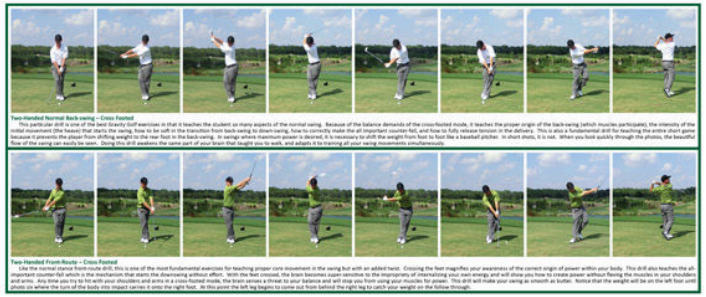

Two-Handed Normal Back-swing – Cross Footed

This particular drill is one of the best Gravity Golf exercises in that it teaches the student so many aspects of the normal swing. Because of the balance demands of the cross-footed mode, it teaches the proper origin of the back-swing (which muscles participate), the intensity of the initial movement (the heaves) that starts the swing, how to be soft in the transition from back-swing to down-swing, how to correctly make the all important counter-fall, and how to fully release tension in the delivery. This is also a fundamental drill for teaching the entire short game because it prevents the player from shifting weight to the rear foot in the back-swing. In swings where maximum power is desired, it is necessary to shift the weight from foot to foot like a baseball pitcher. In short shots, it is not. When you look quickly through the photos, the beautiful flow of the swing can easily be seen. Doing this drill awakens the same part of your brain that taught you to walk, and adapts it to training all your swing movements simultaneously.

Two-Handed Front-Route – Cross Footed

Like the normal-mode front-route drill, this is one of the most fundamental exercises for teaching proper core movement in the swing but with an added twist. Crossing the feet magnifies your awareness of the correct origin of power within your body. This drill also teaches the all-important counter-fall which is the mechanism that starts the downswing without effort. With the feet crossed, the brain becomes super-sensitive to the improprieties of internalizing your own energy and will show you how to create power without flexing the muscles in your shoulders and arms. Any time you try to hit with your shoulders and arms in a cross-footed mode, the brain senses a threat to your balance and will stop you from using your muscles for power. This drill will make your swing as smooth as butter. Notice that the weight will be on the left foot until photo six where the turn of the body into impact carries it onto the right foot. At this point the left leg begins to come out from behind the right leg to catch your weight on the follow-through.

GravityGOLF

"Feel the Freedom"

by

David Lee

The modern day method for swinging a golf club, that I call the "Gravity" swing, is a dynamic *whole* mechanism. Executed properly, it produces great power and control through timing and connected mass in rotation, with a *minimum* of muscular force. The ball feels as though it's being *slung* from the club, not *hit*. Done correctly, this swing has *no* energy leaks, and efficiency of motion is at its highest potential. Even though perfect technique is not required to hit a golf ball, if you wish to achieve complete freedom of rotation, with minimal effort in your swing, there is a precise recipe for body sequencing that *must* be followed. In the following swing photos of Danny Lee, the key elements of that recipe are outlined. Detailed data for each sequence photo of the swing can be found in my latest book *Gravity Golf – "Feel the Freedom."*

www.gravitygolf.com

Right-Handed Front-Route – Cross Footed

By doing the cross-footed drill in a one-handed mode we can increase our sensitivity to keeping muscle out of the swing. This drill will let you feel how important it is to allow the arm to start down in a state of complete "dead fall" and to feel the counter-fall and turn of the body sling the arm through impact. If you try to "strike" the ball with the right arm in this drill, you will in all likelihood miss hit the shot every time. Right arm drills are difficult initially because of the large arc (ow but are very important to master. One of the important benefits of this drill is that it teaches you how to isolate your "perfect" swing plane because you can't hit the ball solidly from the drill unless you're in that ideal plane. Handling the club in this mode may feel cumbersome until proper core movement from the body begins to hold the club in-plane with centrifugal force. Notice how the body is leading the arm coming into impact and slinging it and the club to the finish of the swing. You'll be amazed at how solidly the ball can be struck in a right-handed, cross-footed mode.

Left-Handed Up-Route – Cross Footed

The cross-footed, left-handed up-route dual-footed drill starts with the club in an upright attitude and the left hand in front of your breastbone. The hand should be about a foot from your chest at the start, with the club held vertically. Push the club straight up until the left hand is about even with the top of your head; turn the core of your body back, lean quickly backwards (counter-fall) at photo four; then simply drop the arm and allow the rotation of the body to sling the arm and club through impact to the finish of the swing. It is imperative that you do not pull the club down with the triceps when doing left-handed shots. Because most right-handed people (and opposite for lefties) don't do many things with their non-dominant left arm, it may feel uncoordinated at first, but will quickly catch up and can even surpass the quality of your right handed shots. The ball can be struck incredibly solid with the left arm but should generate only about 85% of the distance of right arm swings because the left arm arc is smaller than the arc of the right arm.

The Address

- Alignment is a key component of the starting position and is determined by posture, grip, ball position relative to the left leg, and sequencing of movement in the swing.
- Grip is a key element to a tension free swing and must be taken correctly.
- The shoulders are comfortably hanging down. The arms are firm at the start of the swing but only from photo one to photo two (during the heave). With a driver the weight distribution is about 60% on the left leg – 40% on the right. The weight is set more on the heels than the balls of the feet and mostly on the hamstrings (very important). The knees must be slightly bent and over the ankles, not the toes. The right foot should be perpendicular to the flight line and the left foot should be slightly open.
- With a driver the ball position should be opposite the left heel and will move closer to the body and slightly to the right as you move down through the clubs.

The Heave

- The initial move in the swing is not a take-away but a core-movement like throwing a medicine ball, and must set the arms, club, and body-core into motion. It involves a number of upper body muscle groups and even some participation by the hips and feet.
- The intensity of the heave is powerful and must be adequate to carry both the arms and club to the completion of the back-swing with no *lift* requirement from the arms at all.
- The duration of the heave is brief and must be complete with a driver by this point in the back-swing (8 o'clock). It will be even-briefer with other clubs and on shorter shots.
- The heave is the *most* important move in the swing and is responsible for putting the arms and club on-plane, clearing the starting tension from the arms so that they will *dead-fall* at the start of the down-swing, and carrying the body into the counter-fall at the completion of the back-swing.

The First Release

- At the completion of the heave (previous photo), all of the tension that was in the arms at the beginning of the swing (so that the arms and club could be started into the proper plane by the core) must be released. The first release is simply a relaxation of the wrists, arms, and shoulders. The hands do not let go because they are cinched onto the club when the grip is taken, but the wrists, arms, and shoulders go tension free and should remain that way through the duration of the swing. The arms and club are carried to the completion of the back-swing by momentum from the heave alone and after the critical point of first release, must *not* lift. If the back-swing starts too slow, requiring a lift to complete it, the arms will not dead-fall at the beginning of the down-swing and allow the body to freely rotate.
- Width in the swing arc is created by the power of the heave, by the arms going tension free at the point of first release, and by proper routing of the right arm.

Right Arm Routing

- The "flying" right arm is one of the *most* important ingredients in a "free flowing" swing. Study Jack Nicklaus' arm routing carefully. He was severely criticized for doing this, yet it was the technical element that made his golf swing superior. Note in this photo how the right elbow stays away from the body and is being carried by the momentum of the heave. The arms and wrists at this position in the swing are totally relaxed.
- It is necessary to keep as much width in the arc as possible throughout the swing in order to keep the slack out between the body's core and the arms, thus enabling the core to sling the arms during the delivery.
- All golfers, especially women and older men, should study this right arm routing carefully. Unless the routing is correct, and the right shoulder joint *clack free*, the brain will involuntarily cover the slack spot with tension and significantly diminish the overall efficiency of the swing.

Shift to the Left

- At this point in the swing, the body weight has begun to shift or *fall* back to the left leg (note the angle between the head and the right hip). This is one of the three areas in the modern golf swing where gravity aids the player and helps diminish the necessity to physically drive or force the swing.
- The right elbow begins to lay into the "slot" and the folding of the elbow cantilevers the club through the twelve o'clock position and it simply falls from there to about the three o'clock position (next photo).
- As the player moves back to the left the weight should land slightly against the left leg in a "sit down" position with the left knee over the ankle, not the toes (see next photo).
- The flow of weight from foot to foot is totally unrestricted. All of the of the weight shift to the right leg and back to the left leg occurs during the back-swing.

The Counter-fall

- The completion of the shoulder turn, where the body's weight falls back onto the left hamstring and heel is a critical timing point in the swing. When the body's weight shifts to the left, it lands slightly against the left leg and the "sit down" or rearward-angle of the left femur causes the body to deflect backwards on about a 70 degree angle to the flight-line (90 degrees is straight behind you). The *closer* the body gets to the point of *actually* falling, the *less* internal effort it takes to turn the body through. If the arms are in a state of pure dead-fall when the counter-fall occurs, a very gentle turn will sling great speed into the arms and all the body mass will release against the ball.
- The counter-fall is the move that starts the down-swing and it offsets the weight of the arms and club as they swing in front of you. Using the counter-fall properly keeps the player from being pulled "over the top" in the down-swing. It is a component of the swing that's almost invisible, yet critical for perfect execution.

Gravity at Work

- The start of the down-swing is the point in the swing where everyone wants to add muscle from the shoulders and arms in an effort to "strike" the ball. It is critical in a proper swing to overcome the instinct to flex those muscles. Doing so will *diminish* the speed of core-rotation and cause movement or a shift in the swing-plane.
- In a technically perfect swing, if the arm routing is correct, the arms *should be* in a state of complete dead-fall starting down, and if they are, a gentle turn will develop great club-speed without effort as centrifugal force from the body's rotation creates the "moment" of angular release between the right forearm and the club-shaft (next photo).
- In a perfect swing, the wrists do not completely finish cocking until it is time for them to release. There should never be a sensation of having to "hold" the wrist angle at any point in the down-swing or through impact. The timing of the angular release between the club-shaft and the arms should be automatic.

The Second Release

- The further we go through the swing, the less there is to say, because everything that occurs by this point is a result of what happens earlier.
- If the heave and the arm-routing are correct, and the counter-fall completed, at this point of "angular" release into impact, the club will be exactly in its ideal swing plane and impact with the ball will be totally *incidental* to the movement of the body and arms.
- In a technically proper move, it is imperative that there is *no* attempt to make a "union" between the club and the ball. In simple terms you shouldn't "hit" at it. If you do try to "strike" the ball – some of the energy from your arms and shoulders will go simultaneously back *into* your body and cause a change in the swing-plane. That's not just my opinion – it's a physics *law*. If you *freeze* the arms and club into the proper plane, and leave them *alone*, without any manipulative effort, they will stay in plane. That's also a physics law. Study this!

Impact

- This is the position that every golfer should strive to achieve. Pay particular attention to the sequencing and how the body-rotation is leading the arms and club.
- At this point in the swing the left leg should be slightly bent with the weight-rotating solidly over the left axis with the load being in the left hamstring and on the left heel. The right leg is *not* driving laterally but is being dragged by the body's rotation.
- Note that the extension in the left arm is automatic and created by centrifugal force and *not* by applied force from the arms and shoulders.
- Both shoulders should be down at impact.
- When impact is correct as in this photo, every available pound in the body is going against the ball. A man can hit a golf ball a significant distance with the strength of his shoulders and arms. Moving the ball with mass is critical for women and seniors.

Extension is Automatic

- This is a position in the golf swing that many people try to create, yet is one that occurs automatically if the movements preceding it are performed correctly.
- Although the arms appear to be going down the flight-line at this point in the swing, they are in fact moving in a circle around the body. Any attempt to deliberately "chase" the target, causes the arms to leave the natural circle of the swing arc, and a linear move occurs. An intentional down-line move will begin prior to impact and send energy back into the body causing a change in swing-plane with the result being hooks and blocks. The swing path in the delivery should always be rotary, *never* linear.
- Notice how freely and effortlessly the hands, wrists, and forearms have rolled over through impact. If the grip has been taken correctly, and the timing-sequencing through the change of direction executed properly, a complete release of the wrists through impact occurs naturally.

Turning with Freedom

- Effortless rotation in the swing is not something you *do* – it is something you *enable* by *not* tightening the arms during the delivery. The human body is very limited in rotational power because of the lack of transverse muscles in the legs. The body has great power doing a squat lift, but very little power turning. If you tighten the arms early in the down-swing, it will put a partial stop on your turn and throw the swing-plane off its ideal track.
- The body should turn in a state of rotary equilibrium (we miss-label it balance) where the counter-fall offsets the weight of the arms and club swinging in front of the body.
- Notice how the body rotates over the heel and hamstring of the left leg and how the weight has turned onto the outside edge of the left foot in the follow-through. The right foot is dragged by the rotation (somewhat like a boat anchor) to stabilize the body at the completion of the swing. All these things occur *without* effort in a proper golf swing.

A Perfect Finish

- By the time we reach this point in the swing we are well past being able to affect the result of the shot. As a matter of fact, once the club-head reaches approximately the center of the golf ball at impact, the outcome (from the standpoint of the swing) has been determined. To go one step further, if a swing is to be technically *perfect*, everything that happens subsequently is determined by the set-up and how the body moves during the "heave."
- A perfectly balanced finish is a "result" of doing everything preceding it correctly.

All golfers describe the feeling of a *"perfect"* swing as a sensation of doing "nothing." When you're giving instruction, it's *not sufficient* to tell your students to go out and practice until they feel "nothing," and by so doing they'll develop *perfect* swing technique. What they are *actually* sensing when they describe their best swings as a feeling of doing "nothing," is a *complete lack of effort*, where all of their body parts are functioning in perfect harmony – *with everything moving together and nothing laboring*. The "Gravity" drills trigger the same areas in the brain that teach us to walk efficiently, *without cognitive thought, and adapt that capability to the learning of technically perfect swing mechanics.*

The "Key" to Feeling the "Freedom" Is in the Drills!

The drills magnify improprieties in power application and allow us to "feel" the euphoric sensations of total mass release through impact, like you see in Freddie Couples or in these photos of Danny. The likelihood that you will develop *perfect* swing sequencing is very unlikely as long as you are training in a normal swing mode. The normal swing mode is the one in which you are *most* likely to *use muscle* and is also the mode where compensations develop, usually *without* the player's knowledge. The drills, however, will teach you to develop perfect technique, without compensations. Study them and do them. They are the key to feeling "freedom" in your golf swing for the *rest of your life!*

Do the drills and you will soon be able to enjoy the "freedom" of a perfect swing!

Filmed at Black Diamond Ranch, Lecanto, Florida

Two-Handed Normal Back-swing – Feet Moving

When I began studying Jack Nicklaus' and Lee Trevino's golf swings in the early seventies, it was apparent that they employed a totally different timing than most other players. The vast majority of golfers shift their weight to the rear foot in back-swing and start down with the arms as they shift back to the front foot. In the modern swing, the weight shift moves to the rear foot and completely back to the front foot by the time the back-swing is complete. This drill was the first one that I developed and it allowed me to feel the 2:1 timing where the weight shift goes both to the right and back to the left while the shoulders and arms simply go back. This promotes the development of what teachers call full "coil" or "separation" at the completion of the back-swing. The 2:1 timing gives the body sufficient time to get into the counter-fall and fully release the body's mass through the shot. The modern day term for moving the ball with mass instead of muscle is called "mass" factor and will allow players of lesser strength to create great power.

Two-Handed Front-Route – Feet Moving

The "Gravity" swing stance promotes the body's core to dominate the arms and prevents them from acting as a power source in the golf swing. Most golfers have difficulty fully completing the back-swing and tend to start down early. The front-route mode insures that the player will finish the shoulder turn going back, and the moving stance develops correct footwork so that the body is in the right position to start the delivery properly. Interestingly, the more *complex* that a drill becomes, the more it appears to trigger activity in the parts of the brain that are responsible for subconscious motor control in bio-mechanically difficult movements. In fact, all the training exercises are harder to execute than the finished product (the normal swing mode), which actually feels quite simple after mastering the drills. The great thing about the drills is that they will not give positive results unless the power application is *ideal*, whereas there are numerous ways to hit a golf ball from a normal swing mode, few of them being totally efficient.

Two-Handed Front-Route – Normal Stance

This drill is at the forefront of "Gravity" golf training exercises. It can be done with any club but is especially important with a driver. Doing a 100-ball driver drill (you can start with fewer balls) five times weekly takes about twelve minutes per day and will bring almost anyone to professional level distance within ninety days. The purpose of swinging the club in a front-circle is to get the core of the body working as the power source for the swing. Once you can hit the ball solidly almost every time from the front-route, you can begin hitting some shots with a normal change of direction. By beginning player (and for that matter, anyone who has trouble breaking 90) should be attempting to change back into the normal swing mode – with a back-swing and a down-swing – and they can successfully and consistently hit the ball from the front-route mode. The ball can be hit just as far or farther from this mode than in a normal swing mode. This drill makes the swing feel like a "sling" instead of a "hit." Practicing this drill on a regular basis will give you a great swing!

Right-Handed Front-Route – Feet Moving

This drill requires the ultimate in timing and coordination between the upper and lower body but can be executed so that it produces perfectly struck shots when it is done properly. The drills that employ the moving stance allow the player to feel the importance of proper footwork in the swing. Before the down-swing begins, the weight must be solidly planted back on the left heel and hamstring and the counter-fall totally completed. Since the body is in a "weakened" condition of having only one arm on the club, it is imperative that the arm be in its "perfect" plane for the shot to be properly executed. Remember that the ideal swing-plane is different for every person depending on how their individual bones are curved and how their mass is distributed on their frame. No one on earth can tell you exactly where your *ideal* plane is, but the various drills will let you feel exactly where it is because you can't execute quality shots from them unless you are in that ideal plane. The drills are designed to isolate perfect technique in your body and they will!

Left-Handed Up-Route – Feet Moving

The reason for the most important drill most people need to understand if you wish to isolate perfect power application is that it is very important to train each of your arms independently. Practicing with either arm alone is not training you to hit the ball with that arm – it is doing the exact opposite. The brain is a training machine and it learns by doing, not as active participant in the swing. Pulling in the down-swing with the left (or right) arm will cause you to miss-hit the shot every time. In order for the left arm to remain passive in the delivery, the brain must identify an alternative power source to move the arm, and the only one available is the footwork triggering the counter-fall will provide a "mover" for the arm by utilizing core rotation and centrifugal force *instead* of muscle from the upper body. Don't forget that the brain will always find a way to move the ball from point A to point B and it doesn't care where it has to go within the body to get that power. By using the various drills to identify the correct way to apply power in your swing, you can be on your way to knowing the ultimate pleasures of this game.