DCD Treatment State of the Evidence Traffic Light

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OT KB Meeting

Step 1: Formulating Our Clinical Question

Evidence Centre

Clinical Question Worksheet

Person(s) involved in evidence search:	Department/Team:	Date:
Steph Y. Sarah W. Ivonne M.	CDBC/School	Nov 3, 2015 (updated: Feb 2, 2016)

Intervention/assessment under investigation:	
P	Describe the **Population:** Children with DCD
I	What **Intervention** or **assessment** are you considering? Task-Oriented Approach (Ex: CO-OP)
C	What is the **Comparison** intervention (treatment, approach or test)? Tip: Your question may not have a specific comparison. Process-Oriented Approach (Ex: Sensory Integration)
O	What is/are the **Outcome(s)** of interest? The outcome must be measurable. Is there a change in motor performance?

Well-Built Clinical Question (e.g. Among **P**, does **I** versus **C** affect **O**?):

Among children with DCD, does a task-oriented versus process-oriented treatment approach positively affect motor performance?

PICO

- Among children with DCD, does a task-oriented versus process-oriented treatment approach positively affect motor performance?

Step 2: Searching for Evidence

Document Your Current Practice

Document Your Current Practice Worksheet
(Complete prior to conducting an evidence search)

Why Document Your Current Practice Prior to Conducting an Evidence Search?

- Provides an opportunity to share clinical experience and knowledge with colleagues
- Highlights current knowledge needs and develops an awareness of current literature
- Articulates current practice, resources and any gaps in service provision

Person(s) involved in evidence search: Stephanie Young (Sarah and Ivonne)	Date: Oct 6, 2015; Nov 3, 2015 Dept/Team:
Intervention under investigation: CO-OP IF a parent asks about private therapy, typically we now recommend direct OT treatment (parent-funded) or consultative, with no specific type of OT treatment recommended.	
Population: DCD ages 5-12 with co-morbidity (e.g., ADHD)	
Treatment intensity: ? Once a week	Treatment protocols: ?
Primary clinical outcome: Usually not specifically discussed	ICF Component[1]: □ Body Structure &/or Body Function □ Activities □ Participation □ Environment/ Contextual Factors
Additional clinical outcome(s): Self-esteem and confidence (this can be a side-benefit)	ICF Component[1]: □ Body Structure &/or Body Function □ Activities □ Participation □ Environment/ Contextual Factors
Additional clinical outcomes:	ICF Component[1]: □ Body Structure &/or Body Function □ Activities □ Participation □ Environment/ Contextual Factors
Outcome measures used: ?	
Potential in-house experts: Jill Zwicker and Susan Harris	
Available education materials: *CanChild*	

Step 2: Searching for Evidence

Table 2: Search Strategy
You must **search at least 3 different sources** for an effective search. Please refer to the Sources of Evidence Table to select appropriate sources. Suggestions can be found below – delete those not applicable to your search.

Date	Source	Keywords	Subject Headings used? (if YES, please document)
Dec 15/2015	Trip Database	"Developmental Coordination Disorder", "Co-Op", Cognitive Orientation to Occupational Performance Approach, [Sensory Integration]	N/A
Dec 15/2015	CINAHL	Developmental Coordination Disorder, Systematic Review, Cognitive Orientation to Occupational Performance Approach, [Sensory Integration]	
Dec14, 2015	MEDLINE (indicate PubMed or Ovid)	Developmental Coordination Disorder, Systematic Review, Intervention, Occupational Therapy, [Cognitive Orientation to Occupational Performance, Sensory Integration, Effectiveness]	
	Rehabilitation Reference Center		
	ERIC		
	RehabDATA		N/A
Dec 14, 2015	Google Scholar	Developmental Coordination Disorder, Systematic Review, Intervention, Occupational Therapy, [Cognitive Orientation to Occupational Performance, Sensory Integration, Effectiveness]	N/A

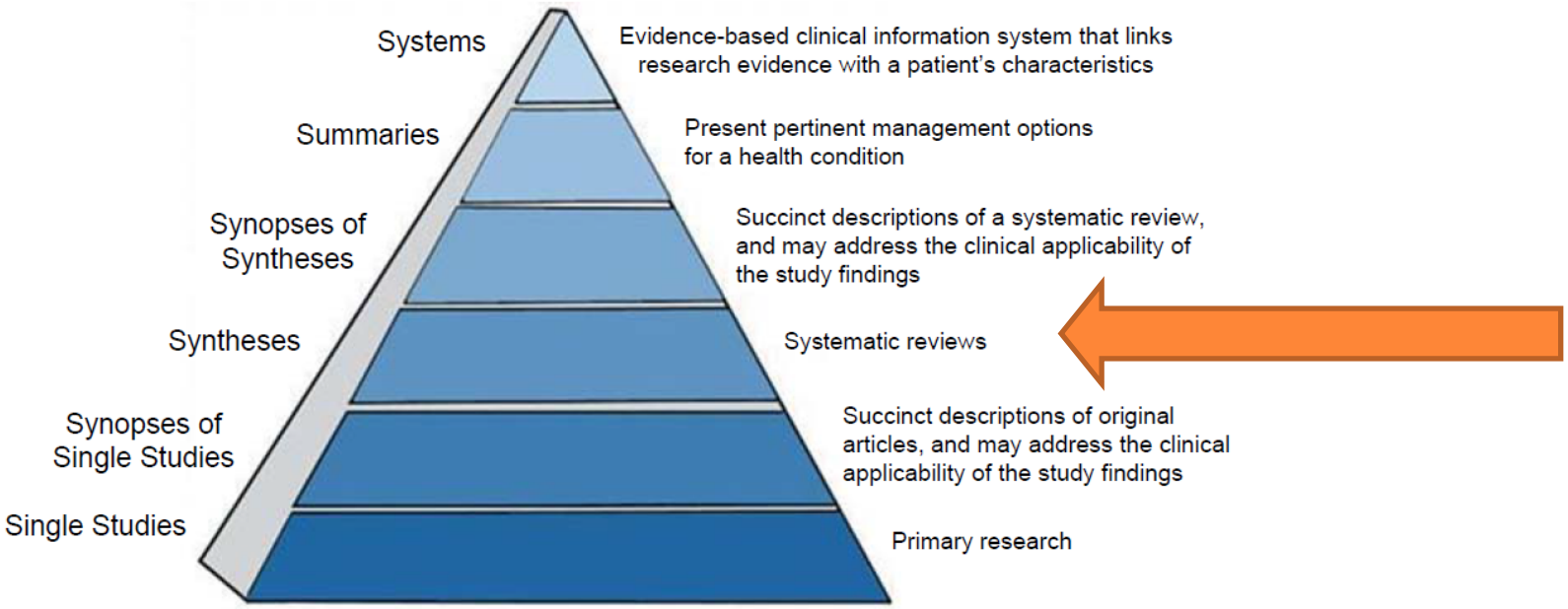
Step 2: Searching for Evidence

Best Evidence : A systematic review

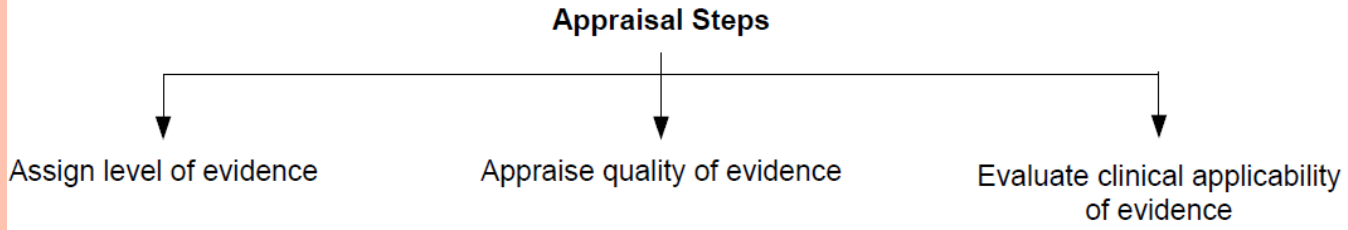
Smits-Engelsman, B.C.M, Blank, R., Van der Kaay, A. C., Mosterd-Van der Meijs, R., Vlugt-Van den Brand, E., Polatajko, H. J. & Wilson, P. H. (2013). Efficacy of interventions to improve motor performance in children with developmental coordination disorder: a combined systematic review and meta-analysis. *Developmental Medicine & Child Neurology, 55*(3), 229-237.

Step 3 : Appraising the Evidence

Determine where your best evidence fits on the 6s Hierarchy of Pre-Appraised Evidence[1]



Reference: DiCenso, A., Bayley, L., & Haynes, R. B. (2009). Accessing pre appraised evidence: Fine-tuning the 5s model into a 6s model. *ACP Journal Club*, *151*(3), JC3-2-JC3-3.



3.1 Assign Level of Evidence

AACPDM Level of Evidence Scales[1]

Table 1a: Levels of Evidence for Group Designs

Level	Intervention (Group) Studies
I	Systematic review of randomized controlled trials (RCTs) Large RCT (with narrow confidence intervals) (n>100)
II	Smaller RCTs (with wider confidence intervals) (n<100) Systematic reviews of cohort studies "Outcomes research" (very large ecologic studies)
III	Cohort studies (must have concurrent control group) Systematic reviews of case control studies
IV	Case series Cohort study without concurrent control group (e.g. with historical control group) Case-control study
V	Expert opinion Case study or report Bench research Expert opinion based on theory or physiologic research Common sense/anecdotes

Table 1b: Levels of Evidence for Single Subject Designs

Level	Single Subject Design Studies
I	Randomized controlled N-of-1 (RCT), alternating treatment design (ATD), and concurrent or non-concurrent multiple baseline design (MBDs); generalizability if the ATD is replicated across three or more subjects and the MBD consists of a minimum of three subjects, behaviors, or settings. These designs can provide causal inferences.
II	Non-randomized, controlled, concurrent MBD; generalizability if design consists of a minimum of three subjects, behaviors, or settings. Limited causal inferences.
III	Non-randomized, non-concurrent, controlled MBD; generalizability if design consists of a minimum of three subjects, behaviors or settings. Limited causal inferences.
IV	Non-randomized, controlled SSRDs with at least three phases (ABA, ABAB, BAB, etc.); generalizability if replicated across three or more different subjects. Only hints at causal inferences.
V	Non-randomized controlled AB SSRD; generalizability if replicated across three or more different subjects. Suggests causal inferences allowing for testing of ideas.

*Authors should consult a general clinical epidemiology textbook prior to undertaking their appraisal to ensure they are classifying studies appropriately. A word of caution and example of error in study classification: Case series studies (i.e. one group of patients measured for a given outcome or state, then provided with an intervention and measured again) can be erroneously classified as case control studies in which the cases acted as their own controls. A case-control study involves identifying a group of individuals *with* a given state/poor outcome (cases) and a group *without* the given state/good outcome (controls) and then looking back historically to identify whether or not both groups were equally exposed to the intervention of interest (the exposure). This is one example of a pitfall in assigning level of evidence, demonstrating the need to understand study design prior to undertaking the review process. In psychology and education, case series studies are defined as one-group, pretest-posttest designs. [1]

1. American Academy for Cerebral Palsy and Development Medicine Treatment Outcomes Committee. 2008. AACPDM Methodology to Develop Systematic Reviews of Treatment Interventions (Revision 1.2) 2008 Version. http://www.aacpdm.org/membership/members/committees/treatment_outcomes_methodology.pdf Accessed August 23, 2011.

3.2 Appraise quality of evidence

- AMSTAR
- Rated 7/11 = Medium Quality

3.3 Evaluate Clinical Applicability of the Evidence

- See Clinical Applicability form and incorporated into Traffic Light Synthesis

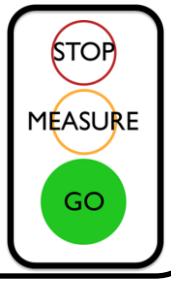
  (vdrive or see paper copies)

Steps 3 & 4: Appraising Evidence & Applying Evidence to Practice

- Synthesis, Formation of Recommendations & Knowledge Product

- Traffic Lighting Synthesis *(next slides)*

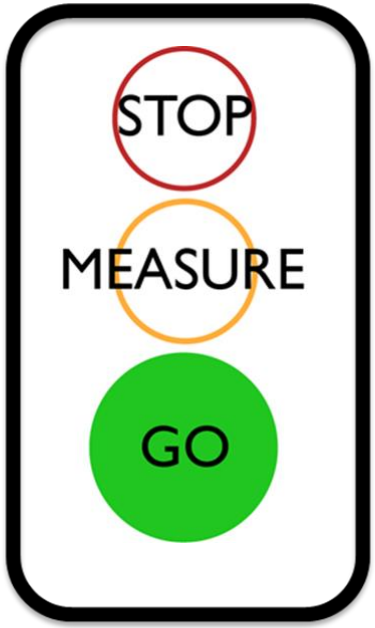
DCD Treatment : Traffic Light



Design	AACPDM Level of Evidence Rating	AMSTAR Quality of Evidence Rating	Traffic Light Code & State of the Evidence Classification
Group: Systematic Review	**II** Systematic review of cohort studies	**High (7/11)**	**Green : Proven Effective** Group design Level I or II evidence of moderate or strong* quality, demonstrating positive outcomes *Moderate or Strong quality (AMSTAR score of 4-11)

Traffic Lighting Database (SHHC Staff Only)

- http://10.2.50.68/fmi/iwp/res/iwp_home.html



Appraisal Summary

- Intervention using a task-oriented approach (such as CO-OP or NTT tx) vs process oriented approach (such as SI or kinesthetic tx) is the most supported by evidence at this time

- These findings are statistically significant and congruent with clinical experience

- Using a task-oriented approach is feasible, meaningful, suitable, ethical, would be supported within our organization, and fits within the occupational therapy scope of practice

Appraisal Summary

- Our clients would likely be interested in the intervention and a need exists to use this intervention

- Anticipated benefits outweigh potential harm

- Findings are felt to be generalizable to the populations we typically see.

Appraisal Summary
Outcomes Assessed

- All studies had to have an accepted standardized motor outcome measure
  - Clinician rated outcome measures:
    - such as the MABC, Concise Assessment Method for Children's Handwriting, BOTMP, Performance Quality Rating Scale (PQRS)
  - Client rated outcome measures:
    - such as Pike's Pictorial Scale of Perceived Competence and the COPM

Appraisal Summary

Outcomes Assessed

- Outcomes are felt to be clinically important and relevant as they were often, especially in the task specific, CO-OP and OT/PT categories of treatment, focused directly on essential activities of daily living
- Outcomes show that treatment is beneficial to children's ability to perform task-specific activities
- It is not evident if improvements in activity abilities are long term and if changes translate to improved participation

Key Points

- Task oriented (ex. CO-OP, NTT) and traditional motor training-based therapies (i.e., classic OT and PT treatment) have strong treatment effects for children with DCD
- The therapy process should be child-centred, evidence-based, and include key stakeholders (ex. parents and teachers)
- Treatment ranged from once a week to everyday with instruction ranging from 4-26 hours

Key Points

- Treatment activities should therefore be task-oriented, functional, and relevant to daily living
- Therapies (OT, PT) should have task-oriented elements to promote transferability and regular, frequent practice
- Process-oriented approaches (i.e., SI tx and kinaesthetic training) show only weak effects (similar to no treatment) and therefore are not recommended for improving motor based performance for kids with DCD

Key Points

- CO-OP is more appropriate for older children who have well developed verbal skills
- NTT is appropriate for younger children or those with lower language/learning abilities
- Teachers and parents should be included to support practice and transfer of skills into daily life, but it is unclear what is the most effective way to engage these members of the team

Step 4: Applying Evidence to Practice

- Synthesis & Formation of Recommendations lead to a Parent Friendly Knowledge Product:

Choosing an Occupational Therapist or Physiotherapist for Your Child

Information for Families who have a Child with Developmental Coordination Disorder (DCD)

Choosing an Occupational Therapist or Physiotherapist for Your Child

Information for Families who have a Child with Developmental Coordination Disorder (DCD)

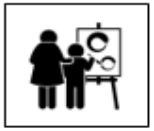
Here are some tips to think about when you choose an Occupational Therapist or Physiotherapist (OT/PT) in your community:

- ☑ Do they believe in collaborative goal setting?
  (which includes the child, family members and therapist)

- ☑ Do they focus on meaningful task-specific goals for your child?
  (for example: learning to tie shoes, print neatly, shoot a basketball)

- ☑ Are sessions scheduled at least once per week?

- ☑ At the sessions, is there task-specific coaching and practice?
  (for example: learning to draw, skip rope, cursive write, ride a bike)



- ☑ Is there weekly homework for you to work on in between sessions?

Reference: Smits-Engelsman, B. C. M, Blank, R., Van der Kaay, A. C., Mosterd-Van der Meijs, R., Vlugt-Van den Brand, E., Polatajko, H. J., & Wilson, P. H. (2013). Efficacy of interventions to improve motor performance in children with developmental coordination disorder: a combined systematic review and meta-analysis. *Developmental Medicine & Child Neurology*, *55*(3), 229-237

Created by Sarah Whyte, Stephanie Young and Ivonne Montgomery, Occupational Therapists Sunny Hill Health Centre for Children, May, 2016

Reference

- Smits-Engelsman, B.C.M, Blank, R., Van der Kaay, A. C., Mosterd-Van der Meijs, R., Vlugt-Van den Brand, E., Polatajko, H. J. & Wilson, P. H. (2013). **Efficacy of interventions to improve motor performance in children with developmental coordination disorder: a combined systematic review and meta-analysis**. *Developmental Medicine & Child Neurology, 55*(3), 229-237.