory, syntax, grammar, and other skills necessary to learn how to read or to become a better reader.

For your English Language learners, the Fast ForWord program builds a strong cognitive academic language foundation. Learners experience rapid improvements in English language and literacy skills, including the essential skill of reading for meaning.

Participants work on the Fast ForWord program 3–5 days a week for approximately 8–12 weeks. In studies, students have experienced gains in reading skills averaging 1–2 years.

Just as a body runs better and quicker when fit, brains learn better after consistent use with the Fast ForWord exercises. The key is processing efficiency and students around the globe, regardless of native language, are using the Fast ForWord program to develop the cognitive skills that enhance learning, leading to academic success.

For more information about Scientific Learning products, visit www.scientificlearning.com.

Step 1: Find a systematic review

A review of controlled trials of Fast Forward in poor readers

Google scholar

Fast Forward AND systematic review OR meta analysis OR review

1

Poor readers? Independent? Peer reviewed? English?

Yes

Use conclusion

Little or no effect
Literacy Planet

“pre-reading, phonics, sight words, reading, spelling, vocabulary, comprehension, grammar and punctuation”
Step 1: Find a systematic review

A review of controlled trials of Literacy Planet in poor readers

Google

Literacy planet AND systematic review OR meta analysis OR review

- None
- Go to step 2

Step 2: DIY systematic review

DIY review of controlled trials of Literacy Planet in poor readers

Google

Literacy Planet AND randomised controlled trial OR RCT OR controlled trial OR study

- Significant effects on some reading tests
- Treated improve more than control
- Poor readers? Independent? Peer reviewed? English?
- Yes
- Control
JUNGLE MEMORY (STEP 3)

Jungle Memory

“... trains Working Memory ... use this skill in ... Reading, Writing, and Math”
Step 1: Find a systematic review
A review of controlled trials of Jungle Memory in poor readers

Google

Jungle Memory AND systematic review OR meta analysis OR review

None

Go to step 2

Step 2: DIY systematic review
Your own review of controlled trials of Jungle Memory in poor readers

Google

Jungle Memory AND randomised controlled trial OR RCT OR controlled trial OR study

None

Go to step 3
Step 3: Use indirect evidence

DIY review of controlled trials of what Jungle Memory claims to train in poor readers

Step 3a: Find out what a treatment claims to train

Google

“Jungle Memory”

Working Memory
Step 3b: Find out if that training improves poor reading

Step 1: Find a systematic review
A review of controlled trials of a treatment in poor readers

1. Working memory AND systematic review OR meta analysis OR review

- Poor readers? Independent? Peer reviewed? English?
  - Yes
  - Use conclusion
  - Go to step 3

- No
  - Use conclusion
  - Go to step 3

Step 2: DIY systematic review
DIY review of controlled trials of a treatment in poor readers

1. Working memory AND systematic review OR meta analysis OR review

  - Yes
  - Use conclusion
  - Go to step 3

- No
  - Use conclusion
  - Go to step 3
Step 3: Use indirect evidence

DIY review of controlled trials of what a Jungle Memory claims to train in poor readers

- Poor reading
- Poor reading
- Working memory
- Trained skill

ARROWSMITH (STEP 4)
Arrowsmith

“strengthen the underlying weak cognitive capacities”

Step 1: Find a systematic review

A review of controlled trials of Arrowsmith in poor readers

Arrowsmith AND systematic review OR meta analysis OR review

None

Go to step 2
Step 2: DIY systematic review

Your own review of controlled trials of Arrowsmith in poor readers

Google

Arrowsmith AND randomised controlled trial OR RCT OR controlled trial OR study

None

Go to step 3

Step 3: Use indirect evidence

DIY review of controlled trials of what a Arrowsmith claims to train in poor readers

Poor reading

Trained skill

Poor reading
Step 3a: Find out what a treatment claims to train

Google Australia

“Arrowsmith”

Weak cognitive capacities

Step 3b: Find out if that training improves poor reading

Step 1: Find a systematic review
A review of controlled trials of a treatment in poor readers

Step 2: DIY systematic review
DIY review of controlled trials of a treatment in poor readers

Google Australia

"treatment c" AND systematic review OR meta analysis OR review

At least 1

Yes

No

Go to step 2

Do not claim

Go to step 2

Yes

No

Go to step 2

Control

Treated improve more than control

Treated improve

No

Go to step 2

Yes

Go to step 2

No

Go to step 2

No

Go to step 2

Yes

Go to step 2

No

Go to step 2

No

Go to step 2

No
Step 1: Find a systematic review
A review of controlled trials of cognitive capacity in poor readers

Google

Cognitive capacity AND systematic review OR meta analysis OR review

None

Go to step 2

Step 2: DIY systematic review
DIY review of controlled trials of cognitive capacity in poor readers

Google

Cognitive capacity AND randomised controlled trial OR RCT OR controlled trial study

None

Go to step 3
Step 3: Use indirect evidence
DIY review of controlled trials of what a Arrowsmith claims to train in poor readers

- Poor reading is known to improve
- Trained skill is known to improve

Step 4: Strike out

- No systematic review
- No studies for DIY systematic review
- No indirect evidence
- Conclusion: no scientific evidence
- Do not try treatment
- Evidence-based decision
- Try treatment
- Stab in dark
Outline

Believe in the evidence and not anecdotes (ie how bad it can get)
Inspiration by evidence-based champions (ie it’s getting lonely out here)
How to make evidence-based decisions about treatment for poor readers (ie a step-by-step guide)
Examples (ie hammering it home)

THANK YOU (FOR NOT BELIEVEING IN INSTINCTIVE CORRECTNESS)