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## **Introduction to the Optimal Coordination Order (OCO) System - The Innovative Way for Developing Individual Coordination Ability for Sport Arts**

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### **Introduction**

In different science disciplines, we find different definitions of coordination. Most definitions focus on the developmental aspects, for example, developmental coordination is defined as children who have the motor competence to cope with the demands of everyday tasks (Missuna, 2006). Approximately 5-6% of school-aged children, however, have a neuro-developmental condition called Developmental Coordination Disorder (DCD) and are at risk for a number of secondary academic, social and self-concept difficulties (Missuna, Moll & King, 2006).

There have been many articles written and research undertaken in child development that relates to children's health and health problems presenting the connection between coordination and behavior. For example, DCD as the main problem has been found to have co-morbidity with:

- Attention deficit hyperactivity disorder (50%)( Fogas & Fiechtner, 2002 in Bart.o.& Podoly ,T.& BarHaim,y. 2010)
- Language based learning disabilities (+50%)( Dewey, 2002 in ; Jongmans,M.J.&Smith-Engelsman,B.C.M& Schoemaker,M.M(2003)
- Specific language impairment (40-90%) Gaines & Missiuna,(2006)
- Non-verbal learning disabilities (NLD).

Based on the research, we can highlight the difficulty with identifying the causes of major childhood disorders.

In recent child coordination development studies, we find comparisons between today's children and children of 20 years ago. For example, now:

- Every second child aged 10 years cannot stand on one leg for 30 seconds (Weineck, 2003).
- Every third child aged 6 years has difficulty with movement, coordination reaction time, rope jumping, ball catching and throwing (Flehmg, 2000 in Wutz 2006 ).
- Every third child aged 6 years cannot walk backwards or jump on one leg (Flehmg, 2000 in Wutz 2006).
- Every tenth child aged 10-12 years falls down while biking in a circle or had balance difficulties or a lack of coordination (Deutsche Verkehrswacht, 2002 in Wutz 2006).

In sport sciences, on the other hand, there are several definitions for coordination. Despite the awareness of coordination amongst sport sciences and those in the sports field, the definitions `primarily relate to physical condition and specific sport technique. Among them, we can find:

- Movement co-ordination is the overall principle of adjusting all processes of one motor act according to the goal of that movement action (Meinel & Schnabel, 1998).
- Co-ordination is the ability to apply specific movements with as little strength effort and as fast as possible according to the situation (Dangel, 1993in Neumaier 1999)

- The word “co-ordination“ comes from the Latin “cum ordo“, which means “in order“. This implies that everything that follows a certain order is coordinated. Order presupposes regulations/rules and guidelines to which an action is carried out (Neumaier, 1999).

### **OCO System - an innovative approach for integration between sport sciences, health and education**

The Optimal Coordination Order (OCO) System is committed to inter- and multi-disciplinary research and applies the research results into pedagogic models suitable for children, based on health and sport goals.

The OCO promotes coordination as a basic ability for everyday activities, sport and physical education. The traditional sports point of view concentrates only on the physical aspects of coordination, ignoring the fact that movement is a result of coordination and is based on physical and emotional stability.

The symbiosis of physical and emotional health stability enables the child to generate an energetic economy and effective movements, to be self confident, to absorb information in a perceptive way, to create a movement memory bank, to shorten information processing time, to adapt complex information and to react in unexpected situations and/or in emotional stress situations.

The OCO is a method based on evidence from different scientific fields (Neuroscience, Neurophysiology, Brain Science) combined with sport sciences and sport training.

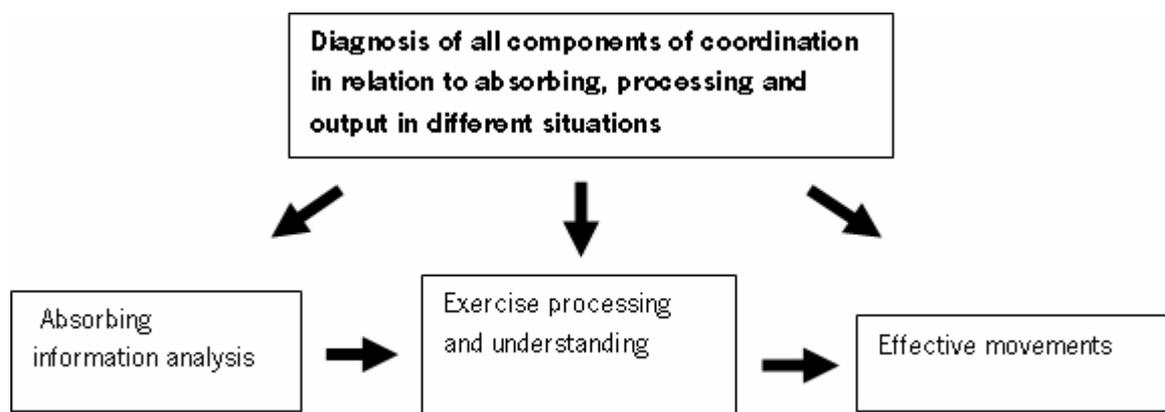
Within this method, coordination is the core for analysis of the child`s behaviour (physically and emotionally) and provides the appropriate solutions. Based on individual test results, a combination of systematic exercises are planned to develop the child`s achievements. These exercises encourage use of imagination when performing movements based on external /internal reactions (Wertheim, 2011).

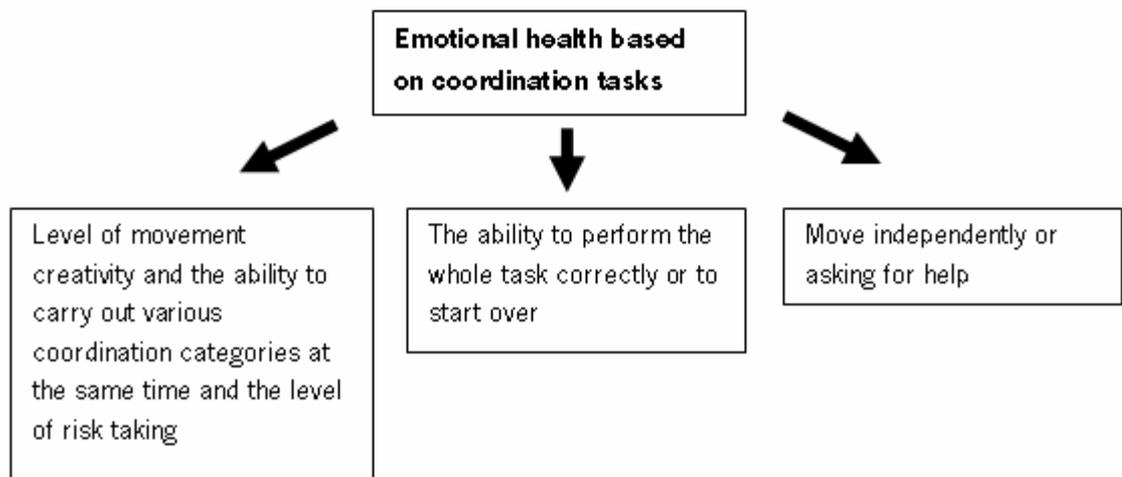
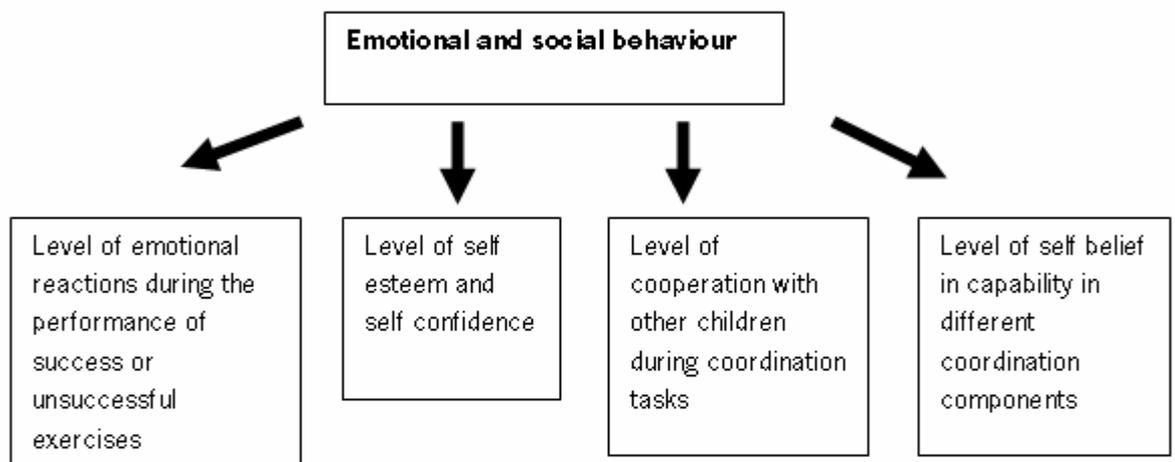
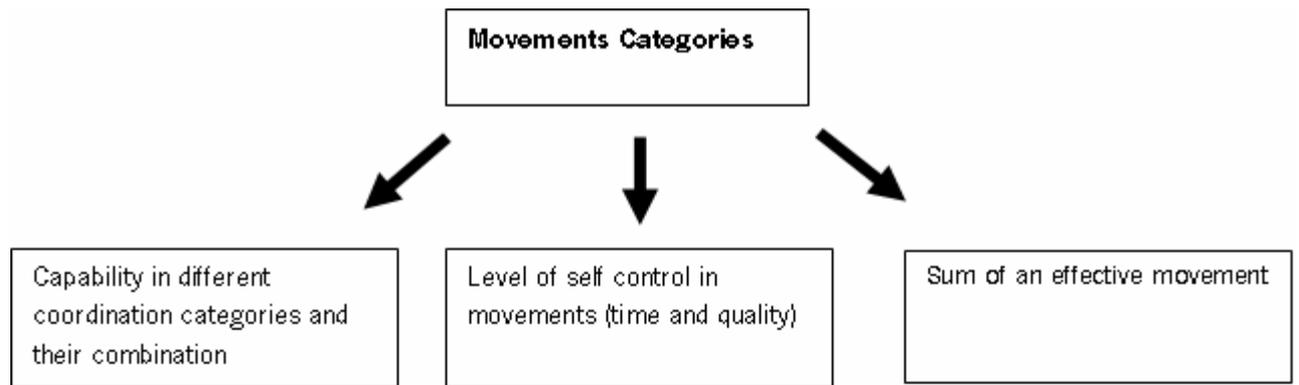
Using the OCO method will lead the child to believe in his own abilities, also in situations that he used to think were too difficult for him. A child using OCO becomes more creative in his movements, more effective in his skills (Flexibility, Quickness, Reactive power, Endurance), will be more self confident and more dominant in his social relations.

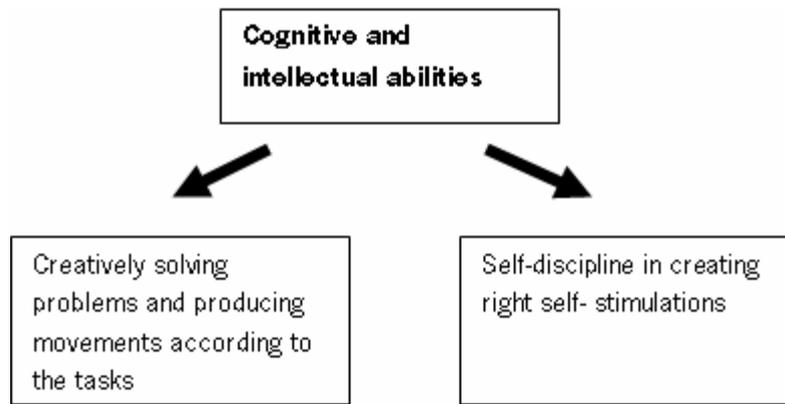
The OCO method is a holistic approach applying interdisciplinary aspects of developing coordination of a healthy child (physical and emotional fitness) as well as a sportsman.

Figures A to E graphically describe the elements of OCO.

A - E







## Conclusion

The general coordination that is built into the OCO system leads a child to better age-appropriate performances as preparation for coping with the goals of modern sport and to overcome performance gaps that may result for a child growing up in a western society.

Most of the problems in sport with children these days are their ability to transfer information, especially complex or quick information, to effective adaptation in sport technique.

The combination of emotional health and physical development in children through coordination activity in a systematic way should be more clear and understandable for all sport leaders, especially before the competition stage.

In sport, there are risks and opportunities for healthy development. Developing a wide, colourful coordination in childhood, such as for example using the OCO system, reduces the risks in sport outcomes and improves the long term chances of healthy and successful sport participation.

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