Golf Swing Biomechanical Analysis

ADVANCED MOTION MEASUREMENT
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PJ Worden
Swing 5 with Driver
6-9-09
Analysis by Phil Cheetham

Summary

- The main issue appears to be stability. He had problems with the balance test, the pelvic rotation test also showed stability issues and he was unable to perform the pelvic tilt test. This appears in the swing in terms of 3D stability issues which inhibit the efficiency of his downswing kinematic sequence, causing arms to peak before pelvis and thorax (ribcage). He hangs back significantly at impact and follow-through. He does not transfer weight to his lead leg. He also has a tendency to thrust toward the ball.

- This lack of lower stability leads to excessive arms (shoulders) as one of his main power sources; including an early release of the club (casting) and a significant bend of the lead arm around impact (chicken winging). These mentioned issues all lead to significant loss of power and hence; distance.

Take Home Message

- Improve balance and stability with appropriate exercises. This will make it comfortable to support weight on lead leg at impact and finish. Then learn to turn body rapidly (hips then ribcage), leaving arms and club lagging during downswing, also actively transferring weight to lead leg.

- We can recommend a trainer and can if necessary supply some example exercises. A follow up analysis is recommended after 6 to 8 weeks of training.

Details

Tempo

- Slow tempo and long back swing, he needs to be quicker and more dynamic in backswing
- Tempo Trainer would help (we have one available at AMM)

Kinematic Sequence

Transition

- Order is almost okay,
- Timing not so good, club is late after body turn around, i.e. there is excessive lag due to bent lead arm
- Bent lead arm at top is followed by early release of the elbow and casting at wrist (leads to lack of power)

Downswing

- Peaking Order is Arm, Pelvis, Thorax+Club; efficient order is Pelvis, Thorax (i.e. upper body), Arm, Club
- Peak timing is very late, but arms peak first (throwing club and arms).
- Peak speeds are very low (lack of power)
- Very low accels/decels (virtlually no pelvis decel, no thorax decel)

Contribution of Speed by Joint

- Quite a bit from legs and shoulder
- Minimal from wrist (due to casting)

Trunk Dynamic Stability

- Stability issues here.
- Hanging back, falls back after impact (weight increases on trailing leg just before impact), due to poor balance ability
- Unstable pelvis and thorax thrust – excessively forward (towards ball) at each point (top, impact and finish)
- Pelvis and thorax low (down) at impact due to hanging back
- Lack of thorax trail side bend at impact (flat shoulders, typical of casting and early release)

Physical Screen

- Had a stroke and heart attack several years ago
- Unable to perform pelvic tilt motion
- Deep squat very limited but ankle range ok; therefore pelvis and thorax
- Toe Touch limited bilaterally
- Poor balance, couldn't balance even with eyes open
- Pelvic Rotation – stability was limited

Please see the following report for more details.
Email me at phil@amm3d.com if you have any questions