Use of the Cognitive Orientation to daily Occupational Performance (CO-OP) Approach for children with Developmental Coordination Disorder (DCD)

Evidence summary

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About this resource

This evidence summary is aimed at occupational therapists working with children, young people and families. It is accompanied by an infographic to help explain the topic to others if needed.

What is the purpose of this intervention?

The CO-OP Approach is a task-oriented intervention that uses problem-solving and cognitive strategies to achieve success in meeting the young person's self-identified goals or goals identified together by children and families in the case of young children and/or young people with intellectual disabilities. [(1)] The CO-OP Approach seeks to drive motor skill acquisition and performance-enabling improved participation in everyday life. It engages children and young people as active participants in the therapy process using problem-solving to achieve their personal goals.

Learning new skills is viewed as a problem-solving exercise and one that should occur in context (such as at home or at school) to support children/young people's ability to generalise and transfer skills and knowledge to other daily life settings, which are considered the ultimate outcome of the approach. [(1)]

Is this intervention effective for children with DCD?

The intervention was developed originally for children with Developmental Coordination Disorder (DCD) and has a sound theoretical underpinning. [(1)]

There is strong evidence to support the use of CO-OP with children with DCD [(2, 3, 4)] in that they will achieve their identified goals and will also be able to generalise and transfer their learning. This happens through the child/young person's independent use of problem-solving strategies, their ability to identify the reasons why an activity may be breaking down and employ a cognitive strategy application to resolve activity breakdowns.

A systematic review and meta-analysis of motor interventions for children with DCD found that there were stronger effects for task-oriented interventions, which included the CO-OP Approach (effect size=0.89) when compared with process-oriented interventions (effect size =0.12). [(5)] Further, international guidelines for DCD concluded CO-OP had sufficiently strong evidence for a level A recommendation (strong recommendation). [(2)] The theory, principles and clinical application of the CO-OP Approach are consistent with the findings in a review by Novak and Honan [(3)] that activity-based, top-down interventions result in more significant gains for the child/young person.

The CO-OP Approach is identified as a 'green light' intervention for children with DCD (an intervention we should provide, 'Do-It') [3] in the same review which utilised the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system [6] and the Evidence Alert Traffic Light System. [7]

Consideration needs to be given that children and young living with DCD are a heterogeneous group, and some evidence shows differing effects between those with only DCD and those living with co-morbidities. A recent randomised controlled trial made a distinction between children with DCD only and those with DCD and Attention Deficit and Hyperactivity Disorder (ADHD). [8] The study showed both groups improved motor performance and movement quality though only the DCD group acquired transfer of learning to motor skills.

Other childhood conditions

While CO-OP has now been applied with several other groups with motor disorders, such as children with cerebral palsy, studies have been limited to small numbers in single experimental designs and feasibility studies, including feasibility randomised controlled trials. [9,10,11,12,13,14,15] While these small studies have had significant outcomes indicating signals for the efficacy of the intervention, appropriately powered studies are still required.

There is a signal of efficacy from studies of the CO-OP Approach for children and young people who:

- are autistic
- have cerebral palsy
- have Attention Deficit and Hyperactivity Disorder
- have Down's syndrome.

Key terms defined

The CO-OP Approach includes five essential elements that, used together, comprise this intervention approach.

1. **Client centred occupation-focused goals** – in the first step of the CO-OP Approach the child or young person identifies three occupational performance goals they want to work on throughout the intervention sessions.
2. **Dynamic performance analysis (DPA)** – a process for identifying and considering where and why breakdowns in task performance are occurring.
3. **Cognitive strategy use** – whereby the child is provided with a metacognitive tool called *Goal-Plan-Do-Check* to use when thinking about and solving performance problems. The child develops new ways to think about how to approach task breakdowns, generate strategies to put into practice and reflect on and adapt strategy use as required.
4. **Guided discovery** - the method by which the therapist facilitates the child's active learning through analysis of task performance and task breakdowns, to help the child organise new thinking to develop strategies, test them out and reflect on how well the strategy worked.
5. **Enabling principles including generalisation and transfer** – ways of promoting learning so the child can apply independently, or with reduced support, what they have learned (DPA and cognitive strategy use) to similar or new/different activities and settings/environments.

What equipment is required?

- Goal-setting tools to help the child, young person, and parent (for very young children) think about real-life activities that might be a challenge and that the child/young person is motivated to want to change, for example, the Paediatric Activity Card Sort (PACS) [16], a daily activity log or the Perceived Efficacy and Goal Setting (PEGS) tool. [17] Using a semi-structured interview as part of the Canadian Occupational Performance Measure (COPM) [18] is also a way to derive goals.
- To measure baseline performance at the beginning and then again at the end of the intervention, two measures are used: the COPM and the Performance Quality Rating Scale-individualised (PQRS-i). [19]
- Other resources for using the approach include a prop such as a puppet (used for younger children to help teach the use of *Goal-Plan-Do-Check* and support cognitive strategy generation and use), paperwork to record goal setting, outcome measurement and session notes. The therapist is also encouraged to create accessible resources to engage the child in understanding and using the CO-OP Approach.
- Other equipment is dependent on the goals that are the focus of the sessions, for example, a bike for cycling.

What processes support the success of this intervention?

- There are some prerequisites to consider when determining if the approach is the most suitable for a child/young person. The child must be at least four years old and be motivated to work on three goals. They also need to have adequate communication ability to discuss with the therapist different aspects of the CO-OP process such as what they are doing, why it might be breaking down and their ideas and plans for what they might do differently. This process also requires a sufficient level of cognitive ability to be able to problem solve, to learn to use the global problem-solving strategy, to be able to come up with ideas for new strategies to try and to think about how well those strategies worked.
- Evidence suggests that ten individual sessions of up to an hour for children with DCD is sufficient to achieve generalisation and transfer. Feasibility data for other patient groups such as cerebral palsy suggests similar sessions, but large-scale trials are still required. For group-based intervention see below for the recommended number of sessions for a child with DCD.
- Promoting the application of strategy use in between sessions is likely to support the successful use of CO-OP beyond the therapy sessions and once the intervention has been completed.

What qualifications, skills and training are required?

Formal training in the CO-OP Approach is available and recommended if it is to be implemented effectively.

Workshops

UK National training is available through in-person workshops. This training is delivered either by attending the scheduled workshops or joining an online synchronous workshop.

It requires attending the CO-OP three-day training, which consists of two days of training with a third follow-up day three to four months later. The third day involves implementing the Approach with a

client and is presented as a reflective case study. To attend the CO-OP training the individual must be a registered health professional.

Certification Process

Following completion of the full CO-OP workshop training, any participants wanting to further develop their understanding and application of the CO-OP Approach or use CO-OP in research can apply for a certification level of training. Further information is available at https://icancoop.org/collections/ican-co-op-certification-course

What is the time commitment for the service?

A total of 12 weekly sessions of up to one-hour face-to-face/online delivery with the child/young person are recommended, plus preparation and note-writing time (this includes assessment, intervention, and post-intervention evaluation). There may be some time needed to create additional supporting resources/materials, either specific to the needs of a particular child/young person, or service resources such as a parent leaflet to explain the approach.

The programme is structured to include:

- an initial goal-setting meeting to identify three child-chosen goals to work on in the sessions
- collecting a baseline outcome measure of the goals using COPM and the PQRS-i
- teaching the child/young person the Global Problem-Solving Strategy *Goal Plan Do Check*
- ten sessions of intervention
- a twelfth and final session to re-evaluate goals with the child using COPM and PQRS-i
- follow up homework throughout.

What is the frequency and duration of time required for effectiveness?

The family and child/young person need to commit to weekly sessions in total of between 45-60 minutes, plus follow up homework during the week. The dose tested during CO-OP studies is ten treatment sessions and two sessions (before and after) to complete baseline and re-evaluation assessments.

Cautions and contra-indications

The child/young person needs to have sufficient cognitive ability to use a cognitive problem-solving approach and be able to generate, apply and evaluate cognitive strategies. The young person also needs to be able to communicate and discuss performance issues and strategy use.

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