

SCIENCE HELPS TO IMPROVE

LEARN PERFECT BALANCE AND GOOD SWING SYSTEMATICALLY, STEP BY STEP

GET BETTER CONSISTENCY AND ACCURACY

WHAT IS NEEDED

- **PerfectBalance measurement system with Analysis Software.**
- Checking correct positions is easier, if **some video analysis system** or camera is available, where it is possible to draw lines on top of frames. Body feelings may be totally different than the swing positions in reality.
- Patience, as old habits have to be changed and muscle memory rewritten.
- Proceeding step by step according to instructions. Do not take shortcuts, as they may destroy all efforts. **FIX BACKSWING FIRST** before proceeding to other steps, because backswing affects strongly on downswing. No power or flexibility is needed to make backswing correctly - only correct understanding.
- New swing images have to be learned - understanding the movements correctly is most important.

REMARK

This document explains one method and swing style to achieve perfect balance. There are certainly also other swing styles that produce good balance. Only measurement can tell if the balance is good or not. The movements cannot be seen by an eye only.

1. STARTING POSITION, ADDRESS POSTURE

Pictures



- Take pictures or video if possible
- Draw lines according to sample left
- The spine line should be tilted 45 degrees
- Hands lifted upwards
- Draw lines starting from club head according to sample here
- Check "Athletic position" - you should be able to reach your knees with your palm bottoms
- Check also in TV how the best professionals address the ball. Tilting down helps to rotate the shoulders correctly. A too upright position leads to many problems.

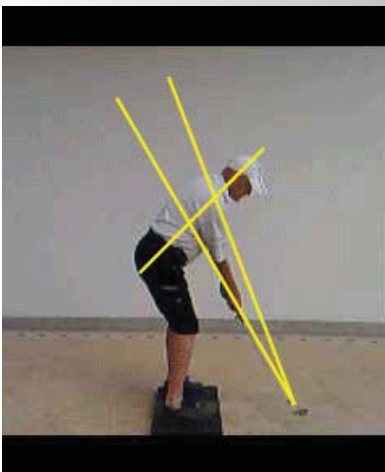
Weight shift feelings



- Weight pressure point should be central
- Same pressure under both feet
- Both feet "Flat" - against the plate
- Weight neutrally between heels and toes
- Both feet relaxed
- Make movements on the plater with Practice Mode to understand how the system works and weight shifts

2. STARTING TAKE OFF

Pictures



- Picture from side
- Lines according to sample left
- Take off starts by rotating shoulders smoothly around the spine
- Left shoulder starts going down for staying in swing plane
- Hands and club start moving in the swing plane

Weight shift feelings



- Move left knee slightly towards right knee
- Feel that left knee is "locked"
- Right foot neutrally flat against ground
- Feel that the force on right foot doesn't change
- No swaying or moving right hip to the right
- The club should move in a circle that keeps the pressure on right foot constant

3. BACKSWING IN PLANE

Pictures



- Rotate your shoulders around the spine
- The club should travel all the time between the yellow lines
- Maintain spine tilt
- Hips passive
- Knees passive

Weight shift feelings



- See how the pressure point has moved towards right foot
- Feel that the pressure on right foot is still the same
- In fact the pressure or force increases despite of feeling
- At this point Force on right foot is 126% (= 1.26 times the force at address)
- Pressure feels "Flat" in the centre of right foot
- Weight distribution at this point is 35% - 65%.

4. TURNING POINT

Pictures

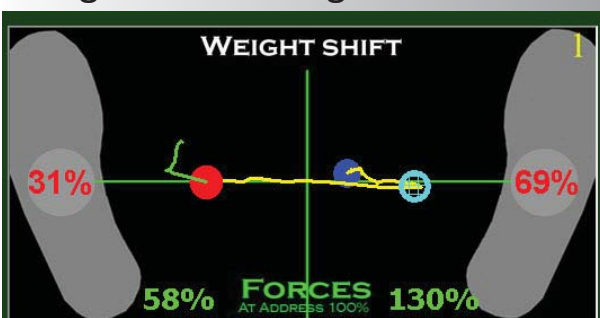


- Hands and club between the yellow lines
- Club direction same as swing plane
- Spine tilt the same as at address
- Spine straight (see top view)
- Hips passive - turned slightly
- Left shoulder down
- Right elbow close to body side

Top view



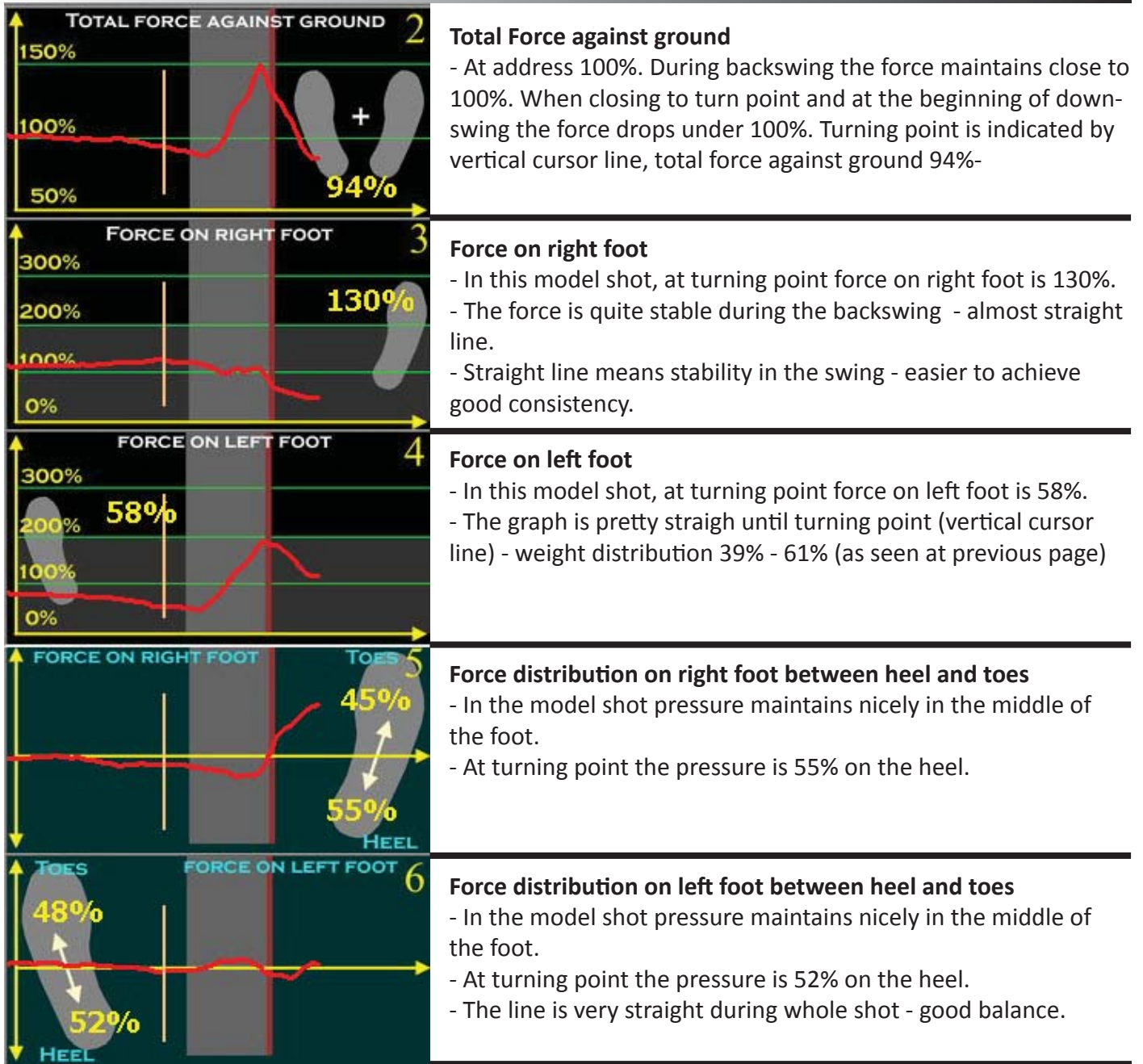
Weight shift feelings



- Feel still that you did not shift any more weight on the right foot.
- The force on right foot is 130%
- Weight distribution 31% - 69%
-

MORE EXPLANATIONS

Small graphs

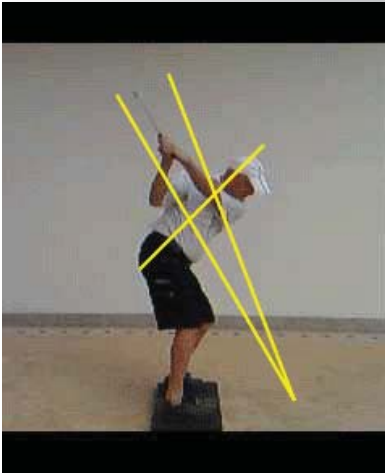


REMARKS

- Generally speaking, during backswing feelings should be that forces on right and left foot maintain very constant and in the middle of both feet.
- The accelerations of hands should also be as smooth as possible, no jerks to at any point
- The radius in which the hands are moving during backswing, affects the weight shift amount. Big extension leads easily to swaying of the hips and to a too high pressure (force) on right foot.
- The straighter the lines are in the small graphs 2 - 6 until turning point the better.
- Good balance means that unnecessary movements and forces have been eliminated - easy to find a good consistency.
- Good consistency leads automatically to good accuracy.
- "Golf is not hitting good shots, golf is having good consistency".

5. STARTING DOWNSWING

Pictures



- Hands and club between the yellow lines
- Shoulders, hands and club rotate in swing plane
- Club direction same as swing plane
- Spine tilt the same as at address, spine straight
- Downswing starts by shoulder rotation, hips passive
- Left foot flat on the ground
- Hands follow automatically, left armpit connected to body
- Start SLOWLY and SMOOTHLY
- Pull the club, do not try to hit

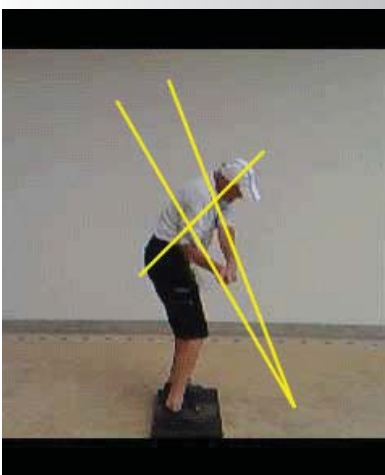
Weight shift feelings



- Feel that the pressure maintains still on the right foot, no weight shift
- The force starts reducing on right foot automatically. Here the force is 120%-
- Left knee still locked
- Try to keep the right hip also locked

6. DOWNSWING

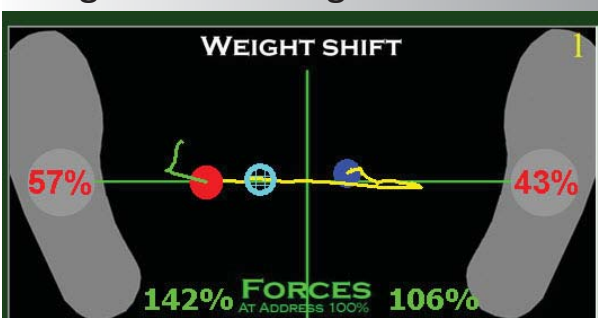
Pictures



- Hands and club still in the swing plane
- Spine tilt the same as at address - spine straight but moving forward
- Shoulders rotate, arms follow automatically
- Right elbow attached to body side
- Hips and knees square
- Left foot still flat on the ground
- Full acceleration at this point



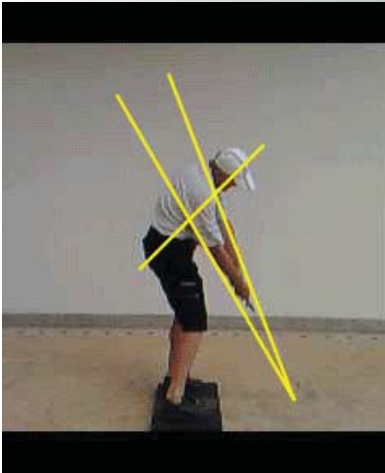
Weight shift feelings



- Feel that the pressure maintains still on the right foot
- The force starts reducing on right foot automatically. Here the force is down to 106%
- Left knee still locked
- As the Total Force against ground at this point is high, that means that the force on left foot is increasing rapidly (see the small graph 2 on previous page)

7. BALL IMPACT

Pictures



- Position almost the same as at address position
- Hips and knees square
- Shoulders square
- Spine tilt maintained

Weight shift feelings



- Force on right foot 98%, almost same as at address
- Force on left foot 192%, almost double compared to address position (distribution still 66% - 34%)
- Feel that the right foot is on the ground
- Feel that the left feet is locked
- Head down, rotating under left side of the body
- Arms straight, elbows close to each others

8. FOLLOW THROUGH

Pictures



- Hands and club in the swing plane
- Spine up slightly already, head down
- Right heel lift up off ground only now

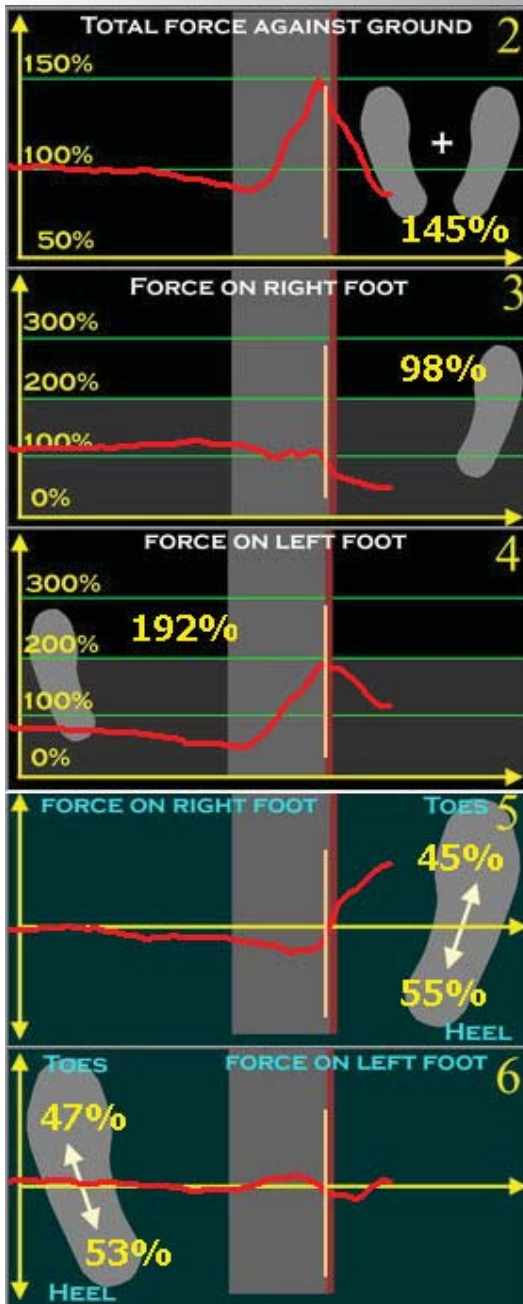
Weight shift feelings



- Force on left foot 162% - right 62%
- Weight distribution 73% - 28%
- It is essential that the pressure point continues travel to the left for a short while after ball impact (green graph). It guarantees better direction accuracy and better consistency.

MORE EXPLANATIONS

Small graphs



Total Force against ground

- At ball impact Total Force against ground is 145% compared to body weight.
- Total Force increases normally rapidly just before ball impact. 150% is a very typical figure, but it can range up to 200%.

Force on right foot

- In this model shot, at ball impact the force is 98% and drops down only after ball impact. Until ball impact the force is very stable. It supports good swing consistency.

Force on left foot

- In the model shot at ball impact force at left foot is 192% compared to address position (almost double). Force is also very stable during the swing, only during downswing increases, but without jerks. Nice graph.

Force distribution on right foot between heel and toes

- In the model shot pressure maintains nicely in the middle of the foot until ball impact.
- After ball impact the force moves rapidly to the toes, as it also should.

Force distribution on left foot between heel and toes

- In the model shot pressure maintains nicely in the middle of the foot.
- This kind of stability supports very well shot consistency.

REMARKS

- It is important that the pressure on both feet and between heels and toes remains as stable as possible until ball impact.
- Good balance means that no actions are needed to maintain the balance - the balance maintains automatically, if the swing movements are correct.
- Correct directions of the movements are not enough, their timings must also be correct.
- Perfect swing balance is a consequence of thousands of small factors. Without measurements it is impossible to know, if balance is good or not. Cannot trust on body feelings.
- Measurements of best professionals have revealed clearly that they do not know about problems in their balance, either. After knowing their faults, they normally could fix their problems fast.