Movement Analysis of Kicking A Soccer Ball
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Introduction

• Kicking a soccer ball is situational.
  – Depending where you are on the field or what your objective is, the kick may be different.
  
  – The different kicks might differ in force and distance based upon technique.

  – Examples: cross, shot, and goal kicks compared to a pass in a combination play.
Mental Preparation

- Players are constantly thinking “what is next” --- Head is up.
- Mental preparation leads to ball set up.
  - Laces
  - Inside of foot
- Ball set up leads to body preparation.
Types of Kicks

- **Laces Kick**: Toe down, power in knee flexion. Used for crosses, corner kicks, goal kicks, and shooting.

- **Inside of Foot**: Ankle rotated out, toes pointed up. Used for passing, and finishing (shooting).
Laces Kick

Six Stages
1. The Approach
2. Foot Planting
3. Cocking of Kicking Limb
4. Swing
5. Ball Contact
6. Follow Through
Stages-Laces

- **Stage 1: The Approach**
  - This stage is consecutive to the mental preparation.
    - Set play: Run up at an angle
    - Shot: set up touch or Anticipation
    - Cross: Touch to the outside of the foot kicking the ball to create an angle.
Stages-Laces

- Stage Two-Foot Planting
  - Determines the direction of the kick
  - Done in the sagittal plane
  - Result of knee extension in stride and plantar flexion. P. Flexion may proceed into dorsiflexion based upon circumstances or stage of the kick.
Stages-Laces

- Stage Three: Cocking of Kicking Limb
  - Power producing movement.
  - Knee Flexion is the main component
  - Plantar flexion in the kicking foot
  - Hip extension
  - Possible hip abduction.

This movement stores up force and energy that will transfer over to the swing phase.
Stage Four: The Swing
- Knee extension
- Hip flexion
- Plantar flexion

This is an explosive anaerobic movement.

* Torque and moment arm play a major role in this movement. The longer the limb and shorter moment arm, the higher the velocity will be generated.
Stages-Laces

- Stage Five: Ball Contact
  - Knee Extension still taking place
  - Continuation of hip flexion
  - Plantar flexion
  - Some dorsiflexion in planted foot
Stage Six: Follow Through
- Continuation of ball contact
  - Knee Extension
  - Hip Flexion
  - Foot begins to relax

- Then the reverse happens
  - Hip Extension bringing leg back down
  - Athlete lands on shooting foot
Laces-Upper Body

- There is minimal movement in the upper body.
- Most movement done in the frontal plane.
  - Lateral flexion in the torso
  - Arm abduction
  - Arm adduction

http://www.youtube.com/watch?v=ALIRCy21-cU&feature=youtu.be
Inside of the foot

- The stages of using the inside of the foot are very similar.
- However there is more movement done in the transverse plane.
  - Eversion in the foot
  - Lateral rotation in the knee

http://www.youtube.com/watch?v=HwKlulAThV0&feature=youtu.be
Main Muscles

- Quadriceps
- Hamstrings
- Gluteus Max and Min
- Periformis
- Abdominals
- Psoas
- Gastrocnemius
- Adductors of the leg
References


