CHAPTER 3

MOTOR ABILITY
CHAPTER’S CONCEPT

A variety of abilities underlie motor skill learning and performance success
MOTOR ABILITY

• An ability that is specifically related to the performance of a motor skill
ABILITIES AS INDIVIDUAL DIFFERENCE VARIABLES

• Performers have differing achievement potentials across a motor skill or activity
• Controversy over general versus specific motor ability

• Motor abilities are highly related to each other • Motor abilities are relatively independent

continued
General motor ability hypothesis

Highly skilled in one motor skill than he/she has the potential to be highly skilled in all motor skills.

Specificity of motor ability hypothesis

Individuals have many motor skill, each independent.
Balance Example

• Balance consist of static and dynamic balance
  – In rehab we work on static balance before we work on dynamic balance in walking
  – But static and dynamic are independent
    • Rose et al. found that 14 of 23 children with gait disorders related to cerebral palsy showed normal standing balance.
Timing

• Some believe that people possess a general timing ability that underlines the performance of skills.
• Other argue timing is specific to the requirement of the skill
• Research indicates timing ability is specific to the requirement of skill rather than general ability.
IDENTIFYING MOTOR ABILITIES

• Abilities can be measured
• Play a foundational role in performing
• Individuals possess some level and differ in each ability
• Fleishman’s Taxonomy
  – Perceptual-motor abilities (Table 3.2)
  – Physical proficiency abilities (Related to physical fitness)
RELATING MOTOR ABILITIES TO MOTOR SKILL PERFORMANCE

• General ability or intelligence
  – Cognition & Memory-related processes

• Perceptual Speed
  – Ability to solve problems quickly

• Psychomotor Ability
Perceptual Motor Abilities

Control Precision
- Dribbing a soccer ball

Multi-limb coordination
- Spiking a volleyball

Response orientation
- Tailback find a hole

Reaction Time
- Start in track

Speed of limb movement
- Slapshot in hockey

Rate control
- Mountain biking

Manual dexterity
- Playing water polo

Aiming
- Tapping the keyboard
Physical Proficiency Abilities

Static Strength
Dynamic Strength
Explosive Strength
Trunk Strength
Range of Motion
Dynamic Flexibility
Stamina
Gross Body Coordination

- Pushing a car out of a ditch
- Rock climbing
- Throwing a baseball
- Pole vaulting
- Mr./Ms Flexibility
- Springboard diving
- Marathon Running
- Slalom Skiing
VALUE OF IDENTIFYING MOTOR ABILITIES

• Identify the source of problems in performing a skill

• Develop appropriate physical activities to improve performance
Practical Implication

Which is better the generalized or specific ability hypothesis in enhancing one capabilities to regain (rehab) or achieve on potential in motor or sport skills?
More about this question?

• Should a young learner or early in rehab the client be provided with as many varied developmentally appropriate movement experiences as possible?

OR

Should the young learner or early in rehab the client be provided specific movement experiences that relates to specific motor skills?
Example

• For successful performance in free throw shooting requires a prerequisite strength level. Should the young learner, rather than employ correct technique, execute the free throw using a “shot put” type of movement in order to generate the ball higher or should, we lower the basket to a suitable height and work on correct technique.
Today’s Perspective on the Question

• Practitioners, researchers, and text seems to support the specificity motor ability hypothesis!
Deliberate Practice in Figure Skating

• 20 members of the Canadian national figure skating team
  – Average starting age 5.2 years of age
  - Skating year round by age of 9

In practice

Activities that directly relate to an actual performance (namely jumps, spins, and program run-throughs) were identified as being important for performance improvement
SUMMARY

• Ability refers to a general trait
• Capacity of individual that is related to performance of a variety of skills
• Motor ability underlie the performance of a motor skill
• Most motor abilities seem to be independent.