- 1. The background correction is another coordination that takes place without consciousness.
  - 1.1. Learning a skill is like solving a problem.
    - 1.1.1. We tend to be aware of the extremity we move, such as arms or legs. What about the trunk?
      - 1.1.1.1. The trunk or core muscles must be coordinated with extremity movement and the internal force the extremity generates during performance.
      - 1.1.1.2. The core muscles can be coordinated with the reaction forces under automatisms.
      - 1.1.1.3. We eventually control extremity movements in the numerous details with equilibrium between internal and external force, also known as background corrections.
      - 1.1.1.4. The background corrections should be independent of motor skills.
- 2. Human performance
  - 2.1. Human performance can be divided into three movements:
    - 2.1.1. Voluntary movement: execution, plan, strategy based on problem solving.
      - 2.1.1.1. It can be influenced by present emotion, fear, amount of motivation, or the degree of fatigue perceived.
    - 2.1.2. Involuntary movement: postural balance, equilibrium, coordination, muscle tone or tension, a part of motor learning concept.
      - 2.1.2.1. It is not reflective of afferent input to efferent output, such as spinal stretch reflex.
      - 2.1.2.2. It is controlled by the cerebellum and the extrapyramidal track, including rubrospinal, reticulospinal, vestibulospinal, and tectospinal track.
    - 2.1.3. Rhythm is also a part of human performance, such as walking and running. Complex movements, such as dance and footwork drills, can be rhythmical movement if individuals all know what to do, temp and speed.
      - 2.1.3.1. Walking can be controlled by the midbrain, also known as mesencephalon locomotor regions, and the central pattern generator taken placed in the spinal cord.
  - 2.2. The background corrections can be controlled by the extrapyramidal tract.
    - 2.2.1. There are similarities in postural balance between riding a monocycle and rollerblader.
      - 2.2.1.1. Those skills require us to maintain the upper body leaning forward while pushing pedals or kicking ground with the rollerblader.

2.2.1.2. Any of the skills can be successfully transferred to another skill if those two skills have similar background corrections.

## 3. Core muscle

- 3.1. Any of the muscles in the trunk can be categorized as core muscles, which cannot move any of the extremities.
- 3.2. Core muscles appeared to be controlled by the ventromedial pathways projected in the spinal cord, which is different from the dorsolateral pathways activating extremity muscles.
- 3.3. Core muscles can be activated by not only the corticospinal track but also the extraspinal track, such as the vestibulospinal tract and reticulospinal track.
- 3.4. Core muscles play an important role in delivering force and energy produced by the ground reaction force though lower extremities in kinetic link movement to the scapula and shoulder while throwing a baseball.
  - 3.4.1. Core muscles also need to be stabilized by the leg on the weight bearing side while kicking a soccer ball.
- 3.5. According to Kibler (2006), core muscles are not activated as much as 5% MVIC in daily activity or 10% MVIC in rigorous activity.
- 3.6. Core muscles do not contribute to flexion and rotation of the body, which is taken place by the hip joints.
  - 3.6.1. Core muscles contribute to maintaining or recovering postural balance from the postural position that is swayed.
  - 3.6.2. Core muscles can be engaged by the corticospinal tract as voluntary movement. However, that is different from actual activity in core muscles.
- 3.7. Core muscles should be trained while activating extremities, such as throwing medicine ball.
- 3.8. Core muscles should not be trained in a static position, such as the plank position, unless individuals suffer from lower back pain, which helps reduce muscle spasm.
- 3.9. Core muscles must be trained in sports specificity manner, which involves the extrapyramidal track.