

# BIONIC GOLF

## LOWER BODY MECHANICS

### *The Foundation of a Powerful Swing*

By Christian M. Welch

Just like a house, a solid golf swing must be built on a solid foundation. That foundation is lower body mechanics. The movement of the lower body is composed of both linear and rotational components. It is the proper interaction between the two that creates a stable basis for the rest of the swing.

#### **DEFINITION OF TERMS**

Your feet generate forces when they *push* against the ground. These forces act to propel your body and create motion. There are two kinds of forces that are important to the golf swing: Normal and Shear. Normal forces are used to define the linear component of the swing and shear forces are used to define the rotational forces of the swing.

#### **Linear**

Normal force is applied by the feet downward or perpendicular to the ground. Weight is transferred to the back foot during the backswing and to the front foot during the downswing. When weight is shifted to one foot, the amount of normal force applied by that foot increases, while the normal force applied by the other foot decreases. This action defines the linear component of movement. The linear movement of the lower body during the golf swing is very important, because it is from this movement that the body develops momentum and enhances the rotational speed and power of the hips.

#### **Rotational**

Shear force is applied by the feet along the surface or parallel to the ground. Throughout the swing, shear forces are being applied by both feet. These shear forces create torque that turns the hips around the axis of the trunk. This defines the rotational component of lower body movement. The rotational component provides the basis for power during the swing and can be the most directly related to ultimate club head speed.

#### **FAULTS**

When faults occur in lower body mechanics, the effects on the golf swing resemble cracks in the foundation of a house. The basis for stability is lost and efficiency erodes. The most common fault in lower body mechanics is *sliding*. When a golfer slides, the interaction between the linear and rotational

components breaks down. Weight transfer is diminished and rotation is lost. When the foundation is weakened, the golf swing becomes undermined.

#### **PST<sup>SM</sup> DRILLS**

Progressive skills training drills will allow you to develop a feel for the interaction between the linear and rotational components of lower body movement. At the same time, they will develop the neuromechanical patterns within your body that will allow you to coordinate these movements during the golf swing. Please remember, however, that these drills help to develop muscular coordination and an awareness of our body's movements. They should not be mistaken for golf swing technique and certainly never be used when hitting golf balls. They should only be used to train your body to move more efficiently and with enhanced performance potential.

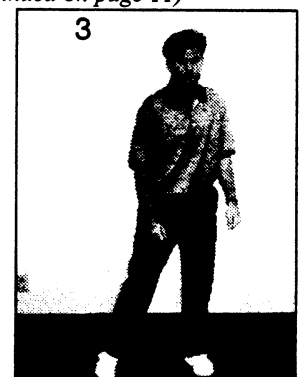


#### **Drill One (linear weight transfer, see photos 1-3)**

- \* Stand in front of a mirror
- \* Obtain an address position
- \* Shift approximately 80% of your weight to the rear foot: *loaded position*.
- \* Hold and feel position
- \* Transfer weight slowly from rear foot to front foot, ending with approximately 80% weight on front foot.

**Key:** Check your alignment throughout the entire motion. Always keep the shoulders directly above the hips. Feel the weight transfer. DO NOT slide hips out from under the shoulders.

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# FORE REVIEW

## THE OFFICIAL PGA NATIONAL GOLF STRETCHING GUIDE

By Randy Myers, M.L.S. - Illustrated, Palm Beach Gardens: \$4.95

If you are at all like me, you read all the columns and articles in FORE FLORIDA and other golf magazines. The problem is, that by the time I get out on the course, I'm not certain that I'm following the experts' tips correctly. Randy Myers, Fitness Director at PGA National Health & Racquet Club has addressed this problem by putting his best stretches into a handy, pocket-sized guide,

meant to be kept in your bag, cart or pocket.

The guide contains stretches that can easily be done, using a golf cart and a club. All the stretches are simply explained, with step-by-step directions, and color photographs of Randy demonstrating.

If you follow Randy's column, you already know how important stretching is. It will help your game and lessen your chances

of injury. I recommend this guide to golfers of all ages and abilities.

by Daniel Shube

To get your copy of *The Official PGA National Golf Stretching Guide*, send a check for \$4.95, plus .32 postage, to Randy Myers, PGA National Health and Racquet Club, 600 Avenue of the Champions, Palm Beach Gardens, FL 33418

### TEE OFF! - Continued from page 9

Beginners should consider signing up for lessons at a local golf course. Don't be afraid to explain your physical limitations to the instructor. If you have trouble finding someone who caters to teaching people with arthritis, contact "Never Say Never" for a referral to an instructor and/or a program in your area.

Finally, remember that if you're going to play golf, it should be fun. While you may not have the prettiest swing, keep in mind it's your final score that counts.

"Golf may not be the sport for everyone", says Hasson. "If it increases your pain, stop and seek advice. But remember, golf keeps you moving and, for those with arthritis, your goal is to get back on and stay on

your feet". For players like Joyce St. John, golf is a form of relaxation, a way to slow down and a means of personal enjoyment. "I may not maintain a handicap anymore or even keep score on days I feel bad", she says, "but I can still hit the ball well. Even though it's not as far as it once was, it's much straighter. I guess the bottom line is I treasure the time outdoors and the companionship of friends during the game".

The great thing about golf is that it can be tailor-made to fit any player, regardless of limitations. Truly, it can be the sport of a lifetime.

*Editor's Note: Laura Daily is a freelance writer based in Snowmass Village, CO. This article originally appeared in Arthritis Today, and was reprinted with permission.*

### For More Information

**\*Feeling Up to Par: Medicine From Tee to Green**, by Stover, McCarroll & Mallon (F.A. Davis Company, 1994, 1915 Arch Street, Philadelphia, PA 19103; (215) 568-2270 or (800) 523-4049, \$59). This comprehensive book addresses the medical problems faced by golfers. Co-authored by physicians, therapists and golfers, it provides detailed advice on how to solve specific problems. Although somewhat technical in nature, the text is fairly easy to understand. Among the topics covered are the biomechanics of golf, training and conditioning, psychology, nutrition, rehabilitation for the injured, and golf participation by the physically challenged, such as those with arthritis.

\* *Never Say Never*, 1309 E. Northern #308, Phoenix, AZ 85020, (602) 678-1832. This organization serves as a clearinghouse to those looking for a specialized golf program, a teacher in their area, or advice on adapting the game.

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#### Drill Two (linear weight transfer and rotation, see photos 4-6)

- \* Stand in front of a mirror
- \* Obtain an address position
- \* Shift approximately 80% of your weight to the rear foot and rotate segments in a clockwise direction approximately 45°: loaded position
- \* Hold and feel position
- \* Transfer weight slowly from rear foot to front foot and rotate segments in a counter clockwise direction, ending with approximately 90% weight on front foot.

**Key:** Check your alignment throughout the entire motion. Always keep the shoulders directly above the hips. Feel rotation and weight transfer occur simultaneously. DO NOT slide hips out from under the shoulders. In the next issue we will discuss the transfer of energy from the lower body through the big muscles of the trunk to create optimal power.

*\*Editor's Note: Chris Welch is Founder and President of Human Performance Technologies, Inc., specializing in the application of biomechanics in sports performance. His research at The American Sports Medicine Institute in Birmingham, AL and the Orthopaedic Research Laboratory in W. Palm Beach, FL has involved pro baseball players and touring golf pro's. Chris can be reached at HPT, Inc., at (407) 744-3177.*

Thanks to photo model, J. Brian Gay, Professional Golfer ranked #1 by the National Mini Tour Association and money leader for the 1995 Gold Coast Tour, shown demonstrating PST™ Drills for developing proper lower body mechanics.

