

Highlander LLC School of Golf



Breaking the Distance Barrier

How to increase the "Horsepower" of your swing

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by
By Les Ross



About the Author



- Director of Golf of Highlander School of Golf.
- Author of "Breaking the Distance Barrier".
- Sports Coach
- Mechanical Engineer



"The less moving parts the more reliable the system"



Swing Power



Observations:

- You rotate your hands away from the target early on the takeaway
- You hold your hands "out and high" at address
- It would appear that you have a relatively flat swing plane
- It was difficult to see this, but it looked as if your grip was slightly neutral/weak

- Your hip turn on the downswing lags your shoulder turn
- You have a fair amount of forward head movement on the downswing
- You have an early hand release on the downswing which "slows down" the rotation of the downswing

- On one video it appeared that you have a slightly "closed" stance
- On one video your ball position in the stance was forward of ideal



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Lesson outline:

Stance & ball position

Grip

Backswing take away & flat swing plane

Downswing sequence & lag



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Stance and ball position:

- "Closed stance" and forward ball position create opportunities for pulls and fades
- Reduces backswing trunk torque

Reason:

- Ball is well ahead of the base of the swing arc
- Ball is positioned at a point where the swing arc is already moving to the left
- Exaggerated with a flat swing plane
- Torque is generated by the relative difference of the trunk and hip turn angles



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Corrections:

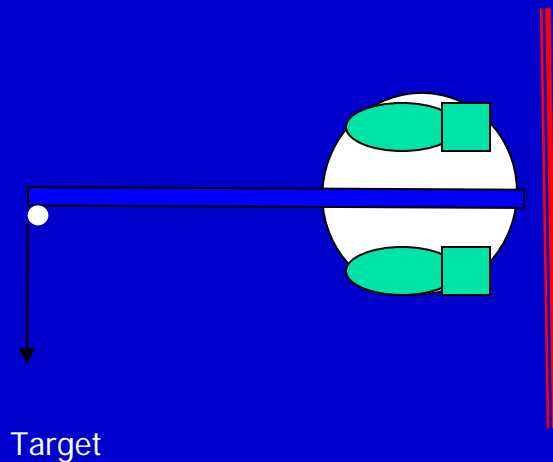
Establish visual reference lines by starting the set with both feet together

Club face alignment

Shoulder alignment

Feet alignment

Ball Positions



Target



Swing Power



Grip:

- A weak or neutral grip creates opportunities for slices and fades
- Reduces power from the hands at the base of the swing

Reason:

- Does not allow adequate torque transfer from the hands
- Zero leverage from the left thumb
 - hands arrive late at impact with club face open

Corrections:

- Rotate the left hand until the left thumb is to the right side of the grip center line



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Backswing take away & flat swing plane:

- Rotating the hands early on the take away flattens the swing
- Flat swing plane creates increased opportunity for swing error
- Creates more opportunities for pulls, pushes and slices
- Reduces the power of the swing



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Reasons:

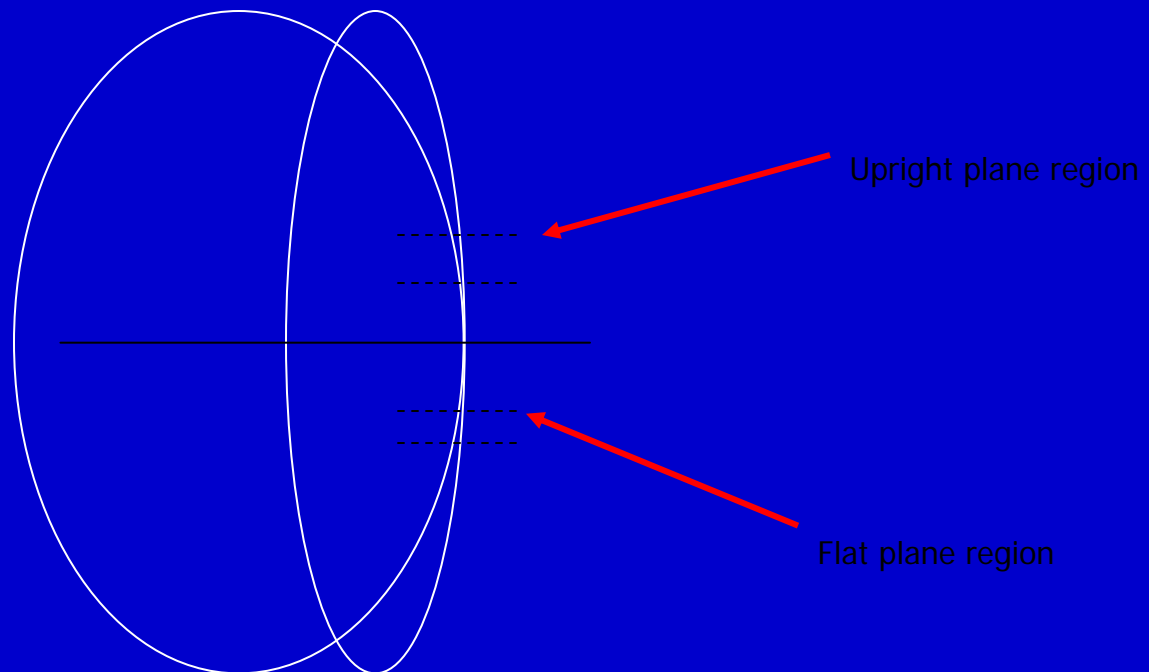
- Rotating the hands pulls the backswing to the inside
- Flat swing plane has a smaller region where club head is moving down the target line
- The hands are lower in the backswing – less potential energy
- Most of the power is coming from the lower back muscles and shoulders – less is coming from the powerful right side
- Swing arc moves more to the inside of the target line



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Smaller region down the target line:





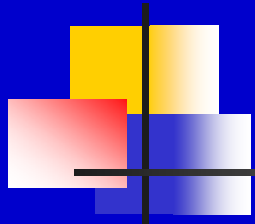
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Shoulders rotate in two planes:

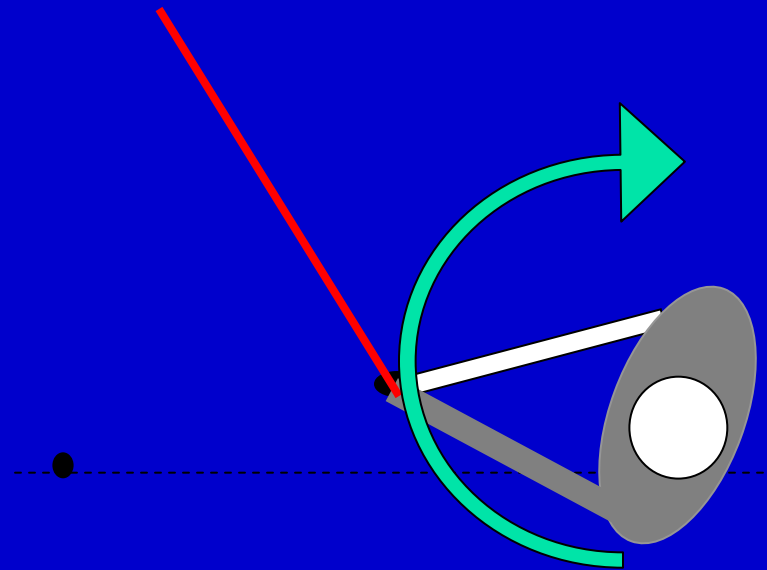
- Horizontal plane around the axis of the spine
- Vertical plane around a point at the base of the neck

Swing plane is determined by the relative motion of the shoulders in both planes...



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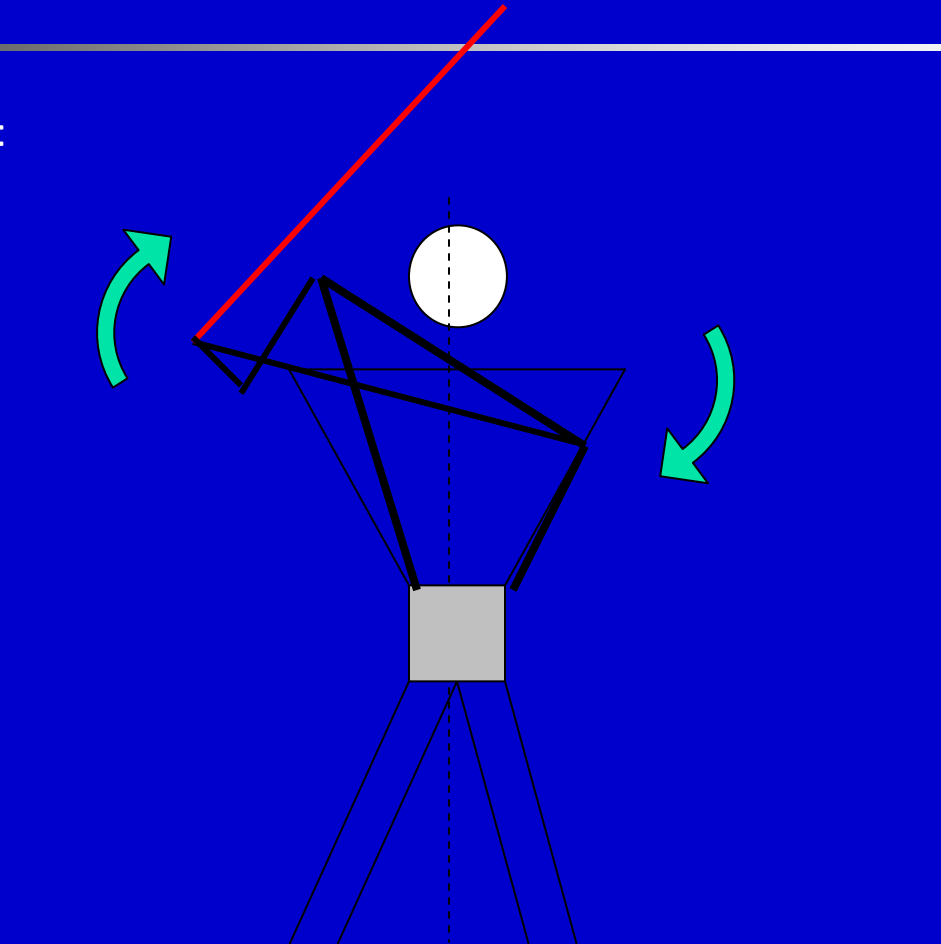
Horizontal plane:





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Vertical plane:





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Corrections:

- Position yourself with arms hanging down vertically
 - lean forward slightly with the trunk to achieve this
- Start the swing by a downward left shoulder turn
 - Starts on the vertical plane
- Practice the take away in front of a mirror
- When on the range place a tee 6" from the ball to encourage a straight take away
- Drive your right shoulder down the target line



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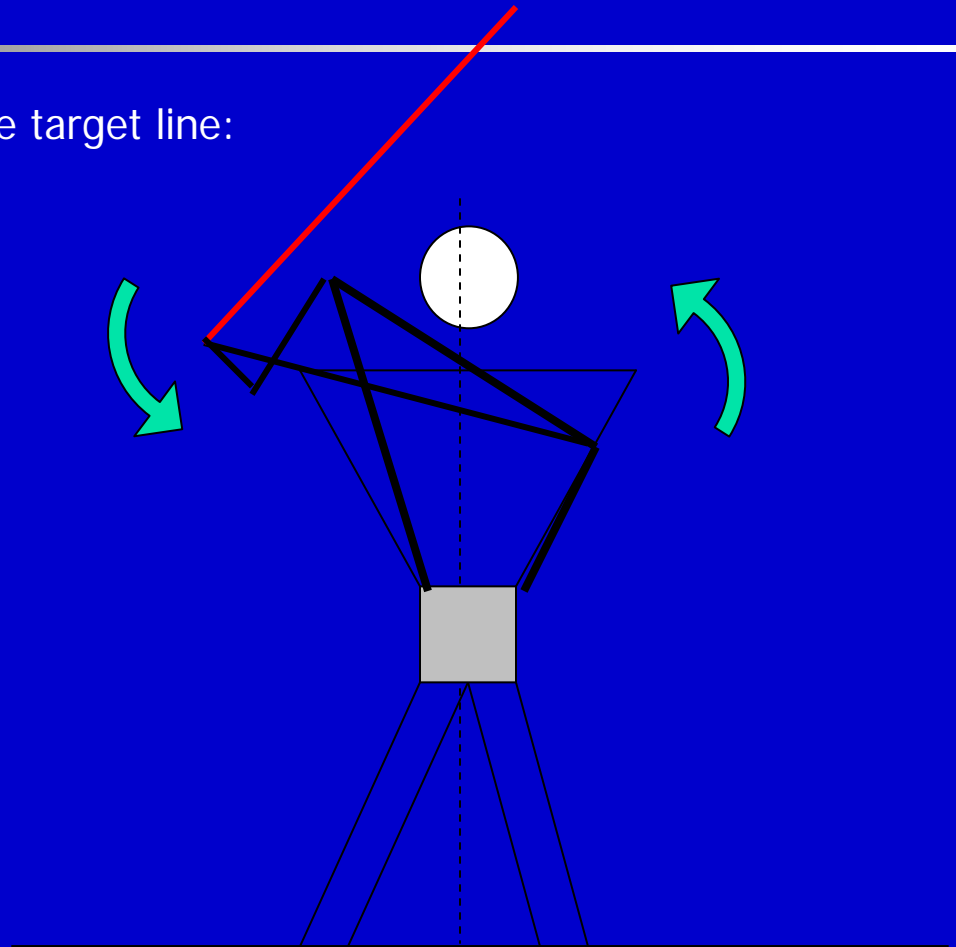
Corrections:



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Drive right shoulder down the target line:





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Downswing sequence & Lag:

- Hand bounce at the top of the swing upsets swing sequence
- Shoulder turn ahead of the hips creates opportunities for a pull or slice
- Reduces lower body torque necessary to pull the swing through the impact zone
- Reduced lag creates more torque to get the swing in motion
- Forward lateral hip motion shifts the swing axis

Reason:

- Too much tension in the hands at the top of the swing resulting in early release
- Hand release encourages shoulder release
- Lack of differential angle between hips and shoulders reduces lower body torque
- Extending of swing radius increases swing MOI



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Reason:

- Too much tension in the hands at the top of the swing resulting in early release
- Hand release encourages shoulder release
- Lack of differential angle between hips and shoulders reduces lower body torque
- Extending of swing radius increases swing MOI
- Moves the swing



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Downswing Physics:

$$\text{Force} = \text{Mass} \times \text{Acceleration}$$

Rotational Bodies

$$\text{Torque} = \text{MOI} \times \text{Angular acceleration}$$

Difference is swing radius:

$$F_r = m r^2 \times a/r$$

As swing radius is increase swing MOI is increased by the "square"

Requires massive increase in torque at the base of the swing



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Hand lag:

For a given backswing torque

Decreases swing radius on the downswing reducing swing MOI

Increases angular acceleration

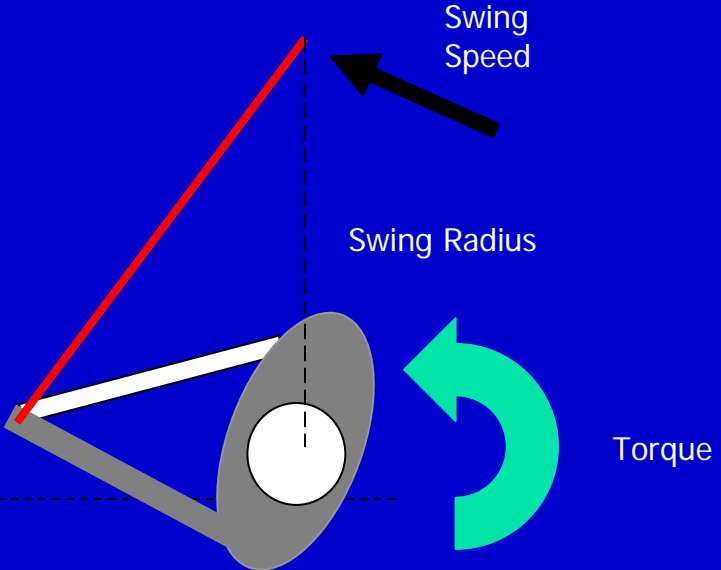
Increases swing speed





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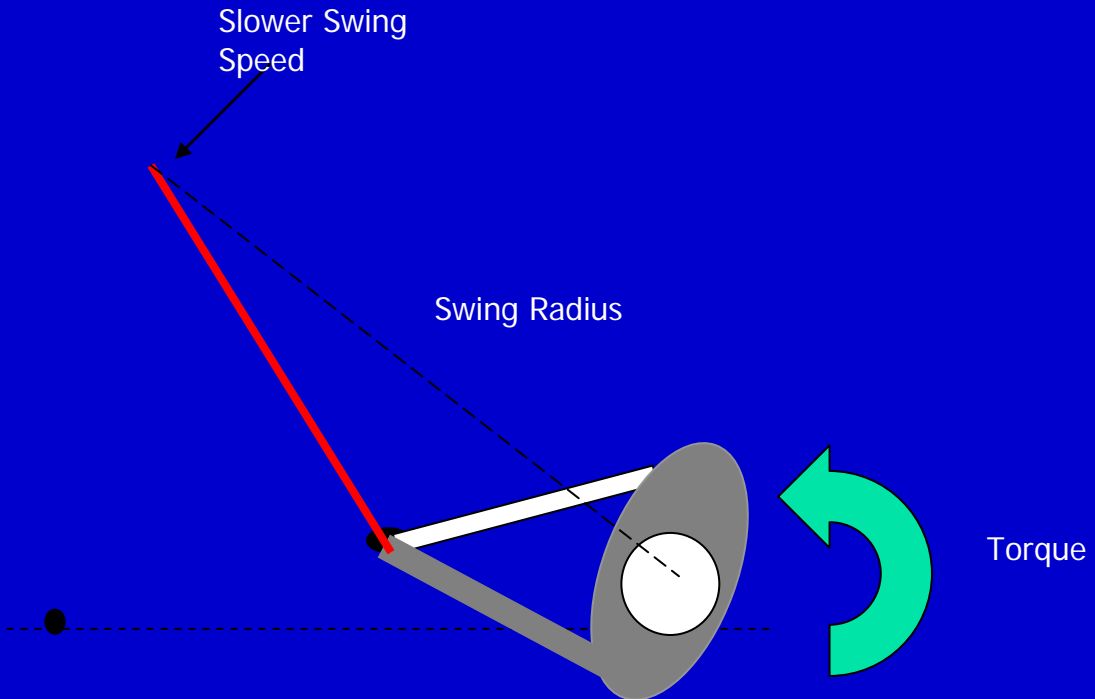
Hand lag:





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Hand lag:





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Correction for lag:

- Upright swing plane – reduces hand tension in right wrist
- Shorten the backswing – reduces left side tension
- Relax the hands in the right hand grip



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Corrections for hip turn:

- Think hip turn as first downswing thought
- Rotate the lower hips – do not laterally shift them forward
 - Creates more lower body torque on the downswing

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Breaking the Distance Barrier

Kenny Graves

How to cure a Shank Chip

by
By Les Ross



Cure for a Shank



Conditions for a shank:

- Ball comes in contact with the hoselle of the club not the face
- The club face is widely open at contact
- The club head swing path is coming from inside to out as it hits the ball

Causes:

- Standing too upright in the stance
- Adopting a closed stance – exaggerating inside out club head path
- Standing too close to the ball
- Turning the hands over too much on the take away
- Lack of hand rotation into the shot - hands lead with the base of club instead of the back of the hand



Cure for a Shank



Corrections:

Stance

- Open your stance for this shot
- Make sure you are not standing too upright & too close to the ball at setup
- Bend your trunk more towards the ball – adjust your stance
- Move the ball further forward in the stance

Takeaway

- Close the club face a fraction so that the hozzle is not leading into the ball
- Square hand take away

Downswing

- Increase the release of your hands so that they square the face at contact
- Lead into the shot with the back of the left hand
- - Hitting down on the ball
- Keep your hip action very quiet - more of an arms and hands motion



Cure for a Shank



Routines:

- Suggest the Hank Haney routine
 - Place 4 tees on the outside of the ball along the target line
 - Avoid hitting the tees
- Hit bag/old carpet routine
 - Encourages faster hand release into the ball

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Breaking the Distance Barrier

Kenny Graves

How to cure a slice with Irons

by
By Les Ross



Curing a slice with Irons



Conditions for a slice:

- Open club face relative to the club head swing path



Curing a slice with Irons



Causes of a slice:

Stance

- Weak grip
 - Lack of rotation
- Club face and shoulder alignment open at address
- Ball positioned too far forward in the stance
 - Weak contact position of the hands
- Hands positioned too far back of the ball
 - Weak contact position of the hands



Curing a slice with Irons



Causes of a slice:

Take Away

- Too much inside hand rotation – creates a loop effect

Downswing

- Shoulder rotation ahead of the hips
- Early hand release
 - Club head gets ahead of the hands
 - Weak hand position



Curing a slice with Irons



Corrections:

Stance

- Choke down on the grip to encourage faster hand action
- Adopt a “stronger” grip position- rotate left hand to see 2 knuckles
- Push your hands forward towards the target a fraction at setup - helps solidify the takeaway and places your hands in a strong position at impact
- Move your ball back a fraction in your stance
- Check your shoulder and clubface alignment as your last check
 - Shoulders need to be aiming left of the target on a parallel line



Curing a slice with Irons



Corrections:

Take away

- Reduce the rotation of your hands to the inside

Downswing

- Hip turn first ahead of the shoulders
- Drive the right shoulder down the target line
- Reduce the forward lateral shift of your hips and focus more on rotation on the downswing
 - Lateral forward movement encourages pushes and fades
 - Quiet forward hip movement and rotation encourages draws



Curing a slice with Irons



Routines:

Review your setup & alignment routine

- Feet together ball centered
- Set left foot
- Set right foot
- Press hands forward
- Check shoulders & club face

Take away

- Focus on straight take away for first 6"

Right Shoulder

- Right shoulder drive down the target line

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Thank You