Sports and physical education for children with special educational needs

REMO MOMBARG: R.MOMBARG@RUG.NL

SEN for children with Developmental coordination disorder

Outline
1. sport participation and education of children in general (skills, attitude and behavior)
2. sport participation and education of children with specific needs: stats & barriers
3. characteristics of children with DCD
4. specific needs of children with DCD

Goal: acquire knowledge about sports participation and sports education of children with DCD

Literature

→ DCD, identification, classification, origin, intervention


→ impact of DCD on self-worth, social support, feelings
Example: examquestions

Which of the following statements about Developmental Coordination Disorder is/are correct, according to Kirby and Sugden (2007)?

I Classification of DCD should be separated from AD/HD and PDD.
II DCD interventions should incorporate parent involvement

a. Statements I and II are correct.
b. Statement I is correct and II is incorrect.
c. Statement I is incorrect and II is correct.
d. Statements I and II are incorrect.

How do you let children love sports

Sport participation in general
Life long sport participation

Do we succeed?

Sportsparticipation: organized and unorganized sports%

DCD (Developmental coordination disorder) Kirby & Sugden, 2007

insufficient feeling for body movement

Simultaneous skills & balance

3-10 % of all children, 60-80% boys, comorbidity: adhd
Don’t grow over it 65%

Not efficient, a- rhythmic

Bron: Breedveld et al. (2011) kinderen met gedragsproblemen en sport. Lindert (2013) monitor special heroes *
DCD and participation

- Children with DCD participate less in motor activities during recess at school (Smyth & Anderson, 2000)
- Children with DCD spent less time in vigorous activity during recess (Bouffard et al., 1996)
- Children with DCD spent less time engaged in assigned activities during PE + spent more time engaged in off-task behaviors. (Causgrove Dunn & Dunn, 2006)

Life long sport participation depends on skill, attitude and behaviour

1. DCD children have insufficient basic skills
Skills

Fundamental motor skills
(A) Walk: run, walk, hop, on toes
(B) Climbing: stairs, bars, rope
(C) Jump: on and over, two feet
(D) Rolls: forward roll on the ground
(E) Balance: on the bank
(F) Throw/catching: different balls
(G) Dribbling: left and right
(H) Hit: baseball, badminton,

Fundamental motor skills for sports

Fine motor skills
2. DCD children often lack appropriate behavior

Social-emotional skills
Learn skills and learn to use them in play

- teacher practices skills f.i. trust each other

Use social-skills in regular situations
- scaffolding learning
- reinforcement with cue-cards

Preparation for the playground
3. DCD children often have a negative attitude towards sport

- Motor problems
- Child often fails
- Negative Reactions/Bullying
- Avoidance of motor activities
- Fear of failure
- Reduced physical fitness & self-esteem
- Less social participation

Widening Gap., Skinner & Piek, 2001

Attitude towards sport who is responsible
Life long sport participation depends on skill, attitude and behaviour

Intervention on skills
- error-less learning
- learning by variation
- learning by analogy
- learning by feedback on result

Implicit learning
1. Error-less learning
Use of adequate levels
Pre-teaching

Errorless learning is more effective (Maxwell, Masters, & Kerr, 2001; Poolton, Masters, & Maxwell, 2005)

Error-less learning group started easy (25-100)
Error-full learning group started difficult (200-100)

Research
Error-less learning has more effect
(Maxwell, Masters, & Kerr, 2001; Poolton, Masters, & Maxwell, 2005)

In practice: Throw and catch 4 levels:
Level 1 bounce and catch one kid (big ball)
Level 2 bounce and catch with 2 kids and a hoop (big ball)
Level 3 bounce and catch different balls, different materials
Level 4 ball-games
2. Learning by variation: discovery practice

Children learn to adapt their coordination towards the changing environment.
Motor learning is task and situation specific.

Research, passing the ball

WOLFGANG & SCHÖLLHORN et al., 2006

Practice: How to catch a ball

EFFECT OF IMPPLICIT LEARNING

Instruction: different method, learning by doing
3. Learning by analogy

Use of result and figurative speech

round as a ball "rabbit jumps"
Hand in the cookie jar

Research: Table tennis: training with external (analogy) or internal (explicit) focus: Liao & Masters (2001)
What can you say or do here?: knowledge of result/analogy/

This is a analogy of.....

4. Learning by external focus
Feedback on result is more effective than on process
External focus is more effective than internal focus
Zachry, Wulf, Mercer, & Woods (1996)
Research (Zachry, Wulf, Mercer, & Bezodis, 2005; Wulf & Su, 2007)

Basketball setshot:
- Knowledge of performance (intern)
- Knowledge of result (extern)

Resultaat:
- KR group: more success, more efficient

Practice: knowledge of result

- Make use of environment
- Make the result visible
Physical education

Goals of PE: preparation on a life time sports participation through improvement of skills, attitude and behavior

Soccer-exercise at a playground

Think of solutions
- error-less learning
- learning by variation
- learning by analogy
- learning by feedback on result

Develop a soccer exercise based on implicit learning
Goal: develop motor-skills

Choose
- Poster (blueprint)
- 1 minute pitch
- Exercise/sports activity

Illustrate why your solution stimulates motor learning of DCD-children
SEN for children with Developmental coordination disorder

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Bonus

CHILD
WHAT DO I WANT TO DO? (GOAL)
HOW AM I GOING TO DO IT? (PLAN)
JUST DOING IT (DO)
HOW DID I DO IT? (CHECK)
→ SELF REGULATION

References, 15 April 2012
Environment: task-specific & person-specific

Special project: Wii-effect

Effect of Wii on balance-skills
60% of children with DCD have balance problems
Exercises to adjust center of gravity

Effective Interventions


• Task specific
• Under stress
• Between 6-13 year
• 3 -5 times a week
• minimum six weeks
• modifying elements

Special education:
• Less on strategy, less on process
• Visual, external feedback (Gooday, Coelho & Berthelauk, 2008; Balsevic & Line, 2003)
Intervention try-outs

- Break intervention at lunch time
- 10 weeks, 3 times week
- Children choose two games a day
- Direct visual feedback
- Adaptive game level
- Awards

Research

Inclusive criteria:
- <15th percentile totaalscore M-ABC-2
- <15th percentile balansvaardigheid (M-abc-2)

Research questions
1. Effect of wii-intervention on balance-skills
2. Effect of wii-intervention on running speed and agility

Results

M-ABC-2: Balance

M-ABC-2 balance F(1,28) = 5.34, p = .03,
BOT running and agility T(1,28) = 1.23, p = .28
Neural development

- head to toe
- in towards out
More nerve cells, more simultaneously

Development of synchronous movements

Video (SOFIT: observational instrument fitness instruction time)

Score:
- General content
- Knowledge content
- Fitness
- Skills
- Game play
- Free play
Instituut voor Sportstudies
"Wij ontwikkelen innovatieve beroepspraktijken in de sport"

Sportbehavior (N=3710 observation samples)
Sofit: 2 observers, 10 seconds interval, 30 lessons

Difficulty to catch a ball, what can you do?