Effects of Early Stimulation & Deprivation
Concept 6: Early stimulation

Normal development is associated to the type of environment where we learn or relearn motor or sport skills.
Brain Research

Recent scientific discoveries have expanded our understanding of the importance of experience (stimulation) in early brain development (Begley, 1996, 1997; Nash, 1997).

With this news, "head-start" programs and early positive experiences for all children have gained considerable support.
Stimulus Package

Did you know that 2.1 billion dollars of the 850 billion dollar stimulus package will be going to head start programs that will affect 110,000 children.
Which environment best describes how you were raised?

<table>
<thead>
<tr>
<th>No-programming</th>
<th>Program</th>
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<tbody>
<tr>
<td>- Parents withheld instruction until the child</td>
<td>- Parents took an active role</td>
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<tr>
<td>learned to control their body</td>
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<tr>
<td>- Avoided systematic practice of specific skills</td>
<td>- Create a home environment that facilitates</td>
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<tr>
<td>- Avoided assisting devices and techniques to acquire</td>
<td>the child development</td>
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<tr>
<td>motor skills</td>
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<tr>
<td>- Let the child explore their environment unassisted</td>
<td>- Followed a systematic program</td>
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<td>- Uses assisting devices</td>
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<td>- Prescribed activities that are observed</td>
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Effects of No-program versus Program

• Neither program has shown to have any detrimental effects

• Any gains in motor development seem to be contributed to exposure to normal stimulated home environment whether it be no-program or program.
Stimulation Programs

• Gymboree
  – Birth to 5 years
  – Found in 26 countries
  – Assumes that pre school children need certain types of play activities to develop normally
    • Non competitive and fun activities
    • Child is engage in physical fitness, arts, play, music, dance, and yoga.
    • Child engaged in self-discovery activities with the parents involving assisted devices such as balance beams, scooters, tunnels, hoops, and ladder
    • Involved free time and group activities
  – Claims made are improvement in balance, fundamental skills, appear to be less passive and dependent, better coordination and social skills
Stimulation Programs

• **YMCA Swim Programs for infants and toddlers**
  - Once the child achieves motor development of that of typical 5 year old, swimming skills will develop rapidly.
  - Programs should stress water adjustment, readiness, and orientation rather than drown proofing or waterproofing.
  - Beginning lessons before the child is read does not lead to more rapid mastery of swimming skills.

• **Suzuki Method of Playing the Violin**
  - First listen music while one learns language skills
  - At 2 or 2 ½ years, child starts playing the violin
  - Child should be willing and motivated to play the violin
  - Violin instrument needs to fit the child
  - Non competitive environment is stressed
Simulation Programs

• Head start
  – Preschool program to enhance social competence in children especially in low-incomes families
  – Social competence is having the child able to deal with a school and present living environment or “school readiness.”
  – Assumption these children intellectual, social, and emotional behaviors will be enhanced which will lead to greater academic success later.
  – Tracking 2100 head start disadvantaged children has shown:
    • 10 times more likely to finish High School
    • Short and long term effect on academic achievement
    • Disadvantaged students were able to catch up to other students.
  – What affect does head start or preschool have on child who are not disadvantaged in unknow!
Effects of Early Deprivation

• Hopi Cradleboard and Infant development
  – Babies tied to board with arms and legs in extended position so they could not touch their face or kick their feet.
  – In boards up to 23 hours per day starting shortly after birth to ages of 1 to 2 years.
  – Little effect on development of fundamental skills such as walking as compared to “while American children” in a normal environment if the child was strapped to an active child caretaker.

• Deprivation dwarfism
  – Child being in a non-stimulated environment for a long period
  – In these environments, weight and height grow is delayed or permanently retarded
  – Speech retardation, social withdrawal, delayed cognitive abilities, and retarded psychomotor skill development are evident
    - e.g., Study tracking 18 post pubertal participants with deprivation dwarfism; Gardner’s article about two orphanages; twins one male (abused) and the other a female (not abused), Anna; and Young savage of Abeyron (Victor).
Concept 7: Critical periods

• Critical periods
  – Times when specific conditions or stimuli are required for optimal development (Cammeron & Demerath, 2002)
  – 4 critical elements of critical periods
    • Child needs to reach a state of readiness for environmental stimulation to be effective
    • There is specific time limit
    • Effects of stimulation or lack of stimulation during this period is permanent or long lasting
    • Critical periods exist for all of human behavior (cognitive, social, emotional, and motoric)
**Critical Period Example**

- Most athlete’s studied by Kalinowski (1985) and Monsaas (1985) started their involvement in sport by “trying out” different sports in a playful and fun environment. As the athletes moved from early years to the middle and later years, this type of environment changed and soon included specialization in a one main sport with more practice time.

- According to Cote (1999) and Bloom’s (1985) research with elite athletes. They identified three stages of development, namely, sampling years (ages 6-12), specialization years (ages 13-15), and the investment years (16+). During sampling stages, the main purpose was to make sport fun and exciting. During the specialization stage, the child focused on one or two sports. The strategic, competitive, and skill development dominated the investment years.

- In development of expertise in a sport, sensitive period appear to exist where important decisions about participation have to be made. Had there been no excitement during the early years, and no sense that the athlete was very successful, there would never be a middle or latter period of success.
Critical Period

• If children do not play by the rules during their early development; they will have difficulty in playing by the rules later (Cote & Hay, 2002).

• It is well documented that the “most talented” cannot reach an international level in less than approximately a decade of experiences and intense preparation (Starkes, 2005).
Stages or Phases

- Stages, phases, critical time period or levels implies similar meaning.
- Implies that there is particular time in the life of a human being that is characterized by unique behaviors and experiences where they are the most sensitive to developing.
Does stages or critical time period really exist?

- Existence versus non-existence remains an ongoing controversy
  - Research with figure skaters indicates that one must begin skating during their early childhood period or they will never make good skaters (Starkes & Ericsson, 2003).

- To be true, each stage must be unique, distinct, flow from one stage to another, and each stage must be linked to the preceding stage.
  - At the present time this question is inconclusive
Concept 8: Readiness

• Readiness
  – Associated with critical periods
  – There is need to establish minimum characteristics necessary for a particular movement skill...before addition instruction or practice can be worthwhile, the prerequisite skills must be acquired!!
  – The movement specialist (teacher, coach, exercise leader, PT) needs to recognize the signs or states of readiness in their client, student, or athlete for instruction and/or practice to be effective.
Readiness to Walk

- **Fetal posture (0 months)**
- **Chin up (1 month)**
- **Chest up (2 months)**
- **Reach and miss (3 months)**
- **Sit with support (4 months)**
- **Sit on lap grasp object (5 months)**
- **Walk when led (11 months)**
- **Creep (10 months)**
- **Stand holding furniture (9 months)**
- **Stand with help (8 months)**
- **Sit alone (7 months)**
- **Sit on highchair grasp dangling object (6 months)**
- **Pull to stand by furniture (12 months)**
- **Climb stair steps (13 months)**
- **Stand alone (14 months)**
- **Walk alone (15 months)**
Concept 9: Catch-up

- Catch-up
  - Power of the human to be able to “return to a genetically determined growth path (Berk, 2004)”
  - Catch-up does occur in physical growth if it occurs during childhood.
  - Catch-up in terms intellect, social abilities, and motor abilities depends on severity, length, and time of deprivations.
  - Most individuals in deprived environment never fully realize their genetic potential in the above areas (Prader, Tranner, & Von Harnack, 1963; Berk, 2004).
In summary

• People develop normally in environments that are stimulating.
• Optimal development of motor skills may be associated to critical period or phases.
• Movement specialists (teachers, PT, exercise leaders) needs to understand the concept of readiness when developing motor and sport skills.
• Very difficult to catch-up if one environment is deprived.