




Coaching in early physical therapy intervention: the COPCA program as an example of translation of theory into practice

Schirin Akhbari Ziegler, Tineke Dirks & Mijna Hadders-Algra


To cite this article: Schirin Akhbari Ziegler, Tineke Dirks & Mijna Hadders-Algra (2018): Coaching in early physical therapy intervention: the COPCA program as an example of translation of theory into practice, *Disability and Rehabilitation*, DOI: [10.1080/09638288.2018.1448468](https://doi.org/10.1080/09638288.2018.1448468)

To link to this article: <https://doi.org/10.1080/09638288.2018.1448468>

 View supplementary material [↗](#)

 Published online: 16 Mar 2018.

 Submit your article to this journal [↗](#)

 View related articles [↗](#)

 View Crossmark data [↗](#)

Coaching in early physical therapy intervention: the COPCA program as an example of translation of theory into practice

Schirin Akhbari Ziegler^a, Tineke Dirks^b and Mijna Hadders-Algra^b

^aSchool of Health Professions, Institute of Physiotherapy, Zurich University of Applied Sciences ZHAW, Winterthur, Switzerland; ^bDepartment of Pediatrics, Division of Developmental Neurology, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands

ABSTRACT

Background: Coaching is *en vogue* in pediatric physiotherapy, but often applied rather unspecific and undefined.

Methods: This paper aims to describe coaching in early physiotherapy intervention, taking the specific coaching approach of the family-centered program “COPing with and CAring for infants with special needs” (COPCA) as a case in point.

Results: The theoretical underpinnings of coaching in COPCA, including a meta-model, family-centered practice, the Neuronal Group Selection Theory and the goal-oriented coaching approach, are discussed. Next, the translation of theory into practical ingredients for coaching of families of a child with special needs is presented. The latter includes the appreciation of family autonomy and attitudes, and the creativity to ask specific questions to support the families in making their own decisions to promote their child’s development during daily care-giving routines.

Conclusion: It is concluded that the approach of coaching is demanding for both families and pediatric physiotherapists. It requires an active role of the family members in the intervention process and for therapists that they incorporate the attitude of a coach that largely differs from the attitude of the traditional therapist. For families and pediatric physiotherapists appreciating these changes in attitude, COPCA’s coaching offers a promising form of early intervention.

ARTICLE HISTORY

Received 10 October 2017

Revised 10 February 2018

Accepted 15 February 2018

KEYWORDS

COPCA; early intervention; coaching; pediatric physiotherapy; family-centered practice; Neuronal Group Selection Theory

► IMPLICATIONS FOR REHABILITATION

- We recommend the implementation of the promising approach of goal-oriented and solution-focused coaching in pediatric rehabilitation and/or early intervention.
- We recommend applying coaching methods that are based on explicit theoretical background and clinical knowledge.
- We recommend formal training in coaching before professionals apply coaching in pediatric rehabilitation and/or early intervention.

Introduction

Coaching is not only increasingly being applied to promote health in general, but also to facilitate functional outcome and well-being in pediatric rehabilitation and early intervention. Coaching implies a highly collaborative, transdisciplinary helping approach applied across many disciplines and helping professions [1]. However, coaching is not a consistent and uniform method; different approaches with different assumptions exist [2] and the role of the coach is interpreted in variable ways. In pediatric rehabilitation two recent, theoretical and practically well-grounded approaches are based on coaching: the “Solution-Focused Coaching in Pediatric Rehabilitation (SFC-peds)” of Baldwin et al. [1] and the “Occupational Performance Coaching (OPC)” of Graham et al. [3]. More often coaching is used rather unspecific and independent from a theoretically concept. An example is the “Motor learning coaching” [4]. It illustrates that coaching is *en vogue*. Yet, incorporating coaching into the professional role is not easy. It requires specific knowledge and skills and it demands professional and personal changes in attitudes and habits.

Coaching is a key element in the early intervention program “COPing with and CAring for infants with special needs” (COPCA). COPCA aims to empower families and to encourage the family’s own capacities to stimulate the infant’s motor development during daily care in naturally occurring parenting situations [5]. Blauw-Hospers and colleagues [6] showed that three components of COPCA, i.e., (1) coaching of caregivers; (2) challenging the infant to self-produced motor behavior; and (3) stimulation of motor behavior at the limits of the child’s capacities, were associated with improved developmental outcomes in infants at high risk of developmental disorders. The study of Dirks et al. [7] indicated that families indeed implemented the second and third components in daily life, and that this implementation was associated with a better functional outcome of the infant at 18 months. Hielkema et al. [8] demonstrated that in infants at very high risk for cerebral palsy intervention with COPCA-characteristics, especially coaching and challenging the infant to self-produced motor behavior was associated with a better Family Empowerment Scale score.

The aim of this paper is to present and critically discuss the theoretical and practical principles of COPCA's specific coaching approach. This approach is based on tenors, theories, on the arrangement of the intervention and praxeology and forms the framework for COPCA coaches. The article is organized as follows. The first section describes the meta-model of COPCA's coaching approach, including the idea of being human, ethics and ideals. The second section summarizes the theories underlying COPCA: Family Centred Practice, Neuronal Group Selection Theory, Transactional Model of Development, Coaching Theory, Family System Therapy, Communication Theory and Humanistic Psychology. In the third and fourth sections the theoretical principles underlying COPCA are translated into ingredients of coaching in intervention practice. This part is not only based on theory, but also on more than a decade of experience of the authors with coaching in the framework of COPCA.

Meta-model (tenor) of COPCA's coaching approach

Concept of the human being

COPCA's coaching is grounded in the notion that "people possess the inherent capacity to learn and grow, and have the potential to develop competencies and resources that may be used to improve their situation" [9, p.61]. Human beings develop and live in a social context [10] and their behavior is influenced by the primary context closely surrounding them and the wider environment [11]. The primary social context of children is their family. Each family is unique and has individual histories, routines, child rearing, values, goals, desires, idea of quality of life, needs, and coping strategies [12].

Ethics

The COPCA coach cherishes the equality and diversity of human beings [13], respects the personality, autonomy and dignity of human beings [14] and interacts with persons not with physical conditions [9]. The COPCA coach also supports the entire family in such a way that family independency, community participation and quality of life is maintained and/or promoted [9] and the coach provides the family with information required to make informed decisions [14]. The coach acknowledges the ability of the family to generate self-determined decisions and the family's autonomy [5]. Limitations inherent to the condition of child and/or family and of the coach her/himself are made aware. Life is not always ideal. The coach uses self-reflection to monitor own actions [15].

COPCA's ideal situation

Ideally, according to COPCA, caregivers are the experts of their child's needs. They want the best for their child with special needs, including the need of pediatric physical therapy. They have their own criteria for quality of life and make informed decisions adapted to their own specific parenting style. The COPCA coaches are experts in motor development and the principles of motor learning. They have specific communication skills and knowledge of evidence and established best practice.

COPCA coaches observe the family engaged in daily activities and while observing, they offer knowledge to caregivers in the form of information and suggestions and not in the form of instructions. This approach aims to enhance the family's coping strategies and to assist families to explore the possibilities to challenge the infant to self-produced motor behavior. The COPCA

coach accepts the autonomy of the family implying, that the family decides how they want to be involved and how they want to implement COPCA in daily care. The coach respects the family's history, routines and rituals [5,16]. The dialog between family members and coach is bidirectional, communication open and relationships are based on equal partnership and confidence.

Basic theories underlying COPCA's coaching approach

Principles and elements of family-centered practice

Family-centered practice in early intervention programs for young children with special needs is recommended and has become a practice-of-choice. The terms family-centered care, family-centered practice and family-centered services (FCS) are different expressions for an approach to work with families that respects their values and choices and focuses on the strengths of the family members [17]. According to Law et al. [18] and Dunst et al. [19] family-centered practices emerged in early intervention programs in the United States, inspired by the philosophy of service provision described in the Surgeon General's report [20] and by the core elements defined by Shelton et al. [21]. The CanChild definition of FCS includes most of these core elements: "FCS is made up of a set of values, attitudes and approaches to services for children with special needs and their families. It recognizes that each family is unique; that the family is the constant in the child's life; and that family members are the experts on the child's abilities and needs. The family works together with the service providers to make informed decisions about the services and supports the child and family receive. In FCS the strengths and needs of all family members are considered" [12,22]. Rosenbaum et al. [11] regard the family as unit, incorporating caregivers, the child with special needs and the siblings. FCS attends to the skills and resources needed by all family members to ongoing care of the child with special needs. Rosenbaum and colleagues assume that children develop best in a supportive family and when the needs of the whole family are addressed. The caregivers are regarded as the key decision makers in the child's life. Understanding parental needs and supporting caregivers in making informed decisions enhances the well-being and participation of the whole family, including the child with disability.

A major assumption in family-centered care is that the family is autonomous, and has its own criteria for quality of life. The family is the expert on the own situation, is responsible for decisions and choices on the care of the child and the degree of involvement in the intervention process [5]. Another assumption is that a family with a child with special needs does not only have strengths and capacities, but also individual needs of information, understanding, support and skill development [23]. The family needs may be illustrated in the parental remark "Don't tell me what I can do, or must do, but help me to discover it by myself" [5].

In family-centered practice relationships between family members and health care professionals are of critical importance. The quality of the relationship predicts the engagement in the intervention [24], as it organizes the context of child development [23]. Conceivably the quality of the relationships improves by using an on-going, equal partnership focusing on the family's preferences, as this approach may enhance reciprocal trust and understanding. The above implies that the relationship between health care professionals and family members is as important as the professional application of knowledge and the skills of the health care providers [24].

The neuronal group selection theory

COPCA's approach is geared to the Neuronal Group Selection Theory coined by the neuroscientist Gerald Edelman [25] and adapted to infant development by Mijna Hadders-Algra [26–28]. This theory underlines that motor development is a non-linear process, influenced by genetic configuration, epigenetic processes, the environment, and experience. According to the Neuronal Group Selection Theory typical motor development is characterized by variation and the development of adaptive behavior. Variation implies the presence of a rich repertoire of strategies for each motor function largely predetermined by the genome. In the phase of primary variability, infants use comprehensive variation in movement patterns and can only adapt their movements to a minor extent to the environment [27,29]. Gradually, however, the infant develops the ability to fully adapt the various motor functions to the specifics of the task constraints – the phase of secondary variability emerges. The secondary phase starts at function-specific ages, for instance much earlier in the development of sucking than in the development of walking. The adaptability, i.e., the ability to select from the repertoire the best fitting strategy, develops through active trial-and-error experiences and the associated sensory information. Consequentially self-produced sensorimotor experience plays a pivotal role in motor development [27].

According to the Neuronal Group Selection Theory, atypical motor development due to an early lesion of the brain is characterized by limited variation (i.e., the presence of a reduced repertoire of motor strategies) and a limited ability to adapt motor behavior to the specifics of the task and situation (reduced adaptability). The limited adaptability is brought about by two phenomena: (1) deficits in the generation of self-produced sensorimotor experience, due to the limited repertoire and – often – to a limited exploratory drive [26,29] and (2) impairments in processing various forms of afferent information [26]. Repertoire reduction may induce a disappearance of the best fitting strategies for specific tasks. This forces the infant to search for another solution – a solution that generally differs from that of the typically developing infant. “Probably this solution is the infant’s best achievable and should be appreciated and not regarded as to be ‘treated away’”. [5]. The sensory deficits interfere with the experience-dependent selection of the most appropriate strategy. The search for alternative strategies in combination with the impaired sensory processing explains why the infant with an early lesion of the brain needs about ten times more trial-and-error experiences than the infant with typical brain function [26]. What this implies may be illustrated by the data of Adolph et al. [30]. They reported that typically developing novice walkers (aged 12 to 24 months) produce about 14,000 steps and 100 falls per day. Therefore, COPCA emphasizes the need of ample active trial-and-error experiences in various conditions in order to improve functional development in infants with an early lesion of the brain.

The ultimate motor goal of COPCA is motor function allowing for optimal participation. According to the principles of the Neuronal Group Selection Theory this may be achieved by enlargement of the repertoire and improved adaptability. The limited information available suggests that the former goal is hard to achieve, whereas the latter is more realistic [31].

Transactional model of development

The transactional model developed by Sameroff [32], addresses how children and context shape each other: development is viewed as a dynamic process and the result of a set of on-going

interactions between individuals, e.g., child and caregiver, that result in the modification of each individual's behavior. Experiences and behavioral changes are the products of a bidirectional interaction.

Coaching theory

Coaching is inconsistently defined and practiced. In COPCA coaching is defined on the basis of ideas of the International Coaching Federation [33]: “Coaching is partnering with families in a thought-provoking and creative process. Coaching inspires families taking actions to maximize their personal potential in realization of their vision, goals and desires. Coaches honor the family as the expert of their life and believe every family member is creative and resourceful”.

COPCA's coaching approach is goal-oriented and complies with the three criteria of Ives [2]: it is non-directive, solution-focused and performance driven. Being non-directive implies that the coach is a facilitator and stimulator of ideas and actions and not a trainer. Solution-focused means that focus is on finding solutions rather than on problem analysis in order to achieve specific aims. Being performance driven emphasizes the focus on changing actions to improve performance through understanding of circumstances. Yet, COPCA does not adhere to strict implementation of these three coaching criteria, as coaching first of all needs to be adjusted to the individual family, the specific environment and the situation of early intervention in children with special needs. For instance, in a strict sense the non-directive approach does not require domain specific expertise or knowledge of the coach. Yet, in COPCA professional knowledge and expertise on e.g., family centered care, family autonomy and typical and atypical motor development in terms of variation and adaptation are a prerequisite. This means that the COPCA coach is continuously sailing between the Scylla of being too non-directive and the Charybdis of providing too strict information and becoming a trainer. Solution-focused in COPCA does not only imply uncovering the solutions already present in the family system, but also enlarging the families repertoire by shared observation, provision of information, hints and suggestions. COPCA's approach differs from the solution-focused, short-term therapy of de Shazer [34,35], as it is not COPCA's aim to find solutions as quickly as possible, but let the family discover their own best sustainable solution in proportionally reasonable time. The performance goal of COPCA's coaching does not primarily refer to the infant's performance, but to the performance of the family, i.e., empower the family members to discover their own strategies to challenge the child with special needs in naturally occurring parenting situations. Therefore, it is mandatory for the COPCA coach to create a supportive, collaborative and egalitarian relationship with the family members. This primary focus on the family is the main difference between COPCA and the recently developed early intervention program GAME (Goals, Activity and Motor Enrichment) [36,37]: in GAME the primary focus of the infant is the infant's developmental progress.

System theory and family system therapy

The family system theory emphasizes the importance of integrating the whole family of a child with special needs into the therapy. Therefore, COPCA aims to strengthen the resources of the entire family, including siblings, in order to empower the family to find the own solutions. The health professionals, i.e., the COPCA coaches, support the family members to be active in finding possibilities by themselves to stimulate the infants with special needs.

Communication, shared observation and hints are important tools to achieve this goal [38].

Communication theory

Watzlavik et al. [39] formulated five axioms of communication to describe the processes that take place during interaction of human beings: (1) “one cannot not communicate”; (2) “every communication has a content and relationship aspect”; (3) “communication is always source and effect”; (4) “human communication involves both digital and analog modalities”; and (5) “inter-human communication procedures are either symmetric or complementary, depending on whether the relationship of the partners is based on differences or parity”. With respect to the last axiom: COPCA advocates communication in stable symmetric relationships between coach and family members. In such relationship both communication partners accept the other just as the other is, which largely facilitates reciprocal respect and trust.

Humanistic psychology

Roots of the coaching approach in COPCA are found in the humanistic psychology ideas of Rogers [13,40], the developer of client-centered therapy. He assumes that human beings have the propensity for self-actualization, i.e., an innate drive to unfold and realize developmental potentials, enabling the person to be autonomous and self-determined. The COPCA coach helps the caregiver to discover his/her own capacities to stimulate and cope with the infant with special needs.

From theory to practice: the ingredients of coaching in COPCA

Aims

COPCA has two main objectives: (1) to empower the individual family in processes of decision making, regarding functional activity and participation in daily life and (2) to optimize the current and future motor capacities of the infant with special needs, allowing for optimal participation. COPCA aims to achieve the latter goal by means of enlargement of the functional neuromotor repertoire and by promoting adaptability. Optimizing motor capacities also includes the prevention of contractures and deformities. COPCA does not aim to normalize movement patterns or to affect muscle tone. COPCA’s ultimate goal is to empower the family with a child with long-term special needs so that they can cope with this situation in such a way that they (1) can live life according to their own principles and habits; (2) are able to create the best situations to promote their child’s development; and (3) are able to optimally collaborate with health professionals in charge of the child’s care.

Setting

COPCA’s coaching primarily occurs in the setting of the family’s home environment and includes all family members playing a role in the child’s daily life. Family educational perspective and family autonomy are respected and included. Both family and coach are part of a larger system of health care professionals. The COPCA coach aims for optimal communication with family members and the other health care providers, who are involved in the care of the child.

Understanding of intervention

The intervention takes place during daily care giving activities of the family members, including siblings, in naturally occurring parenting situations, e.g., playing, bathing, or carrying. The coach appreciates the unique situation of each family, recognizes their coping strategies and offers a tailored intervention that is adapted to the strengths, resources, decisions, goals and needs of the family members and the child with special needs. The approach of the coach includes support of the family by shared observations, observation of the interplay between caregiver and infant during daily care giving activities, listening, asking specific questions, information exchange and provision of hints and suggestions to challenge the infant with special needs. The aim of asking specific questions is to stimulate caregivers’ thoughts, reflection and actions. During shared observation (and also when the coach is absent) family members may explore, develop and apply their own strategies to cope in daily life with having an infant family member with special needs. The family members are free to consider the information, hints and suggestions and to try them out and vary them in their own situation.

The ecological approach, in which family members discover themselves how to implement principles of developmental stimulation best in daily life, is one option to achieve high dosing of activities. Putatively, the latter is a critical aspect in the effectiveness of early intervention [41]. By integrating challenging positioning, e.g., sitting during bathing in young infants, and challenging activities during playing and eating, e.g., challenging the infant to pick up morsels of food, throughout daily care giving activities, a high dosing may be achieved [7,42]. The study of Dirks et al. suggested that the daily challenges are associated with better functional outcomes [7]. The optimal dosing of COPCA coaching sessions is family and child specific. However – based on practical experience – in general a coaching frequency of once a week works well, offering the golden mean between a frequency that is too high and forms a burden to families and a frequency that is too low leaving the families with insufficient opportunities for discussion and feedback.

Generally, COPCA suggests that so-called hands-on facilitation techniques should be avoided as they intervene with the self-produced activity and motor learning of the infant [5]. Rather, the idea is to challenge the infant at the limit of its capabilities, to actively explore varying forms of an enriched real life environment, that offer the infant opportunities for self-produced sensorimotor behavior and trial-and error experiences. This content aspect of intervention is similar to that of the earlier mentioned GAME (Goals, Activity and Motor Enrichment) program described by Morgan et al. [36,37]. When the infant is frequently and playfully challenged during daily activities, the infant learns in various situations to select its own best adaptive strategies out of the repertoire available. One of the motivating means to stimulate self-produced activities is playing with siblings or other children. The combination of playing, exploring, self-performance and fun provide a situation of active learning [5]. Challenging may also include the provision of as little postural support as possible. For the implementation of environmental variability this type of challenge may be alternated with activities during which the infant receives somewhat more postural support, e.g., in the form of an infant chair, the lap of the caregivers or manual support, for instance when the activity focusses on manual skills. Note that the manual support does not imply facilitation as advocated in Neurodevelopmental Treatment, but is meant to function as a temporary brace. It is conceivable – but evidence is lacking – that in particular in infants who do develop cerebral palsy, this form of

assistive postural support applied during the child's self-initiated activities, may promote motor development [41]. It should be realized, however, that evidence is available that "hands-on facilitation techniques" of Neurodevelopmental Treatment may be counter-productive in at risk infants who do not develop cerebral palsy [6,41]. The COPCA coach informs the caregivers that the intervention focuses on functionality of movements and not on the normalization of movements; in other words, atypical movements are fine when they allow the infant to perform a specific task, i.e., to achieve a specific goal.

In children with severe neurological dysfunction, which is reflected by a severely reduced repertoire, the continuous presence of stereotyped postures and movements induce a high risk of contractures and deformities. As COPCA promotes activities in varying daily activities, it offers variation in positions and activities, which may counteract the development of secondary impairments. However, as these children have serious limitations in the ability to vary motor behavior themselves, it is also recommended to adapt the environment in such a way that the child is exposed to varied positions. This may be achieved by the application of – for instance – seating systems, nighttime support, standing supports and orthotics [43–47]. In addition, in infants with serious mobility limitations, COPCA recommends the introduction of power mobility at early age, as it increases the infant's possibilities to discover the environment and to interact with other persons [48,49]. Over time the COPCA coach maintains a coordinated collaboration with the other health professions in charge of the care of the infant with special needs in order to offer a comprehensive support to the family.

Caregivers are informed that the appearance of motor behavior of children with an early lesion of the brain differs from that of typically developing children, but also that a different appearance does not necessarily preclude functional activities – which generally matter more in daily life than appearances. The caregivers are also informed that development proceeds by means of trial-and-error and self-produced activity requiring ample time. They also are informed that error does not mean failure but expresses the presence of an active learning process. Development takes time, this holds true for families to find their best coping strategies and for the infant to explore, to experience and to discover their best motor strategies. The coach highlights the infant's capacities and stresses the joy of being engaged with the infant – playing is fun.

Focus of attention

The focus of attention of the intervention is the family. This means that the intervention focuses on the functional goals and the wishes to participate expressed by the family and on empowerment and engagement of the caregivers in order to create a supportive environment for all family members.

Communication

Communication takes place in an open, symmetric and bidirectional dialog. The coach avoids technical, professional language and uses language that is easily understood by all family members. Information exchange, open-ended questions, feedback and hints or suggestions are the types of communication used in COPCA coaching.

Constitution of the relationship and roles

From the onset of coaching it is important to understand the family's expectations and to clarify the role of the COPCA coach to

the family. For the coach this implies an attitude that is respectful, encouraging, responsible, and open. Ideally the family members are the actively involved goal setters, decision makers and supporters of the child with special needs. They are the recipients and transmitters of information, the recipients of hints and suggestions, and they may transform the information into daily life activities according to their own wishes and views. The coach is an active but subtle partner in the intervention. The coach acts as an observer and listener, is just as the family members a recipient and transmitter of information; the coach facilitates the ideas and actions of the family members and supports the solutions of the family.

Measurements to evaluate outcome

To guide and evaluate an intervention according to COPCA, three instruments are used: (1) the COPCA specific assessment providing information about family characteristics, such as the parenting style of the caregivers, caregiver's ability to adjust own motor actions to the infant's behavior, and a general impression of child behavior (see [supplement material](#)); (2) the Family Empowerment Scale to measure the effect of the intervention on family function in family-life [50] and (3) the Infant Motor Profile, [51,52] a video-based assessment, which provides information on the child's neuromotor impairments, including information on the size of the motor repertoire and the ability to adapt motor behavior to the specifics of the situation.

To quantify the extent to which caregivers experience family-centeredness in the care of their child we recommend using four domains of the Measurement of Process of Care (Enabling & Partnership, Providing Special Information about the Child, Coordinated & Comprehensive Care, and Respectful & Supportive Care) [53,54]. To evaluate the child's performances in daily life we recommend the Pediatric Evaluation of Disability Inventory; it is an excellent tool to evaluate the child's activities and participation beyond the age of six months [55]. In children at very high risk of or with cerebral palsy, the activities in the gross motor domain may be assessed with the Gross Motor Function Measure [56,57] and the manual activities with the Hand Assessment for Infants [58]. Two other instruments may evaluate both family- or child-related outcomes depending on the focus of interest: the Goal Attainment Scale [59] is the assessment of choice to evaluate whether the goals set for intervention are achieved; the Canadian Occupational Performance Measure [60] measures changes in occupational performance and satisfaction with the performance in the area of self-care, productivity and leisure.

Praxeology

Required knowledge of the coach

The COPCA coach has knowledge on how to build respectful, encouraging and caring relationships, how to produce a creative situation that encourages caregivers to reflect and explore, and how to apply enabling strategies to engage and empower family members. The coach knows about communication skills like active listening, informing, asking, providing feedback, giving suitable hints and how to provide the family with information on the intervention process. The COPCA coach is an expert in neuromotor development in terms of variation and adaptation and their limitations and knows how to challenge the infant to enlarge the neuromotor repertoire and its adaptive behavior. Knowledge on typical and atypical postural development is indispensable, as postural control plays a pivotal role in motor development, and is

Table 1. Overview of coaching approaches applied in pediatric rehabilitation^a.

	COPCA	SFC-peds	OPC	GAME
Explicit theoretical background	<ul style="list-style-type: none"> Family-centered Family system theory Coaching theory Transactional Model of development 	<ul style="list-style-type: none"> Family-centered Coaching theory Solution-focused therapy 	<ul style="list-style-type: none"> Family-centered Family System Theory Coaching theory Transactional Model of development Solution-focused therapy Occupation-centered Enablement framework of disability (ICF) 	<ul style="list-style-type: none"> Family-centered Family system theory Motor learning theory Dynamic system theory Goal orientation
Orientation and focus	<ul style="list-style-type: none"> Goal orientation Solution focused Performance driven Family orientation Ecological orientation Early intervention 	<ul style="list-style-type: none"> Goal orientation Solution focused Client orientation Strengths-based Ecological orientation Process orientation/relational Focus on preferred future 	<ul style="list-style-type: none"> Goal orientation Solution focused Performance driven Client orientation Strengths-based Ecological orientation Focus on preferred future 	<ul style="list-style-type: none"> Activity and participation based Ecological orientation Early intervention
Key ingredients	<ul style="list-style-type: none"> Coaching of whole family (respect family autonomy and educational principles, information exchange, identifying family's principal goals, guidance of development of plan for activity to practice, observation, reflection, feedback). Challenging infant to self-produced motor behavior at the limit of his/her capacity (hands-off and high dosing) during naturally occurring child-rearing activities Learning trough trial-and error experiences (family and infant) 	<ul style="list-style-type: none"> Coaching of caregivers and/or adolescent Collaborative solution-focused conversation with following elements: <ul style="list-style-type: none"> Setting the stage Forming relationship Envisioning a preferred future Goal discovery Strategy creation Plan confirmation Action and reflection cycle Strategic questions Positive reframing 	<ul style="list-style-type: none"> Coaching of parents Collaborative analysis of performance in goal occupations (child's and/or parent's) and analysis of environment Collaborative implementation of environment changes and engagement in goal occupations in a structured problem solving process (set goals, explore options, plan action, carry out plan, check performance, generalize) Monitoring and evaluation of the process Positive reframing 	<ul style="list-style-type: none"> Parent education (e.g., coaching, teaching, instructing, training) Intensive motor training, focused on self-initiated movement, with minimal support and manual guidance when needed (tailored + routine activities as fixed elements) Learning trough trial-and error experiences Environmental enrichment Written home program with photographs (high dosing)
Aims	<ul style="list-style-type: none"> Empowerment of the family in process of decision making regarding functional activity and participation in daily life Optimize current and future motor capacities of the infant with special needs, allowing for optimal participation 	<ul style="list-style-type: none"> Empowerment of the family to enhance engagement in therapy (develop therapy goals and plans aligned with their hopes and priorities). Enhance capacity to participate at home and in community 	<ul style="list-style-type: none"> Empowerment of the parents to develop their problem solving skills in creating more enabling environments for themselves and their children. To facilitate improved participation of children and parents in valued activities and environments. 	<ul style="list-style-type: none"> To advance motor skills of infants and young children via motor task practice, parent education and environmental enrichment.
Training requirements	<ul style="list-style-type: none"> Six days contact teaching in class 2 × 30 min. individual supervision 	<ul style="list-style-type: none"> At least 12 hour Ongoing opportunities to deepen knowledge and skill through e.g., coaching sessions 	<ul style="list-style-type: none"> Training required, not reported how much 	<ul style="list-style-type: none"> Not reported
Participants	<ul style="list-style-type: none"> Families with infants with special needs (infants at high risk of developmental disorders) 	<ul style="list-style-type: none"> Parents of children (3–12 years) with developmental disabilities, and adolescent 	<ul style="list-style-type: none"> Parents of children (3–15 years) with mild to severe performance issues 	<ul style="list-style-type: none"> Families with infants at high risk of CP
Profession	<ul style="list-style-type: none"> Pediatric physiotherapist 	<ul style="list-style-type: none"> Any pediatric rehabilitation therapist 	<ul style="list-style-type: none"> Any pediatric rehabilitation therapist 	<ul style="list-style-type: none"> Pediatric occupational therapist and pediatric physiotherapist
Role of therapist	<ul style="list-style-type: none"> Coach Facilitator 	<ul style="list-style-type: none"> Coach Facilitator 	<ul style="list-style-type: none"> Coach Facilitator 	<ul style="list-style-type: none"> Coach/ Trainer/Teacher Change agent
Role of family	<ul style="list-style-type: none"> Autonomy Equal partner Actively involved and engaged partner Goal setters 	<ul style="list-style-type: none"> Equal partner Actively involved and engaged partner Goal setters 	<ul style="list-style-type: none"> Equal partner Actively involved and engaged partner Goal setters 	<ul style="list-style-type: none"> Equal partner Actively involved and engaged partner Goal setters
Environment of intervention	<ul style="list-style-type: none"> During daily care giving activities Enriched real life environment (at home, playground) 	<ul style="list-style-type: none"> Natural environment (environment of discovery) 	<ul style="list-style-type: none"> Family home and community 	<ul style="list-style-type: none"> Family home (enriched environment)

^aPediatric rehabilitation includes all professional services provided by professionals working in the field of pediatric rehabilitation, i.e., it includes pediatric physiotherapy and pediatric occupational therapy.

often affected in infants with special needs. Knowledge on the infant's postural strengths and limitations guides the exploration of challenging infant activities. The COPCA coach knows how to make modifications in the environment, to adapt tasks and to apply assistive technologies. Reflection on own actions is required.

Coaching skills and actions

The coach asks open-ended and solution- and enablement-oriented questions to actively engage family members in creating an environment of discovery. While observing, the coach describes the infant's motor activities ("running commentary") during carrying, playing, dressing, eating or bathing. Positive feedback is used to confirm, clarify and explore any needs to attain a goal. The coach informs caregivers corresponding to their needs and checks whether caregivers have understood the information. The coach promotes the creation of appropriate moments in the intervention session for information exchange. Care is taken that communication between coach and caregivers does not result in neglect of the infant's activities and does not interfere with the communication between caregiver and infant. At the start of each session the coach discusses the goals for that session with the caregivers. In the next session the coach asks the caregivers what went well and what did not, highlights the strength and learning capacities of the family and supports the family to determine the next step (support of exploration). Comments, hints and suggestions aim to support parents, for instance in the observation of the explorative play activities of the child and to provide options for challenging activities of the child. When the caregivers ask for specific examples of e.g., challenging activities, the coach may demonstrate these activities, leaving it to the caregivers to decide if, how and when they would like to integrate the activities in daily routines.

Becoming a COPCA coach is possible by following a COPCA course. This course consists of six days in-class education distributed over a period of six months and twice an individual supervision of 30 min.

Coaching approaches

COPCA is – just as SFC-peds, OPC and GAME – a coaching approach applied in pediatric rehabilitation. [Table 1](#) provides an overview of the similarities and the differences of these coaching approaches. All approaches are family-centered and goal-oriented; in addition OPC is also occupation-centered. COPCA, SFC-peds and OPC primarily focus on the empowerment of the family, whereas GAME's primary focus is infant development. In COPCA, SFC-peds and OPC coaching is a major strategy. In these approaches the applied methods of coaching are based on explicit theoretical background and clinical knowledge. SFC-peds and OPC, which are based on solution-focused therapy, have a pronounced focus on the preferred future; in addition they use positive reframing. The other two approaches (COPCA and GAME), which are designed for early intervention, are not based on solution-focused therapy, but have as a complementary basis neurodevelopmental theory (COPCA: Neuronal Group Selection Theory; GAME: Dynamic System theory). Each approach also has unique key ingredients: in COPCA "family autonomy", and "challenging infant to self-produced motor behavior", in SFC-peds "collaborative solution-focused conversation", in OPC "collaborative analysis of performance" and "collaborative implementation of environment changes" and in GAME "environmental enrichment". COPCA is applied by pediatric physical therapists, GAME by pediatric occupational- and physical therapists and SFC-peds, and OPC by any pediatric rehabilitation professional.

Concluding remarks

This paper has provided the theoretical background and the translation into practice of coaching in early physical therapy intervention using the family-centered COPCA program. It offers a promising way for implementing coaching into early intervention in children with special needs and their families. It should be realized that the approach of coaching is demanding for both families and the pediatric physical therapists. The family must be ready to accept an active role in the intervention process. The majority of families are willing and able to do this, but not all. Some families simply cannot cope with responsibilities and the active involvement in the coaching approach of intervention. They rather prefer the therapist being in charge of the intervention. It is also possible that the therapist is not able to cope with COPCA coaching. The application of the COPCA coaching approach implies that the pediatric physical therapist must be ready to incorporate the attitude of a coach in family-centered care and to avoid hands-on facilitation techniques. Hands may be used as devices to provide some postural support. Taking on the role of a coach is not easy, as it often requires a change in attitudes and a farewell to well-established behaviors (so-called strong habits). In order to be successful, family members and the COPCA coach have to establish a common sense of understanding. The required changes in therapist attitude and the absence of matching communication between family and coach may limit the implementation of COPCA. However, for families and pediatric physical therapists appreciating the change in attitude, COPCA offers an attractive and promising form of early intervention.

Acknowledgements

The authors acknowledge the feedback from Michèle Brühlhart, PT, Tjitske Hielkema, MD, PhD, Elena Mitteregger, PT, MSc, Patrizia Sonderer, PT, MAS, Markus Wirz, PT, PhD.

Disclosure statement

The authors report no declarations of interest.

References

- [1] Baldwin P, King G, Evans J, et al. Solution-focused coaching in pediatric rehabilitation: an integrated model of practice. *Phys Occup Ther Pediatr*. 2013;33:467–483.
- [2] Ives Y. What is 'coaching'? An exploration of conflicting paradigms. *Int J Evid Based Coach Mentor*. 2008;6:100–113.
- [3] Graham F, Rodger S, Ziviani J. Coaching parents to enable children's participation: an approach for working with parents and their children. *Aust Occup Ther J*. 2009;56:16–23.
- [4] Bar-Haim S, Harries N, Nammourah I, et al. Effectiveness of motor learning coaching in children with cerebral palsy: a randomized controlled trial. *Clin Rehabil*. 2009;24:1009–1020.
- [5] Dirks T, Blauw-Hospers CH, Hadders-Algra M, et al. Differences between the family-centered "COPCA" program and traditional infant physical therapy based on neurodevelopmental treatment principles. *Phys Ther*. 2011;91:1303–1322.
- [6] Blauw-Hospers CH, Dirks T, Hadders-Algra M, et al. Pediatric physical therapy in infancy: from nightmare to dream? A two-arm randomized trial. *Phys Ther*. 2011;91:132–138.

- [7] Dirks T, Hielkema T, Hadders-Algra M. Infant positioning in daily life may mediate associations between physiotherapy and child development – video-analyses of early intervention RCT. *Res Dev Disabil.* 2016;53–54:147–157.
- [8] Hielkema T. LEARN 2 MOVE 0–2 years: outcome of a randomized controlled trial on early intervention in infants at very high risk for cerebral palsy including process analysis. Platform presentation at: 29th European Academy of Childhood Disability (EACD) conference; 2017 May 17–20; Amsterdam, The Netherlands.
- [9] King G, Tucker MA, Baldwin P, et al. A life needs model of pediatric service delivery: services to support community participation and quality of life for children and youth with disabilities. *Phys Occup Ther Pediatr.* 2002;22:53–77.
- [10] Yalom ID. *Existential psychotherapy.* New York (NY): Basic Books; 1980.
- [11] Bronfenbrenner U. *The ecology of human development.* Cambridge (MA): Harvard University Press; 1979.
- [12] Rosenbaum P, King S, Law M, et al. Family-centered service: a conceptual framework and research review. *Phys Occup Ther Pediatr.* 1998;18:1–20.
- [13] Rogers CR. A theory of therapy personality and interpersonal relationships. In: Kochm SW, editor. *Psychology: a study of science.* New York (NY): McGraw-Hill; 1959. p. 184–256.
- [14] Code of Ethics for the Physical Therapist. American Physical Therapy Association. [Internet] 2017 August 20. Available from: <http://www.apta.org>
- [15] King G. A framework of personal and environmental learning-based strategies to foster therapist expertise. *Learn Health Soc Care.* 2009;8:185–199.
- [16] Dirks T, Hadders-Algra M. The role of the family in intervention of infants at high risk of cerebral palsy: a systematic analysis. *Dev Med Child Neurol.* 2011;53(Suppl 4):62–67.
- [17] Dunst CJ, Trivette CM, Hamby DW. Meta-analysis of family-centered helping practice research. *Ment Retard Dev Disabil Res Rev.* 2007;13:370–378.
- [18] Law M, Darrach J, Pollock N, et al. Family-centred functional therapy for children with cerebral palsy: an emerging practice model. *Phys Occup Ther Pediatr.* 1998;18:83–102.
- [19] Dunst C, Trivette C, Deal A. *Enabling and empowering families-principles and guidelines for practice.* Cambridge (MA): Brookline Books, Inc.; 1988.
- [20] Surgeon General Healthy people: the Surgeon General's report on health promotion and disease prevention. Washington (DC): U.S. Department of Health, Education, and Welfare; 1979.
- [21] Shelton TL, Jeppson ES, Johnson BH. *Family-centered care for children with special health care needs.* Bethesda (MD): Association for the Care of Children's Health; 1987.
- [22] Rosenbaum P. Families and service providers: forcing effective connections, and why it matters. In: Scrutton D, Damiano D, Mayston M, editors. *Management of the motor disorders of children with cerebral palsy.* Cambridge (UK): Cambridge University Press; 2004. p. 22–31.
- [23] King G. A relational goal-oriented model of optimal service delivery to children and families. *Phys Occup Ther Pediatr.* 2009;29:384–408.
- [24] Hawley KM. *The therapeutic working alliance in child and adolescent psychotherapy.* In: *Dissertation Abstracts International: Section B: The Sciences and Engineering,* 63(7-B), 3474. US: University of Microfilms International; 2003.
- [25] Edelman GM. *Neural Darwinism: the theory of neural group selection.* Oxford (UK): University Press; 1989.
- [26] Hadders-Algra M. The neuronal group selection theory: promising principles for understanding and treating developmental motor disorders. *Dev Med Child Neurol.* 2000;42:707–715.
- [27] Hadders-Algra M. The neuronal group selection theory: a framework to explain variation in normal motor development. *Dev Med Child Neurol.* 2000;42:566–572.
- [28] Hadders-Algra M. Variation and variability: keywords in human motor development. *Phys Ther.* 2010;90:1823–1837.
- [29] Hadders-Algra M. Neural substrate and clinical significance of general movements: an update. *Dev Med Child Neurol.* 2017;8:39–46.
- [30] Adolph KE, Cole WG, Komati M, et al. How do you learn to walk? Thousands of steps and dozens of falls per day. *Psychol Sci.* 2012;23:1387–1394.
- [31] Hielkema T, Blauw-Hospers CH, Hadders-Algra M, et al. Does physiotherapeutic intervention affect motor outcome in high-risk infants? An approach combining a randomized controlled trial and process evaluation. *Dev Med Child Neurol.* 2011;53:8–15.
- [32] Sameroff AJ, editor. *The transactional model of development: how children and contexts shape each other.* Washington (DC): American Psychological Association; 2009.
- [33] International Coaching Federation. [Internet] 2018 March 6. Available from: <http://www.coachingfederation.org/>
- [34] De Shazer S. *Keys to solution in brief therapy.* New York (NY): WW Norton & Company; 1985.
- [35] De Shazer S. *Clues: investigating solutions in brief therapy.* New York (NY): WW Norton & Company; 1988.
- [36] Morgan C, Novak I, Dale RC, et al. Optimising motor learning in infants at high risk of cerebral palsy: a pilot study. *BMC Pediatr.* 2015;15:30.
- [37] Morgan C, Novak I, Dale RC, et al. Single blind randomized controlled trial of GAME (Goals – Activity – Motor Enrichment) in infants at high risk of cerebral palsy. *Res Dev Disabil.* 2016;55:256–267.
- [38] Goldenberg H, Goldenberg I. *Family therapy: an overview.* Belmont (CA): Thomson Brooks; 2008.
- [39] Watzlawick P, Beavin-Bavelas J, Jackson D. Some tentative axioms of communication. In: *Pragmatics of human communication – a study of interactional patterns, pathologies and paradoxes.* New York (NY): WW Norton; 1967. p. 29–52.
- [40] Rogers CR. *Client-centered therapy: Its current practice, implications, and theory.* Boston (MS): Houghton Mifflin; 1951.
- [41] Hadders-Algra M, Boxum AG, Hielkema T, et al. Effect of early intervention in infants at very high risk of cerebral palsy: a systematic review. *Dev Med Child Neurol.* 2017;59:246–258.
- [42] Hadders-Algra M. Typical and atypical development of reaching and postural control in infancy. *Dev Med Child Neurol.* 2013;55(Suppl.4):5–8.
- [43] Hinchcliffe A. *Children with cerebral palsy: a manual for therapists, parents and community workers.* In: *Contractures and deformities.* Chapter 4. New Delhi (India): SAGE Publications India; 2007. p. 71–87.
- [44] Gericke T. Postural management for children with cerebral palsy: consensus statement. *Dev Med Child Neurol.* 2006;48:244–244.
- [45] New South Wales Family and Community Services [Internet]. Australia: 2016. Coyne D. 24 Hour our Positioning (including Seating and Wheeled Mobility), Practice Guide for Occupational Therapists and Physiotherapists who Support People with Disability, Clinical Innovation and Governance. New South Wales Family and Community

- Services. [cited 2018 March 6]. Available from: https://www.adhc.nsw.gov.au/_data/assets/file/0009/348894/24_hour_Positioning_Practice_Guide.pdf
- [46] Paleg GS, Smith BA, Glickman LB. Systematic review and evidence-based clinical recommendations for dosing of pediatric supported standing programs. *Pediatr Phys Ther.* 2013;25:232–247.
- [47] Novak I, McIntyre S, Morgan C, et al. A systematic review of interventions for children with cerebral palsy: state of the evidence. *Dev Med Child Neurol.* 2013;55:885–910.
- [48] Livingstone R, Paleg G. Practice considerations for the introduction and use of power mobility for children. *Dev Med Child Neurol.* 2014;56:210–221.
- [49] Livingstone R, Field D. The child and family experience of power mobility: a qualitative synthesis. *Dev Med Child Neurol.* 2015;57:317–327.
- [50] Koren PE, De Chillo N, Friesen BJ. Measuring empowerment in families whose children have emotional disabilities: a brief questionnaire. *Rehabil Psychol.* 1992;37:305–321.
- [51] Heineman KR, Bos AF, Hadders-Algra M. The infant motor profile. A standardized and qualitative method to assess motor behaviour in infancy. *Dev Med Child Neurol.* 2008;50:275–282.
- [52] Heineman KR, La Bastide-van Gemert S, Hadders-Algra M, et al. Construct validity of the Infant Motor Profile: relation with prenatal, perinatal, and neonatal risk factors. *Dev Med Child Neurol.* 2010;52:e209–e215.
- [53] King S, Rosenbaum P, King G. *The Measure of Processes of Care (MPOC): a means to assess family-centred behaviours of health care providers.* Hamilton, Ontario: McMaster University; 1995.
- [54] King S, Rosenbaum P, King G. Parents' perceptions of caregiving: development and validation of a measure of processes. *Dev Med Child Neurol.* 1996;38:757–772.
- [55] Haley SM, Coster WJ, Ludlow LH, et al. *Pediatric evaluation of disability inventory: development, standardization, and administration manual.* Boston (MA): New England Medical Center Hospital/Trustees of Boston University; 1992.
- [56] Russell D, Rosenbaum P, Avery L, et al. *Gross motor function measure (GMFM- 66 and GMFM-88) User's manual.* London: Mac Keith Press; 2002.
- [57] Hielkema T, Hammer EG, Hadders-Algra M, et al. GMFM in Infancy: age-specific limitations and adaptations. *Pediatr Phys Ther.* 2013;25:168–2176.
- [58] Krumlinde-Sundholm L, Sicola E, Eliasson A, et al. The hand assessment for infants, a new test for measuring use of hands and possible asymmetry in infants 3–10 months of age. *Dev Med Child Neurol.* 2015;57(S5):54–55.
- [59] Kiresuk TL, Sherman RL. Goal attainment scaling. A general method for evaluating comprehensive mental health programs. *Community Ment Health J.* 1968;4:445–453.
- [60] Carswell A, McColl A, Baptiste S, et al. The Canadian occupational performance measure: a research and clinical literature review. *Can J Occup Ther.* 2004;71:210–222.