

Human Movement: Motor Development

APA 1161

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Today's Class Objectives



1. Understand the area of motor development
2. Think about why you need to understand motor development
3. Be aware of the courses available in HK program and Professor's research
4. Learn the general pattern of motor development
5. Overview developmental pattern of one motor skill (throwing)
6. Learn theoretical perspectives explaining the emergence of motor skills-emphasis on Newell's model
7. Be prepared for laboratory experience

What is motor development?



What is in our program for more MD?



APA 3121: Motor Skill Development of Human Movement













APA 4131: Psychomotor Behaviour: Current Trends

APA 4150: Psychomotor Rehabilitation*

*APA3150 is a prerequisite



The Motor Development Continuum

Phase	Approximate Age	Stage
Reflexes/Spontaneous movements		
Rudimentary Motor Skills		
Fundamental Motor Skills		
Sport/specialized skills + growth and refinement		
Peak Performance		
Regression		



Spontaneous and Reflex Movements

Newborn examinations



These examinations provide us with valuable information



Tonic neck reflex



Grasp reflex



Step reflex



Crawl reflex

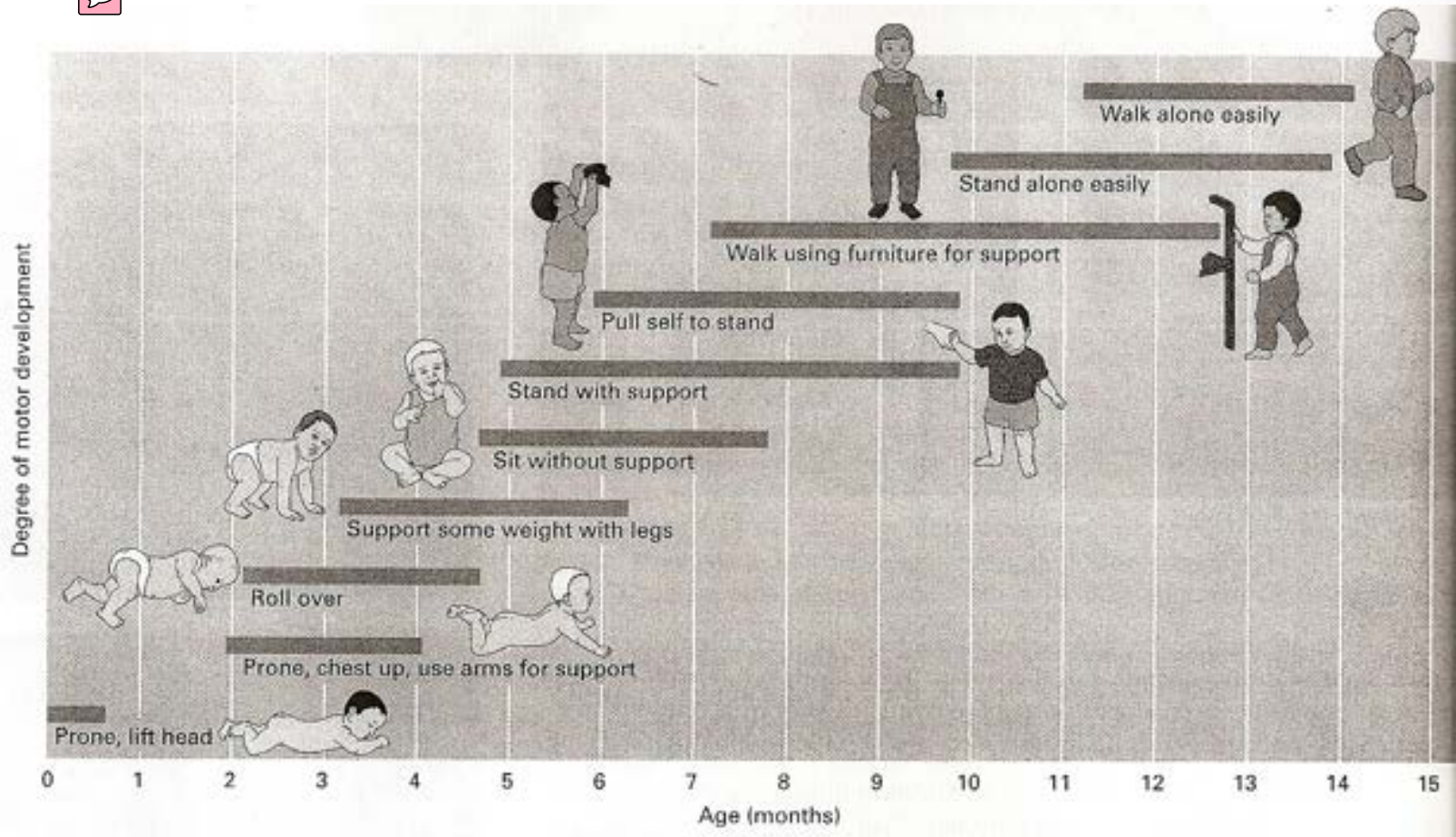
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Examples of Rudimentary Movements





Examples of Fundamental Motor Skills

catching a ball,
long jumping.
throwing, swimming



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Developmental Sequences for FMS



- Biomechanical descriptive period
 - Lolas Halverson
 - longitudinal observations of children doing varied FMS
 - she followed the children throughout their growth
 - stages of development for many of the FMS
 - Example: throwing
 - she says that when we throw we need to use the trunk, hummerus, forarm, foot
 - we see that a sequence is formed



Why are FMS important?

they are important
in order to further
the selection of
activities that can
be done through or
life time





Why Study Motor Development?

- Human motor development is multifaceted; consisting of such domains as cognition, emotion, intelligence, etc. Given the continual interactions among the varied domains
- Understanding typical motor development allows us to
diagnose cases where abnormal development is occurring that warrants intervention and remediation
- Understanding typical motor development enables
the creation of developmentally appropriate activities for the optimal teaching/learning of motor skills for people of all ages

Perspectives on Development



•Dynamical Systems (Kugler, Kelso, Turvey–Bernstein)

- Organization of physical and chemical systems **CONSTRAINS BEHAVIOUR**
- Structure of the adult human hip joint encourages (constrains) upright walking
- Motor skill development is the product of **many underlying systems (nervous, skeletal, muscular, etc.)**

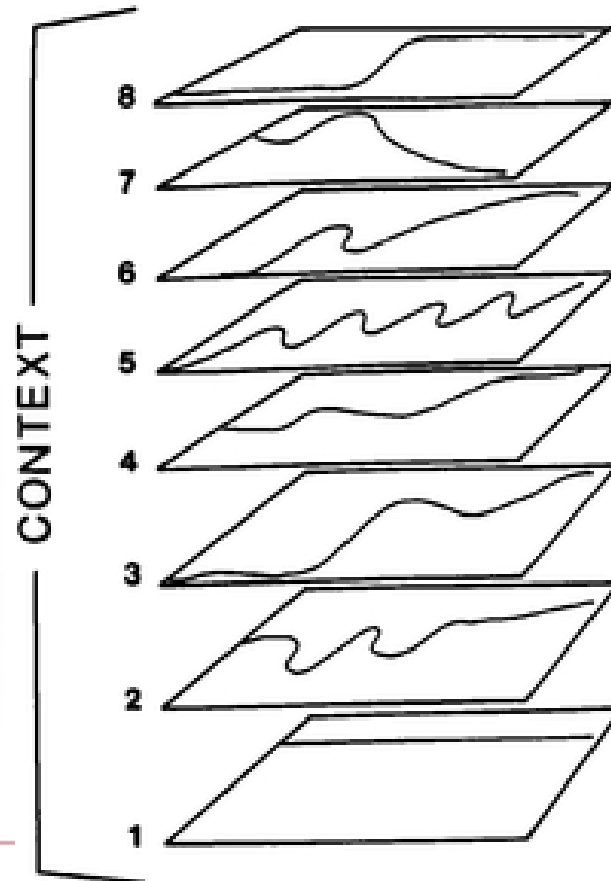




Tenets of Dynamic Systems Theory

- All systems have their own *rate of development.*
- The skill will emerge when *all systems are at the level needed to perform the skill.*
- The last system to “kick in” is called *the rate limiting system*

example: walking





Newell's model

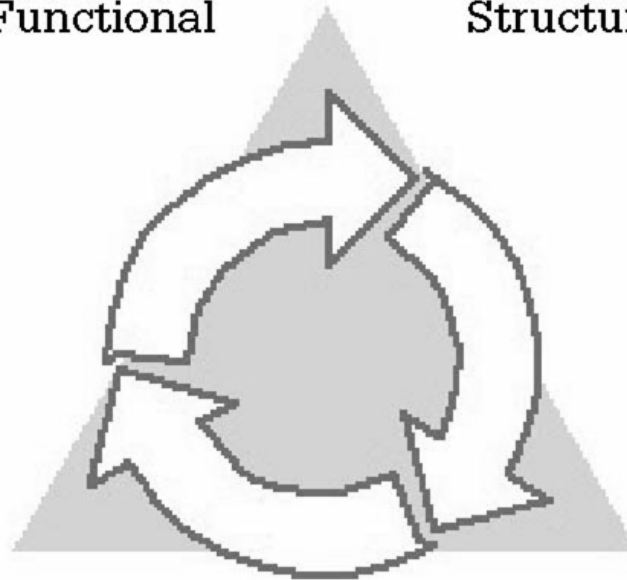
behavioural
function; eg.
motivation, fear,
attentional focus

Individual Constraints

Body systems
structure

Functional

Structural



related to rules of
activity and
equipment used

Task Constraints

both physical and
sociocultural

Environmental Constraints



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