

# [Analyzing the place kick in tackle football to determine the factors that achieve...](https://assignbuster.com/analyzing-the-place-kick-in-tackle-football-to-determine-the-factors-that-achieve-highest-foot-velocity-at-ball-impact-lab-report-example/)

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## Analyzing the place kick in tackle football to determine the factors that achieve highest foot velocity at ball impact

analyzing the place kick in tackle football to determine the factors that achieve highest foot velo at ball impact. This paper presents an analysis of the ‘ place kick’ in tackle football with the aim of determining the factor, which achieve the highest foot velocity at the ball impact. In determining such factors, the two motion of the two legs’ segment and the human trunk have to be described.
Usually, the kicking task is separated into three main tasks. These include the approach, execution, and follow-through (Kreighbaum 370). The tasks are described in tables as shown below, with each table showing a separate phase, starting with the approach, execution, and then the follow-through phase.
Phase: Approach
Sequence
Order
Body Part
Articulation and action
Muscles
Plane and axis of motion
1
Body trunk
Stabilization of the body trunk
psoas major, Abdominals,
erector spinae, spinal
postural muscles
N/A
2
Left shoulder
Horizontal abduction of the left shoulder
Middle deltoid, anterior deltoid, supraspinatus
Sagittal
3
The Right hip
Internal rotation and hip flexion
Tensor fascia lata, psoas, rectus femoris, iliacus, Sartorius, adductor group
Longitudinal and Transverse
4
The left Hip
Extension movement of the left hip
Gluteus maximus, adductor magnus , hamstring group
Transverse
5
The Right knee
Extension movement of the left knee
Quadricep group
Transverse
6
The left knee
Extension movement of the left knee
The quadricep group
Transverse
7
Right ankle
Plantarflexion movement of the right ankle
The plantarflexors
Longitudinal and Transverse
Phase: Execution
Sequence
Order
Body Part
Articulation and action
Muscles
Plane and axis of motion
1
Body trunk
Rotation stabilization to
the right for a right kick
psoas major, Abdominals,
erector spinae, spinal
postural muscles
Longitudinal
2
Left shoulder
Abduction movement
Middle deltoid, anterior deltoid, supraspinatus
Sagittal, M-L
3
The Right hip
Extension movement
Gluteus maximus,
hamstring group
Transverse
4
The left Hip
External rotation with eccentric extension movements
The Gluteus med; the gluteus min; the hamstring group; the adductor
magnus
Longitudinal and Transverse
5
The Right knee
Flexion movement
The hamstring group, popliteus
Transverse
6
The left knee
Eccentric extension movement
The quadricep group
Transverse
7
Right ankle
Plantarflexion
The plantarflexors
Longitudinal and Transverse
8
The Left ankle
Eccentric plantarflexion
The plantarflexors
Longitudinal and Transverse
Phase: Follow-Through
This phase serves the purposes of keeping the foot in contact for longer with the ball as well as guarding against injury. Longer contact time maximizes the transfer of momentum to the ball thereby achieving maximum velocity (Barfield 713). This phase is tabulated as follows:
Sequence
Order
Body Part
Articulation and action
Muscles
Plane and axis of motion
3
The Right hip
An eccentric external rotation; an eccentric extension; an eccentric abduction
The amstring group; the posterior fibres of gluteus med; the quadratus femoris; the piriformis; the gluteus maximus
Longitudinal and Transverse
5
The Right knee
Eccentric flexion of the knee
The hamstring group
Transverse
Generally, a close relationship exists between the player’s foot velocity and resultant ball velocity. The speed of the foot is highly governed by the combination of various aspects that include the rotational toque of the hip, the flexor strength of the hip, and the quadriceps strength (Barfield 718). This means that the foot velocity is mostly affected by these factors.
Work Cited
Barfield, B. " The biomechanics of kicking in soccer." Clinics in Sports Medicine, Vol. 17, No. 4 (1998): 711-728. Print.
Kreighbaum, Ellen. " Performance Analysis of Throwlike Movements ." Kreighbaum, Ellen. Biomechanics : a qualitative approach for studying human movement. Boston: Allyn and Bacon, 1996. 370-374. Print.