

PERFORMANCE PROGRAM DESIGN FOR TODAY'S ELITE LEVEL PROFESSIONAL GOLFER

Banaszak, J.S., Harlan, T. J., Hunt, R.L., Platt, J.

As the PGA TOUR®'s new marketing campaign has stated, "A new era in professional golf has begun." The PGA TOUR® is promoting an exciting season-long point system and competition called the FEDEX Cup which began during the 2007 TOUR® season. This competition, spanning the regular season is offering fans a new competitive element while giving the sport more of a defined season. A regular season followed by a playoff. For the fans it means excitement, for the players it means an opportunity to compete for even greater financial rewards.

One result, seen with the implement of this new playoff system is a recommitment by many of the PGA TOUR® members to fitness and performance enhancement programming. These more focused athletes' have turned to golf performance specialists, looking for an extra EDGE!

Many of the games best have recognized and redefined their team to include various conditioning coaches, medical professionals, biomechanists, nutritionists, etc. Many have returned for play in 2008 looking trimmer, fitter and ready to compete. There is no room for a slow start with the new playoff system...each member needs to assure early season success with the new points race.

This is a sample case study of a golfer seen by Jeffrey S. Banaszak, PT, CSCS, manual therapist and corrective exercise specialist, Tom J. Harlan, biomechanist and golf instructor, Randall Hunt, Conditioning Coach and professional golfer and Jay Platt, PT, ATC, CSCS, manual therapist and corrective exercise specialist all representing a company called Back9Fitness® and its specific division called Back9 Tour Services that specializes in implementing this type of programming for touring professionals. As one can see by the diversity of the team members an integrated approach was used using the skill sets of each individual team member. This case study was posted on July 8, 2007. *This case study was created with verbal permission from the player.*

BACKGROUND



Name: Sabbatini, Rory
Age: 31
Sex: Male
Handicap: PGA TOUR® Player
Height: 5'9 ½ "
Weight: 176
Birthplace: Durban, South Africa
Years Playing Golf: 26 years

Amateur Career:

Won 1993 International Junior Masters...Three-time All-America at the University of Arizona and 1996 individual runner-up in the NCAA Tournament at Arizona...Inducted into University of Arizona Sports Hall of Fame in 2004.

Professional Career:

Turned Pro: 1998 obtaining his PGA TOUR® Card in December of 1998 finishing 41st at the Q-school Tournament

PGA TOUR Victories: (4) 2000 Air Canada Championship. 2003 FBR Capital Open. 2006 Nissan Open. 2007 Crowne Plaza Invitational at Colonial.

Other Victories: (1): 2003 World Golf Championships-World Cup (with partner Trevor Immelman).

Career Earnings: \$17,110,466

Current Official World Rankings: 9

Swing Coach and Caddie: Kevin Fasbender from Fairfield, MT

Right or Left Handed: Right

Plays Golf: Right

Eye Dominance: Right

Exercise program before hiring professional on TOUR®: Minimal participation with poor, non golf-specific results. Has worked with various professionals in the past but never committed to programming. As injuries occurred, player would seek assistance as needed utilizing the Player Therapy Center offered at TOUR® Events.

Highlights of current program: Active stretching, postural correction, functional exercises, interval training and nutritional programming

PAST MEDICAL/INJURY HISTORY:

Severe left ankle sprain (1995), Lasix procedure (2000), recurrent left hip, low back and neck strains (prior to 2007).

RESULTS OF DIAGNOSTICS:

No formal diagnostic testing indicated at initiation of assessment process. The program began with a focused on physical and biomechanical assessments as described below.

SUBJECTIVE:

Pre-programming Rory chief complaint was left sided lower back pain. Rory was extremely frustrated with his body secondary to his practice time being severely limited due to the fact that it was too painful to hit balls after a round. By the time he got off of the golf course his focus was on getting treatment for his back instead of how to prepare for the next round.

Rory also described his performance as having too much variation day-to-day, relying on timing for swing consistency. When his timing was on or good he felt he could be competitive. When his timing was bad or off he felt like he would most likely be out of contention.

ASSESSMENT:

Two phase assessment process was completed including comprehensive biomechanical and physical testing. The physical testing included two parts a musculoskeletal golf-specific evaluation by the medical team and a comprehensive fitness evaluation by the conditioning team.

PHYSICAL:

Musculoskeletal Golf-Specific Evaluation (Completed 03/05/2007)

Pre-swing Postural Screen

Standing Posture – Side View

Forward head posture, slight roundness at bilateral shoulders, slight bilateral knee hyperextension, increased subtalar pronation (left compared to right)

Standing Posture – Front View

Left shoulder depressed, Left hip slightly lower and increased subtalar pronation (left compared to right) and slight left lower rib outflare.

Grip Strength with Hand-held dynamometer (Arm extended): Right = 100.7 kg and Left = 94.7 kg

Shoulder AROM (Hand-behind-back) as measured from L 4-5 interspace: Right = 16 cm and Left 23 cm.

Faber's Test (measuring lateral patellar border to table surface): Right = 14 cm and Left 13 cm.

Mobility/Flexibility: Right compared to left gastrocnemius tightness, bilateral slight soleus tightness, Right compared to Left Hip ADDuctor tightness specifically into ADDuctor magnus and pectinius muscles and Left compared to Right anterior hip tightness specifically localized into proximal and distal rectus femoris. Noted Left compared to Right Deep Hip and Gluteal tightness. Right Active SLR limited by 20% right compared to left. The golfer is very aware of this specific area of tightness.

Soft Tissue Restrictions/Joint Restrictions: Soft tissue restrictions localized into bilateral upper trapezius, levator scapulae attachment off superior border of scapula and slight upper occipital tightness. Also noted into right anterior chest into pectoralis region and subclavius muscle compared to left. Soft tissue restriction also found into right groin and left lateral tissue system specifically into ITB and Vastus lateralis musculature. Demonstrates right shoulder joint play restrictions with inferior and posterior gliding.

Balance: Single leg comparison with eyes closed right = 3.91 seconds versus left = 9.51 seconds. Wobble board test indicated balance front-to-back to be harder than side-to-side.

At golf address demonstrates slight right hip elevation and a lack of secondary spine tilt.

Functional Movement Screen = 17

Upon initial assessment demonstrated loss of posture and heel lifting with Deep Squat mechanics. During the Hurdle Step Test demonstrated loss of alignment at bilateral hips, knees and ankles. Demonstrated stability issues with left pelvis during Rotary Stability Test with right upper and lower extremity.

Summary of Musculoskeletal Evaluation:

- a) S-shaped postural presentation with mobility issues noted into anterior, medial, lateral and posterior hip.
- b) Soft tissue restrictions noted into upper quadrant and cervical region
- c) Mobility restrictions into right shoulder compared to left
- d) Muscle imbalances including weakness into abdominal region and lower kinetic chain leading to decreased stability (i.e. Left compared to Right).
- e) Right lower body posterior chain tightness (i.e. Right compared to Left).

Recommendations:

- a) Initiate further fitness and biomechanics based testing
- b) Address flexibility and mobility issues with regular program that includes manual therapy, soft tissue release, joint mobilization, corrective exercise and active isolated stretching.
- c) Initiate pre-rehabilitative program to address issue related to cervical and low back pain presentations.
- d) Apply these services 2 – 3 times weekly as needed including services rendered during TOUR® events.

Golf Fitness and Conditioning Screen (Completed 02/27/2007)

Screen Results (WNL = within normal limits)

Starting Pelvic Tilt: anterior tilt

Pelvic Tilt Test: Limited anterior tilt

Torso Rotation Test: WNL

Pelvic Rotation test: More Lateral

Overhead Deep Squat: Arms crossed limited. Placed weight on right leg

Toe Touch: Touches toes

90/90 Shoulder Mobility Test: 72° active left external rotation losing 7° in golf posture, 84° active right external rotation losing 9° in golf posture

Wrist 4 ways: WNL

Single Leg Balance test: 16-20 seconds on both legs

Lattisimus Wall Test: Touches wall

Cervical Rotation: WNL

Seated Trunk Rotation: Left = 51° and Right = 60°

Half Kneeling Rotation Test: 20-30° with bar behind back

Reach Roll and Lift: WNL

Hip abduction Test: Glute medius inhibited bilateral

Bridge with Leg Extension Test: Glute weakness noted bilateral with inhibited left glute with Right leg extended

Active Straight Leg Raise: 65° bilateral

Hip Rotation Test: Right Internal Rotation = 25°, Right External Rotation = 33°, Left Internal Rotation = 27° and Left External Rotation = 27°

SUMMARY OF FINDINGS:

Shoulders

90/90 Shoulder Test - Rory was working on getting his swing on a flatter plane but his body would not allow him to do so. Due to the lack of external rotation in his shoulders his swing plane was steeper than he desired.

Trunk

Seated Trunk Rotation Test - Rory had 60° turning right and 51° turning left. This indicated an imbalance in his ability to turn his torso farther back than he could release. Rory was potentially creating a load on one side of his body that the other side could not physically match. This imbalance could potentially create more stress on the left side of his body every time he swung a club. If there is any imbalance I would like to see more torso turn on their follow through than backswing. This ensures that the load created can be released.

The amount of rotation bilaterally also created concern. Rory was trying to take the timing out of his golf swing and hit the ball with his body but he lacked torso flexibility/mobility. His tendency was make long backswings, past parallel, with only 60° of torso rotation. The only way he could get long in his golf swing was by creating compensation such as lifting the club with his arms and hands away from his body.

Pelvis

Excessive anterior tilt or the downward position of his pelvis was potentially helping place increased pressure into his lower back. With his pelvic mobility being more lateral than rotary this created concern about the muscles surrounding the pelvis. He was also noted to load onto his right side when he performed the overhead deep squat to take pressure off of his left side.

Hips

Imbalances around the hip girdle were indicated with both the side lying hip abduction test and by the single leg bridge test. The right single leg bridge test also caused immediate cramping into the left hamstring creating a potential scenario where the body would call in the hamstring group during the golf swing creating potential for additional low back stress.

Rory also demonstrated limited flexibility/mobility into bilaterally hip internal and external rotation. This combined with the muscle weakness/imbbalances above would create the potential for unstable lower body base during the swing motion.

BIOMECHANICS

3-D Video Analysis (Completed 10/16/2007)

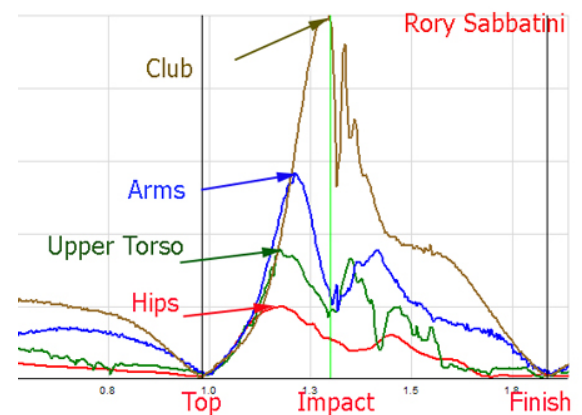
Science has long studied human movement and many sports have taken advantage of advanced biomechanics technologies. Oddly golf, one of the most complex and varied movements in all of sports has just recently embraced this science. Instruction of the golf swing date back over two hundred years. The amazing fact is that the concept of biomechanical analysis of the golf swing began just 20 years ago a small fraction of the time we have been studying the swing. Until this point, golfers have relied on the skilled “eye” of another avid golfer or instructor. For the first time in history of the game we can make scientific observations that can precisely diagnose a golfers swing ailments while creating a swing model that is less likely to produce common sports related injuries.

Our biomechanical testing with Rory included hitting full 5 shots each with both a driver and a 6 iron. We used a 12 sensor electromagnetic system to collect the data that was built by *Advanced Motion Measurement, LLC* in Phoenix, AZ. Evaluation was made using Titleist® Performance Institute (TPI) 3-D Biomechanics software. With Rory’s history of low back and neck pain and stress in the recent past, our goal with this assessment was to focus on areas of the swing that may be the leading to stress or dysfunction.

Functionally, Rory presents with a TOUR quality swing that equates to being able to generate higher club head speeds and maintain the correct path through impact. This is a result of the proper sequencing of the Hips, Shoulders, Arms and Club. Each segment reaching its peak rotation speed milliseconds before the next segment. This allows kinetic energy to be transferred up from the hips, then torso, then arms and ultimately produce peak club head speed just before impact.

Rory's sequence is a common example of a TOUR quality golf swing; this is a necessity in generating repeating club head speeds at over 110 mph.

During our tests Rory averaged:
 2360 deg/sec club rotation (max speed)
 114 mph club head speed with a driver



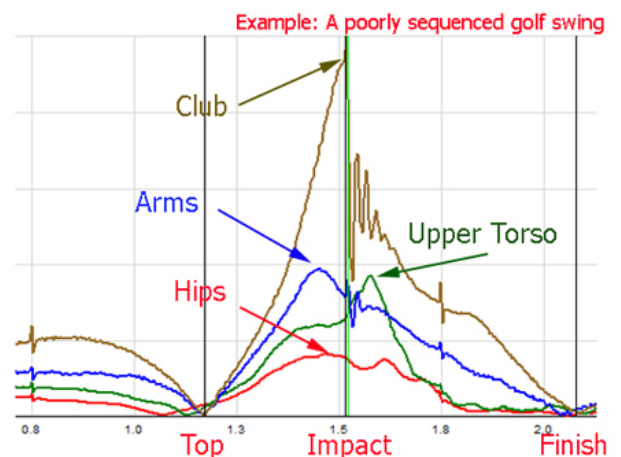
Conversely, the majority of golfers we test have poor sequencing with their golf swing. This is a common example of the average golfer swinging from an “outside to inside” path.

While this player is an excellent athlete, taller and weighs 30 lbs more than Rory...he was only able to reach a maximum driver club head speed of 90 mph at only 1220 deg/sec.

As you can see his **Arms** reached peak rotation speeds before the hips or torso, effectively making his arms and wrists produce all the power in his golf swing.

Proper sequencing can produce higher club head speeds with less effort and go a long way to protecting against injuries caused by the stress of improper mechanics.

As for potential injury risks, Rory's steep swing plane and free swinging style may produce excessive strain on the hips and lower back.



The first thing we looked at was Rory's set up... it was very solid and revealed no real concerns.

Alignment:

Hips 0° square to the intended target - Shoulders 5° open

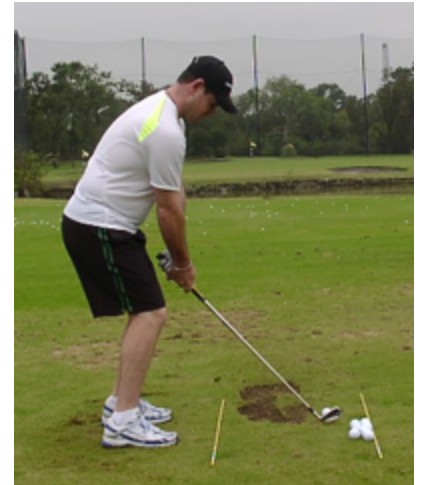
Bending:

Forward

Hips 16° Shoulders 42°

Tilting:

Spine 8° Hips 4°

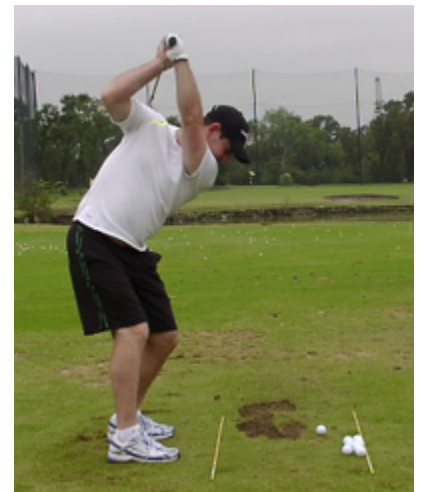


At the top of his backswing, we saw a tendency towards a big hip (i.e. over-rotation) and a significant shoulder turn leading to a steep swing plane. This can create significant stress on the spine and is often referred to as a reverse spine angle and/or loss of hip angle. This can cause a timing issue for the player as well as creating mechanical disadvantage for proper utilization of the large muscle throughout the core.

Also noted was a significant difference in his hip and shoulder side tilts (i.e. 50°angle) which only adds to the stress at his spine.

Hip Side Tilt: 4° Shoulder Side Tilt: 54°

Shoulder Rotation: 109° Hip Rotation: 57°



At impact, Rory's spine tends to compress and side bend as his upper begins to fall away from the ball through impact and early into his finish.

Upper Body Bend: 9° forward (27° to 36° F is ideal)

Hip Side Tilt: 16° **Shoulders Side Tilt:** 41°

Head Drop/Lift: 4" downward

Hip Rotation: 41° open

Shoulder Rotation: 20° open



Rory's improved finish position has been excellent change. He is finishing with better footwork, and improved spine and hip angles...but he still creates a "reverse C" position that could continue to put him at injury risk.

Rory's differential between his Hip and Upper Torso Bend at the finish is 64°. Ideally, we would like to see nearly half that number. (i.e. Between 22° and 33° would be ideal)

Upper body Bend: 65° Backwards **Hip Bend:** 2° Forward

Hip Side Tilt: 7° **Shoulders Side Tilt:** 10°

Hip Rotation: 103° open **Shoulder Rotation:** 161° open



Pre-Conditioning Program Swing

Rory told me that he biggest struggle with his golf swing had been two things: taking the club back steep on the backswing and lateral movement with his lower body throughout the entire swing. He told me that he recently fired his swing coach because he was too mechanical. Rory wanted to play by feel and felt he had gotten too technical with his movements.

This excited me as a conditioning coach because I knew that if we were able to address the two issues of a steep backswing and lateral movement with the lower body by getting his body to a point where it moved more efficiently without him having to think about it we would have a client for life.

2-D Video Analysis

Revealed the following swing faults:

- 1) Reverse Spine
- 2) Hang Back
- 3) Slide and Sway
- 4) Steep Swing Plane
- 5) Loss of Posture

GOLF PERFORMANCE RED FLAGS



The excessive lateral movement with Rory's lower body caused Rory to hang back with his back. This was a major cause of Rory's left back pain symptoms.

A lack of torso turn allowed Rory's arms and hands to race away from his torso in his back swing and follow through.

Weakness in the muscles surrounding the pelvis promoted Rory to slide and sway during his golf swing

Poor proprioception and lack of left gluteal strength encouraged Rory to roll his left foot over.

CORRECTIVE CONDITIONING PROGRAM

PHASE I

The focus in the conditioning program was the shoulders, trunk and hips. The foundation of the corrective conditioning program was the use of functional exercises. The functional exercises included superman, windshield wipers with xering, single leg bridge, long turns, and leg overs. These exercises became part of Rory's daily warm up routine

Pre-round Warm-up (Correct Imbalances)

- Postural check with physical therapist
- Active Isolated Stretching (AIS) on floor focusing on muscle imbalances
- Windshield wipers - Active
- Side leg raise/lifts (i.e. hip abduction) - Active
- Supine Bridge
- Long turns in ½ kneel position
- Standing in Golf Stance – Torso/Pelvic Rotations

Post Round Workout (Recovery)

- Supermans
- Windshield wiper with exercise band
- Side leg raise with exercise band
- Leg overs
- Supine Bridge Sequence – No arms and arm support with single leg extension
- Long turns in ½ kneel position

Full Workout Day

- Supermans
- Windshield wiper with exercise band
- Side leg raise with exercise band
- Leg overs
- Ball presses with the back of the wrist for external rotation (hold 3 seconds)
- Supine Bridge Sequence – No arms and arm support with single leg extension
- Russian twist on ball
- Reverse lunge with twist toward front leg
- Reverse Lunge with twist toward straight leg
- Shoulder stability T's, L's, Y's and W's on the ball
- Long Turns in ½ kneel position with club

PHASE II

As Rory's conditioning and corrective exercise program was progressed we began to add additional exercises to the program and also incorporate a more traditional strength and conditioning component. Our focus remained the same in regards to conditioning the shoulders, trunk and hips, but as Rory became stronger we could condition these same parts of the body more aggressively.

In addition, the team began to change its direction from a flexibility/mobility based program to a stability or the ability to control motion base. The flexibility/mobility training that remained focused on Rory's physical imbalances.

Pre-round Warm-up (2-hours before Round)

- Postural check with physical therapist
- Active Isolated Stretching (AIS) on floor focusing on muscle imbalances
- Side Leg Raises (i.e. Hip Abduction)
- Windshield wipers – Active
- Supine Bridge – Single Leg holding opposite leg at 90/90
- Muscle Activation Technique - Isometric activation of transverse abdominus and obliques
- Lifeline Bands – Retraction, single arm retraction with torso rotation, bilateral torso rotation
- Frontal Plane walk maintain Golf Posture holding onto Lifeline Cable
- ½ Kneel chops with FMT Tubing
- ½ Kneel Sequence – Pelvic Tilt, Pelvic tilt hold tilt rotate away and Pelvic tilt hold tilt side bend away
- Sagittal plane lunges combined with rotational and sidebending patterns
- Frontal and Transverse Plane lunge

Post-Round Session (Recovery)

- Varies based on individual needs, current muscle imbalances and level of fatigue
- Table session including manual therapy and active stretching
- Foam roller program including postural balancing and active stretching
- Progression of rotary stability progressions including:
 - Standing on balance pods in golf stance, squeeze 12" x 6" foam roller with upper body. Challenge stability into backswing, forward swing and at address by holding positions then add perturbations.
 - ½ Kneel progression of tilts and tilts with movement. Add isometric holding of positions squeezing 12" x 6" foam roller

Full Workout Day

Workouts are now personalized and cycled using the following workout template and shell (i.e. This workout progression was introduced to Back9 TOUR Services by the staff at Athletes' Performance *in Tempe, AZ*):

- 1) Pre-Rehabilitation
- 2) Foundation/Pillar Strength – Active the core!
- 3) Movement Preparation
- 4) Plyometrics and Movement Skill Development
- 5) Strength Training
 - a. 1° Strength Exercise (i.e. Upper Body/Lower Body Push or Pull, focus is strength/hypertrophy)
 - b. 2° Strength Exercise (i.e. Opposite movement to primary, more dynamic/stability based)
 - c. Rotational Component
 - d. Address Muscle Imbalance (i.e. hip circuit or shoulder stability sequence)
- 6) Energy System Development/Cardiovascular training with preference towards short bout, high intensity intervals.
- 7) Recovery/Regeneration

POST CONDITIONING RESULTS

Musculoskeletal Golf-Specific Evaluation (Completed 02/26/2008)

Demonstrated increased tissue quality throughout the body with increased recovery time following prolonged practice and play. Periodic recovery sessions have been integrated into the program and are used both on the road at TOUR® events and at home during off-week and off-season training. Rory continues to maintain corrective exercise program and pre-rehabilitative component with our medical staff specifically Jeffrey S. Banaszak, PT, CSCS.

Functional Movement Screen = 18

Difficulty remains with Deep Squat mechanics loading towards left side and slight inward knee movement. Slight right internal shoulder rotation imbalance remains with Shoulder Mobility Test. Rotary Stability Test remains challenging with left sided weakness noted. Change in test score noted due to improvements in Hurdle Step Test mechanics related to changes in hip flexibility and mobility.

Golf Fitness and Conditioning Screen (Completed 02/26/2008)

Screen Results (WNL = within normal limits)

Starting Pelvic Tilt: Neutral
Pelvic Tilt Test: WNL
Torso Rotation Test: Good Stability
Pelvic Rotation Test: Good Rotary
Overhead Deep Squat: Full Deep Overhead Squat with even weight distribution
Toe Touch: Touches toes
90/90 Test: 125° Left Active External Rotation losing 5° in golf posture and 130°
Right Active External Rotation losing 7° in golf posture
Wrist 4 ways: WNL
Single Leg Balance Test: 16-20 seconds on both legs
Lattisimus Wall Test: Touches wall
Cervical Rotation: WNL
Seated Trunk Rotation: Left = 93° and Right = 90°
Half Kneeling Rotation Test: 20-30 degrees bar behind back
Reach Roll and Lift: WNL
Hip abduction Test: Bilateral glute medius inhibition
Bridge with Leg Extension Test: Glutes remain weak bilateral
Active Straight Leg Raise: 80° bilateral
Hip Rotation Test: Right Internal Rotation = 60°, Right External Rotation = 83°,
Left Internal Rotation = 62° and Left External Rotation = 85°

Post Conditioning Program Screen Summary

Rory's body changed dramatically over the course of 1 year. The external rotation of his shoulders increased from 72° left and 84° right to 125° left and 130° right. His torso turn increased 42° on his left side (51 to 93°) and 30° on his right (60 to 90°). The most dramatic change was in his hips. He had a 35° increase of internal hip rotation (25 to 60°) on his right side and a 35° increase of internal hip rotation on his left side (27 to 62°). He had a 50° increase of external hip rotation on his right side (33 to 83°) and a 55° change on his left side (27 to 85°).

Post Conditioning Program Swing Summary

The increase of external rotation in Rory's shoulders allow him to swing the club more around his body which encouraged the energy in his golf swing to be created with the body instead of the with his arms and hands. A shallow swing path encouraged Rory to rotate instead of slide which in theory will take pressure off of his lower back.

The increase in torso rotation disengaged Rory's arms and hands in his swing. Having the ability to make a deeper torso turn allowed his arms to stay connected to his torso longer through his swing. This significantly reduced the amount of timing need between the arms and the torso during the swing. A bigger shoulder turn with the backswing and follow through allowed Rory to hit the ball with his torso which led to a dramatic increase in consistency. Before his conditioning program Rory had a tendency to hit punch shots with his arms and hands causing him to fight hitting a pull hook. Now Rory says he hits his punch shots by feeling his torso rotate back and through, keeping his hands in front of his torso. Rory does not fear left anymore on his punch shots. If anything his ball falls softly to the right of his target instead of screaming left of his target. Because Rory's torso can rotate completely around his body it became hard for his hands to get out of sync with his body.

The most dramatic change in Rory's body was his hips. By strengthening Rory's internal and external rotators he was able to move his pelvis in a rotary manner instead of laterally. This created a tremendous amount of stability in his golf swing. The dramatic increase of mobility in Rory's hips, along with an increase in his gluteal strength, allowed him to be completely balanced at the top of his backswing and follow through. Improvements in balance dramatically reduced his shot dispersion with his misses. Rory's hips also became a great source of power for him. Rory now generates his power with his hips and core instead of with his arms and hands. This significantly increases the volume of power created while dramatically decreasing the probability of hitting errant shots due to excessive lateral movement.

The Finished Product



A bigger torso turn allows Rory to keep his arms connected closer to his torso throughout his swing.

The dramatic decrease in lateral movement with Rory's lower body allows him to finish tall and not hang back.

The strengthened muscles surrounding Rory's pelvis encourage his pelvis to move rotary instead of lateral, impeding a slide or sway.

Good proprioception and a strengthened left glute allow Rory to remain in complete balance in his follow through.

Rory in the 18th fairway on his way to victory during the 2007 Crown Invitational at Colonial.

Nutritional Component: Rory's program also included a nutritional component that utilized the website <http://www.eat2getfit.com>. Rory's on-tour conditioning team helps with meal preparation during tournament play including breakfast preparation and meals before, during and after play. Initial 4-site skin fold measurements revealed 20.9% body fat on August 25, 2007. Although Rory maintained his weight he demonstrated a loss of body fat percentage of 3.74% to 17.16% body fat on February 25, 2008. This change in body fat percentage with maintenance of overall body weight may indicate an overall gain in lean body mass during this period of time.

Summary: This program has been implemented by Back9 Tour Services throughout the 2007 and 2008 TOUR® seasons. At the start of programming in mid-February 2007 Rory was ranked 43 in the Official World Rankings moving to as high as number 8 in both 2007 and 2008. Rory made \$4,550,040.00 in earnings on the PGA TOUR® in 2007 a career best. Rory obtained his goal of becoming a top 10 player in the world rankings in 2007. His new goals for 2008 include becoming a top 5 player in the world rankings.

AUTHORS

Jeffrey S. Banaszak, PT, CSCS

With over 10 years experience in the golf industry, Jeff developed a unique company called Back9Fitness® that specializes in products and services designed to enhance golf performance. Jeff's expertise includes manual therapy including Graston® Technique, ASTYM™, Active Isolated Stretching: The Mattes Method and specifically designing corrective exercise programs based on golf biomechanics. Jeff has been traveling with touring professionals to PGA TOUR® events for the past five years and now operates his business under a new division of Back9Fitness® called *Back9 Tour Services*. Jeff has most recently been asked to serve as a Medical Advisory Board Member for the Titleist® Performance Institute (TPI).

Tom Harlan

Originally from Manchester, NH, Tom has spent over 25 years as a competitive tournament player and world class golf instructor in Southwest Florida. Competing around the United States and several countries in mini tours, PGA events, and State Opens, Tom has amassed 25 professional wins and set 8 course records. He also competed twice in the PGA TOUR® Qualifying School in the early 1990's. He has worked for several top Golf Academies including Jim McLean's Schools in Miami, TX and Fort Worth, TX. Tom has also worked as a lead Instructor for Dr. Rob Neal, a world renowned expert in the field of sports related Biomechanical Research and Training. Currently Tom is acting Director of Instruction at the Sinclair's Golf Training Center in Fort Worth, Texas.

Randall Hunt, BS, TPI Golf Fitness Instructor – Level II

In 1997 Randall received a full tuition golf scholarship to Pepperdine University, where he graduated in 2001. Since graduation, Randall has been focused on his playing career. Randall's quest for mastering his own personal health as a player has led him down a path where he has learned hands-on from many the best golf conditioning coaches in the world including Keith Kleven, PT, ATC, of Keith Kleven Physical Therapy in Las Vegas, NV and the Titleist® Performance Institute (TPI). This unique combination of knowledge and experience as a player has given Randall the latest cutting edge information in regards to golf conditioning. In addition, Randall has been a key component in the development of Rory Sabbatini's conditioning program over the past two TOUR® seasons.

Jay Platt, PT, ATC, CSCS

Jay has over 25 years experience in sports medicine as a physical therapist, athletic trainer, and certified strength and conditioning specialist. Jay has specialized in golf performance enhancement through improved physical conditioning since 1995. He has extensive experience working with touring professionals and lectures internationally on the biomechanics of the golf swing as an Associate Instructor for the BACKtoGOLF® Sports Medicine Network through their seminar program.