

"Maintaining Playing Ability For Senior Golfers"

By

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THESIS

PRESENTED TO THE CANADIAN PROFESSIONAL GOLFERS' ASSOCIATION
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR MASTER PROFESSIONAL

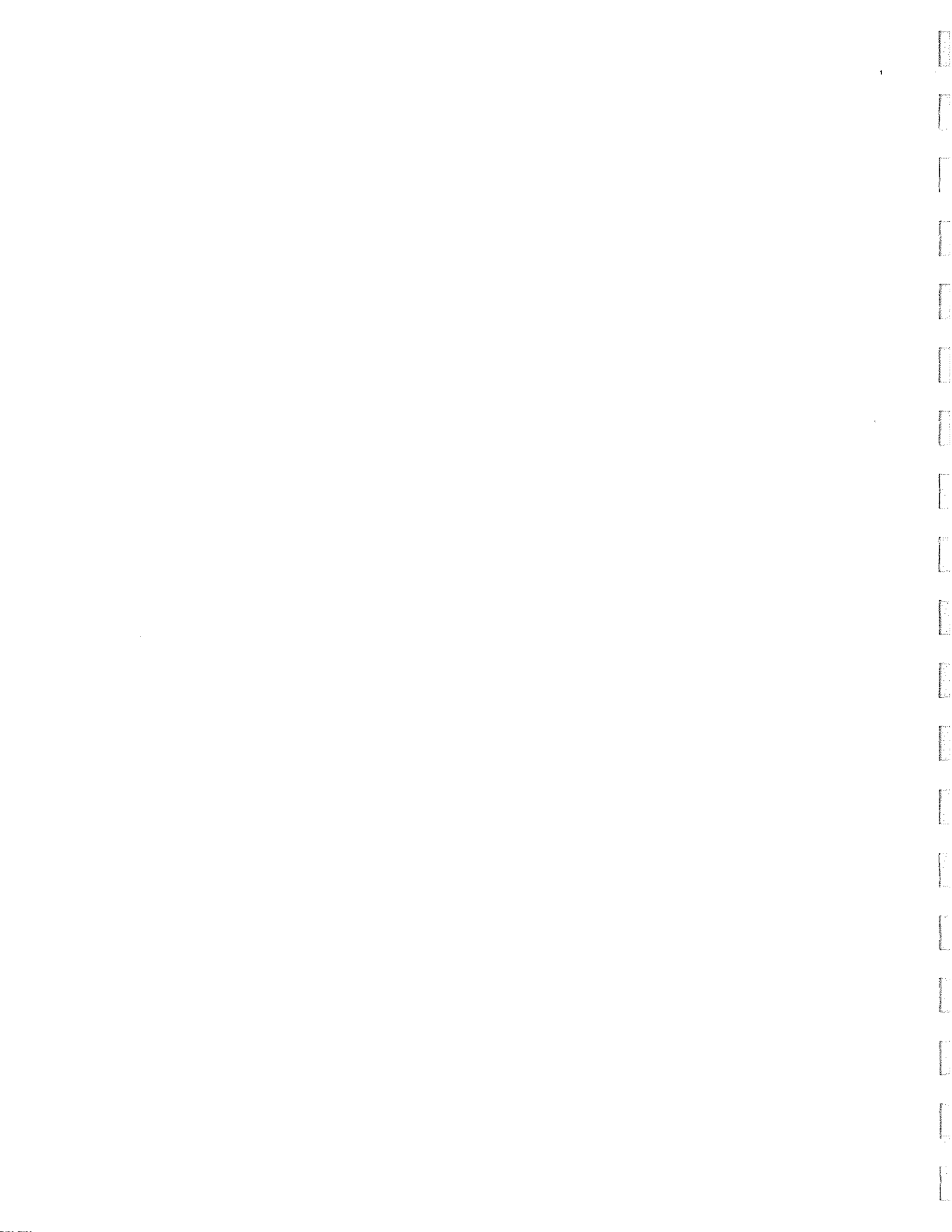


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Introduction:

With the advent of the senior professional golf tour, the interest of the "over 50 set" not only in casual golf but also in competitive golf has grown at a tremendous rate. The senior tour players have shown that they still maintain the ability to record scores that are as good as, or sometimes better than, the "flat-bellies" of the junior P. G. A. tour.

An additional and very interesting aspect about the Senior Tour is that certain players who were career amateurs, such as Jay Siegal, and others who never qualified for the regular tour, such as Walter Zembrisky, have prospered as senior tour players. Many who starred on the regular tour continue to star on the senior tour. Then again, there are others who were fine tour players but now are only average or unsuccessful senior players.

There are many reasons why this situation has occurred. In this thesis, the writer intends to present the physical, psychological and practical (ie., equipment) variables that can affect performance as the player ages. The writer also intends to demonstrate the fact that maintaining playing ability as the golfer ages is quite possible while, at the same time, not extremely difficult.

Factors Affecting Performance - Physical:

It is possible to delay the aging process through exercise and strengthening programs.

Normal aging leads to the loss of two kinds of muscle fibres. The slow-twitch fibres are necessary for posture and low intensity movement whereas the fast-twitch muscle fibres are the ones used for high intensity movement. These fast-twitch muscle fibres are very important in the golf swing and are also the ones that decline with age. However, this decline is not inevitable and it has been proven through testing experiments that one can maintain and even increase

muscle mass and strength through regular weight training (Evans, 1991, p.113).

There is a correlation between aging and lower metabolic rates. This is the process in the body that builds and destroys tissue and releases energy. If muscle mass is reduced, then caloric need is also reduced. Also, it is muscle, not fat, that requires nourishment. As people age, they may not gain weight but, they will gain fat if some type of exercise is not undertaken on a regular basis. Weight loss is also more difficult, so it seems, as one ages. This is due to the decrease of muscle mass and the increase of fat in the body. Unfortunately, most people try to lose weight by drastically reducing caloric intake. This is counterproductive because not only will fat be lost but also an equal or greater amount of muscle as well. The basic metabolic rate slows down even more by this self-induced starvation mode. As stated earlier, when the metabolic rate is high, fat is metabolized faster. Therefore, exercise is most important in a fat reducing situation.

Aerobic capacity, the body's ability to intake oxygen and deliver it to the various areas of the body through the blood stream, also declines with age. Maximum oxygen intake begins to decline at age 20 for males and at age 30 for females. By age 65 aerobic capacity is 30-40% less than in youth adults. Aerobic capacity is probably the best single indication of fitness. However, by building muscle mass in the body, the body's blood sugar, cholesterol, and blood pressure levels can be controlled. Although these three physiological components directly affect the aging process, they can be controlled with regular aerobic, cardiovascular, and weight training exercises.

The last phase of the aging process is the loss of bone mass. At this stage, the bone starts to weaken as it loses density and becomes more brittle. To illustrate this fact, studies have shown that two weeks of bed rest alone is equal to one year of calcium loss in the bones. Once

again, however, research has proven that some type of weight-bearing exercise is a preventative measure. Exercises such as walking, running or cycling are very beneficial.(2)

The Tufts University Program

The following information is based on studies that were carried out at the Tufts University in the exercise laboratory. Researchers studied the effects of exercise and strength training on the quality of life during the aging process. During these studies, various groups were tested to determine the amount of exercise that was essential to provide long-term benefits and which types of exercise and strength training were most helpful. The resultant training program is described in Appendix 2.

The above mentioned program takes one through 16 weeks of strength and aerobic training. Stronger muscles can be developed through a weight training program. Initially weight training exercises break down the damaged protein so that new muscle protein can be produced, resulting in larger and stronger muscles. When working with weights, the eccentric phase of the cycle is equal to, or perhaps more important than, the more difficult concentric phase. The concentric phase occurs when one lifts against gravity and the muscle shortens. This is the most difficult phase, although, the most beneficial phase to crucial muscle growth occurs when the weights are lowered back to their original position and the muscle lengthens. This eccentric phase stimulates and repairs muscles that were damaged during the concentric phase and, therefore, should be undertaken as slowly as possible for the best results.

During the experiments at the Tufts University, researchers also found that fitness training should be executed 2 or 3 times per week.(3). To maintain this level of strength and

fitness, the program may be reduced to once per week. A marvellous by-product of this exercise and strength training is not only an improved physical appearance but also increased energy. Because the metabolic rate decreases with age, "wellness" or feelings of well being also decrease. However, a combination of strength and aerobic training will help maintain an increased metabolic rate and definitely improve the way an older person feels on a daily basis.

It is well known that senior tour golfers spend a great deal of time in the fitness trailer, which accompanies the tour to every P. G. A. event both before and after their round and/or practice. This illustrates the fact that a comprehensive warmup program is extremely important and should therefore be undertaken before any of the strength and flexibility training is done. If these programs are executed over an extended period of time, the results will surely be felt through improved performance on the golf course (Appendix 4).

Factors Affecting a Senior's Performance - Equipment - The Practical Side:

A combination of improved equipment and technique enables a player to reduce the affects of aging on game performance. The proper equipment will not only make the game easier but will also complement the aging process as it affects the golf game. However, longer shafts, lighter shafts or two-piece balls are not, in themselves, the answer. Therefore, it is important to realize that there are no instant solutions to lost distance.

Improved technique is also very important consideration since the normal aging process tends to produce poor posture. Hand speed is reduced, as well as shoulder and hip turn, and foot work. All of these deficiencies may be improved through drills and exercises. Swinging a weighted driver (the Jerry Barber model) 40 to 50 times (swings) per day will enhance all of

these areas. As a testimony, the writer started such a routine 3 years ago to deal with these problems. As a result, shoulder and hip turns are now back to what they were 20 years ago. Arms and shoulders are stronger, hand speed is better and improved distance off the tee is apparent.

Choosing The Proper Clubs- (Specific To The Senior Golfers Needs)

a) Driver-

To obtain more distance, experiment with a longer shaft that is made of lighter material such as graphite, titanium or light weight steel. A shaft that is more flexible may also be beneficial. However, lengthening the shaft will increase the swinging weight of the club and may be counter productive. Through experiment, the "best feel" swinging club weight (swing weight) can be determined. The actual swing weight can be established by using a swing weight scale that is commonly used in the golf industry. The goal is to establish a mass that can be swung at the maximum club head speed for the individual.

To create momentum, or force, velocity is the most important factor. In physics, momentum is equal to mass multiplied by velocity squared ($P=MV^2$). Once the actual swing weight has been established, experiments with shafts and club head combinations can be made to produce the best results. To find the ideal driver, the golfer requires patience and a willingness to try several different types including a variety with different lofts or club face angles.

The next step in selecting the proper driver is to establish the ideal club loft. Generally speaking, flatter type swings may use club heads with less loft. Conversely, more upright swingers will tend towards more lifted drivers. The main objective is to determine the loft that

will produce the maximum distance through a combination of ball carry and ball roll.

Finally, when choosing a driver, it is important that good club head feel is achieved and that the driver looks aesthetically pleasing when set at the address position. It may be the best driver in the world but if the golfer is not comfortable with its appearance, then success will be limited.

b) Irons-

The shaft that is selected for the driver will, most likely, suit the irons. It is not necessary to increase the length of the irons. Distance is not the main objective. Instead, the main goal is to produce consistency of direction, ball flight (trajectory) and distance. The newer designs, with perimeter weighting, allow the golfer to be more consistent, especially with miss-hit shots. The old classic iron heads were designed with fairly consistent weight distribution over the entire head. The newer perimeter weighted club heads are designed with a greater amount of the weight distribution towards the toe and sole areas or bottom of the club head.

The two most important criteria in being fitted for a set of irons are to establish the correct lie angle and suitable club length. This can be achieved by using one of the many dynamic club fitting systems offered by companies such as Titleist and Slazenger. These two systems will also help in shaft selection and grip size. Once finalized, the only decision is to select the brand with the most appeal.

c) Set Combination-

The set combination will vary from person to person depending upon the relative strengths and weaknesses of the individual's game. If the short game is a strength, perhaps an extra wedge will be added to complement that part of the game.

With aging, the ability to hit long irons is often decreased. With that in mind, perhaps replacing the 2-3-4 irons with utility woods such as the 5-7-9 woods will reinforce the confidence required to hit shots of long iron distance with control and trajectory. The utility woods will enable those shots to land on the greens and stop quickly. The woods will, more than likely, match the type of driver. They will have the same shaft type but will be of standard length. Once again, with these utility clubs, distance is not the main objective. Control of direction, distance and trajectory are the main goals.

To complete the set make-up, a variety of wedges is imperative. With some power loss due to the aging process, the short game is going to come under pressure. The demand to hit a variety of shorts, from 100 yards or less, will challenge the ability of the golfer. There are a variety of lofts available. The golfer must decide which distances are most important and then choose the wedge loft that will regularly produce these distances with full-swings. Also, by adding a third wedge, such as a 60 degree lobb-type wedge, a player may be more creative in building a variety of short shots.

Choosing The Proper Golf Balls-

The final piece of the equipment puzzle is the selection of the correct golf ball. The surlyn cover/ two-piece ball will definitely give a player greater distance on all shots. However, a senior player who is constantly hitting approach shots from 30 to 70 yards, to smallish greens, may decide to opt for a softer "spin ball" such as the three-piece ball with a balata cover, or the newer type of high spin rate balls with new hi-tech durable covers such as the Titleist Professional or Spalding Strata. The need for greater control with these shots will demand the use of this type of ball. A senior player may also assess the golf course and the playing

and select the ball type for that particular day and golf course.

There are several brands of golf balls available. The four basic types are discussed below. The Senior Golfer should chose the ball that best compliments his/her game.

(1) Balata Covered/ 3-Piece/ Wound Core Balls:

This ball is the least durable, provides the greatest amount of spin, but allows the maximum potential for control of all shots. However, these balls travel the shortest distance in a combination of flight and roll tests. Side spin, created by miss-hits, will also curve these high spin balls off line.

(2) Surlyn Covered/ 3-Piece/ Wound Core Balls:

This ball provides greater durability than the balata ball. It spins less than the balata and, therefore, travels slightly farther in combined flight and roll tests. It does, however, perform very similar to balata.

(3) Synthetic Cover (Balata)/ 2-Piece/ Solid Core Balls:

This ball is being tested and marketed most aggressively by companies for the better player to replace the balata 3-piece ball. The higher handicap player, who wants the feel and spin of balata, is also experimenting with this ball. The desired results, from a manufacturing standpoint, is to duplicate all of the characteristics of the balata ball. Synthetic balata balls spin slightly less than true balata and travel a little farther in flight and roll tests. However, its performance very closely mirror that of true balata. It is the writer's opinion, from talking with various ball manufacturers, that the true balata ball will eventually disappear and be replaced by this new ball because performance will not be compromised. The new synthetic balata ball is much less expensive to produce, therefore, less expensive for the consumer to purchase.

(4) Syrlyn Covered/ 2-Piece/ Solid Core Balls:

This is the true distance ball. It spins the least of any of the balls so, consequently, it will not travel off line as much as balls that spin more, specifically on miss-hit shots. It does not necessarily fly any farther than the higher spin rate balls. However, in combined flight and roll tests, this is undoubtedly the longest ball. For the golfer who requires distance more than the ability to spin the ball then this is the one of choice.

Once again, it is important that seniors experiment with various types to establish the particular model that will complement all aspects of the game.(4)

Factors Affecting a Senior's Performance = Practice = Working on The Physical Game:

No golfer has ever succeeded without practice and no golfer ever will. The hardest thing to do is to practice one's weaknesses. As a golfer ages, there is a tendency to let the basic fundamentals slip. This is the time when fundamentals are of the utmost importance. A deterioration in physical condition and loss of strength can result in power leakage due to poor posture, a reduction in shoulder and hip turn and a reduction in hand speed.

The first step in the rejuvenation process is to work on improving posture. The strengthening exercise program referred to in the strength and flexibility segment of this thesis is important in helping the golfer improve posture.

For the senior golfer a grip change may be beneficial. Such a grip change to a ten-finger, full two-hands grip, coupled with a reduction in grip size on all clubs will increase hand speed and improve feel. These changes will help promote proper hand action. This hand action will produce shots that have a tendency to turn from right to left, have increased overspin and achieve

greater distance which will be of benefit to the senior's play.

The next area to work on is increasing the hip and shoulder turn. As stated earlier, practice swinging with an extremely heavy driver (such as the Jerry Barber model), the senior golfer will find that the hands as well as the golf muscles in the arms will become stronger. More importantly, however, the muscles of the upper chest, shoulders and back will be stretched and strengthened. This will allow the shoulder and hip rotation of a much younger player, resulting in the potential of greater power. To maintain this level of upper body flexibility, constant practice swinging with a weighted club is required. Once per week will suffice during the golfing season and three times per week in the off season. To avoid possible back injury, a warming up of the back muscles is essential.

Through my teaching of senior golfers I have found that as they age, there is a tendency to move laterally, or sway off the ball on the back swing by sliding (which is less stressful) the body rather than rotating the body, to create maximum coiling energy. An exercise that will help to eliminate this tendency is to assume the golf stance, at right angles to a wall (without a club). Place the right foot against the wall. Proceed to make a full back swing movement, turning the shoulders, hips and chest, without allowing the right knee to touch the wall. This exercise, when repeated on a regular basis, will eliminate the tendency to sway and also enable the golfer to see and feel the difference between the slide and turn.

Awareness of one's physical condition is an essential element of the mature golfer's game. Therefore, all aspects of the physical game must be worked on. Without doubt, hitting balls is a very important component of maintaining the aging golfer's playing ability. Since many aging players will lose some distance, the short game will become more important. Practising this part

of the game will reap the greatest rewards. Many years ago, a fine senior amateur golfer gave the writer some very sound advise; " You should spend twice as much time on and around the putting green (chipping, pitching and putting) as you spend on the driving range."(5)

Factors Affecting Performance: The Mental Side of The Game:

It has been said that over 90% of the game of golf is mental. In reality, research shows that for the top professional athlete, this percentage is a 50/50 split between psychological and physical fitness. Thereby, self criticism and introspection become increasingly important components of the maturing golfer's game. At this stage, an assessment must be made of one's tendencies, strengths and weaknesses.

The art of concentration is an acquired skill, although, the ability to concentrate for long periods of time tends to diminish with age (6). Usually, concentration lapses and distractions occur when fatigue or frustration sets in. However, improved physical fitness decreases the possibility of tiring during a round of golf, thereby enhancing the player's ability to focus. When a player begins to tire during the late stages of the round this fatigue becomes a distraction. At this point, the golfer loses that percentage of his/her focus that is being diverted to the concern of growing fatigue.

To enhance the powers of focussing and concentration, an individual may practice specific mental exercises such as reading various articles in books or magazines and then attempt to recall as many details contained in the articles as possible. Initially, only a few details will be remembered but, with practice, the level of recall will improve dramatically. The next exercise is to continue the same process but include background distractions, such as radio and television.

Repetition of the above mental exercises should definitely enhance a golfer's concentration power.

Preparation-

Properly preparing for a competitive round is important for all golfers but it is especially important for seniors. Older muscles take longer to warm up & digestive systems are slower. The following section will elaborate on how a senior golfer should go about properly preparing for his/her game.

Throughout this thesis, a program has been outlined to assist the player in maintaining a high level of playing ability over many years. However, without proper game day preparation, the player will not totally benefit from the efforts put forth. Game day preparation begins in the morning. If the day's tee time is late morning or afternoon, preparation will start at a later time but the sequence and duration will remain the same. Although, an early morning time requires an equally early rise to give the player adequate time to comfortably start the day. The consumption of a leisurely, wholesome breakfast should begin the day. It is extremely important not to rush the morning activities. Regardless of the tee off time, adequate time must be taken for the meal to properly digest thereby avoiding an uncomfortable feeling when the round begins. Proper digestion also gives the food a chance to be converted into energy. On game day, the player should only consume foods that are easily digestible and high energy producers. It takes approximately 2 hours to properly digest food and convert it to energy. Foods that are high in fat, such as butter and meat, should be avoided since they are difficult to digest and do not provide the proper energy (Refer to Table 2., page). It is also important to include plenty of fresh juices and water. Consume fluids before beginning the round and continue to drink before you become

thirsty to avoid the beginning of the dehydration process.

The next part of the game day preparation begins when the player arrives at the course. Adequate time must now be allowed to execute a series of warmup, mobility and stretching exercises as outlined in the illustration section of this thesis (Refer to Table 3., page).

From this stage, the player may then proceed to the practice tee to warmup now knowing that the golfing muscles are ready. At this point, the golfer must remember that this is a warmup, not a practice session. This time must be used to establish the best possible level of playing ability for the day so that the player may focus on the proper game plan while, at the same time, establishing a comfortable feeling for the swing and coordination. Body chemistry changes from day to day and as a result of this, the feel of the club will change as well. Proper mental and physical preparation, before a round, will minimize the affects of these changes and result in greater shot-making consistence on a daily basis.

The final part of the warmup is to take adequate time on or around the putting green. This should be quiet time while, at the same time, avoiding all distractions so that the maximum level of concentration and/or focus may be achieved. Now, the player is ready to golf.

To excel at the game of golf requires achieving the ultimate level in mental toughness combined with an extremely positive mental attitude. Adjustments to the aging golfer's game are affected by nerves that are inferior to those of younger days. Also, a reduction in depth perception is combined with these changes. Too often, golfers focus only on complaining about their shortcomings and not on solutions. Also, they do not give themselves enough credit for their strengths. All of this affects the much needed positive mental outlook toward the game of golf. The ability to be stimulated by the positive aspects of the game and to work to improve the

shortcomings without having negative thoughts are derived from the confidence generated through proper technique and equipment modifications. This combined state will produce the best possible mental outlook.

Mind Over Muscle-

This section of the thesis applies to any golfer, however, it is even more important to the senior golfer. As stated earlier, the ability to concentrate for long periods of time tends to decrease with age unless practice is undertaken to slow this trend.

The positive power of the mind is well documented in the field of athletics. A champion cannot be produced by strength and flexibility training, proper practice and outstanding equipment alone. Without the proper mental component, it is impossible. Champion golfers such as Jack Nicklaus, Greg Norman, Arnold Palmer, Ben Hogan, and Bobby Jones, to name a few of the best, have had the mental capacity to elevate their golf games above those of their competitors when it was needed the most. Under the extreme pressure of championship golf, the greatest players have the ability to establish a calmness within themselves in the midst of the calamity of tremendous effort and emotion, thereby enabling themselves to visualize more clearly and perform even better than under normal circumstances. The golfer who is unable to achieve this level of mental capacity tends to get confused and makes mistakes.

The champion golfer sets specific goals while the average golfer's goals are vague. The champion golfer is not afraid to win although, by doing so, he sets himself apart from the crowd. Crowds do not win at golf. Individuals do! Initially, these specific goals may not include winning but gradually progress to a level of achievement that will result in success. By achieving specific goals, the golfer's confidence level will steadily increase to the point where winning at

the highest level of competition becomes possible.

Research has shown that mental practice is more important than physical practice once a certain level of play has been achieved. Champion golfers establish a mental game plan for the round to be played with the types of shots that are necessary for best results. On game day, a golfer's ability to visualize the required golf shots is imperative to achieve optimum performance.

Ben Hogan, in his prime, often played approach shots to holes from the identical spot as he did in the previous round. Ben had his mental game plan intact. He could visualize the required shots and possessed total confidence in his ability to perform those shots due to the fact that he had practised the shots mentally and physically many times over.

It is not enough to succeed in just the physical aspects of the game which are outlined in this thesis. To become a champion golfer, one must have the desire to sacrifice and work harder than their competitors in all areas discussed in this thesis. However, only those golfers who conquer the mental side of the game will have the potential to become true champions.

As if to echo this conclusion, P. J. Ward Thomas said of Jack Nicklaus after his mid-1960's Masters win:

"There is an impregnable confidence, an almost overpowering belief in himself, the like of which I have never known in any other player of games. It is alive in every move of his solid frame, in the urgency of his walk, the crisp, unhesitating speech, the direct regard of the clear blue eyes that see life pure straight lines with none of the doubts, inhibitions and fears that sabotage others. There is no material for the analyst's couch in Jack. Faith is one's own ability is perhaps the greatest single gift a golfer can have." (7)

Introduction of Test Case:

In the late summer of 1997 the author sent a copy of this thesis to Master Professional Tony Evenshed for him to review, with the idea of possibly using him as a test case.

In a twelve month period from October 1997 to November 1998 Tony used my program and ideas to attain his goals, which he was successful in doing. Tony also developed a training program to compliment the program outlined in this thesis. In Appendix 1 there are four letters from Tony that chronicle his progress through the year as well as a copy of his supplemental training program. Tony is approaching senior golf and is concerned with maintaining his ability. The author feels that if ~~this~~ program, as ~~put~~ forward in this thesis will work for Tony then it should prove successful for any senior who is genuinely interested in maintaining and enhancing playing performance (Appendix 1).

Conclusions:

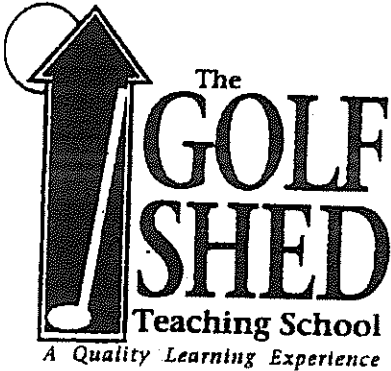
From the information discussed in this thesis, one may accept the fact that, yes, it is possible to maintain a high level of playing ability as one matures. Various research has proven that the aging process can be delayed or even reversed through strength training and flexibility exercises. Together with a proper diet and regular practice sessions using the proper equipment, the ability to improve shot making can become a reality.

If the individual player incorporates the above factors together with an improved regimen of diet and lifestyle, the final and probably most important part of the puzzle, proper mental attitude, may be attained. Once implemented, this program will lead to maintained playing ability throughout the aging process.

The writer can attest to this fact since this exact program was personally undertaken three years ago and is continued to this day. The writer's overall game has definitely improved both physically and mentally. However, a by-product that is valued even more is that the writer has a much better sense of well-being and an improved attitude towards life in general.

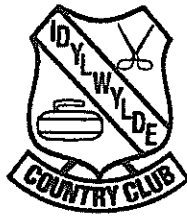


Appendix 1



TONY EVERSHERD
C.P.G.A. Club Professional





TONY EVERSHED

C.P.G.A. MASTER PROFESSIONAL

October 1, 1997

Mr. Mike Silver
Head Professional
Highland Country Club
279 Commissioners Rd. East.
London, Ontario
N6C 2T4

Dear Mike:

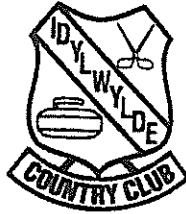
I have really enjoyed your article on "Maintaining Playing Ability". This article has inspired me to regain both my fitness and playing levels.

Thank you for choosing me as your role model, and through your guidance and my past fitness experience my one year goal should be well attainable.

Current weight -	205 lbs
Goal -	185 lbs
Tournament scoring average	76.3
Goal -	73.0

Sincerely

Tony Evershed
C.P.G.A. Master Professional



November 1, 1997

TONY EVERSHERD

C.P.G.A. MASTER PROFESSIONAL

Mr. Mike Silver
Head Professional
Highland Country Club
279 Commissioners Rd. East
London, Ontario
N6C 2T4

Dear Mike:

As per your suggestion I've developed the following plan to achieve my goals.

Diet: Weight Watchers Program

Fitness: This program will take me through the entire winter golf school
(December 1/97 - April 1/98)

The combination of exercises from your manual and my teaching manual should increase both my strength and flexibility. Having my buddy Harold Rose as a workout partner will help me stay on track.

Here is my proposed program: Harold & I would either walk or snowshoe for one (1) hour each day (6 days a week) and then work on my Fred Atkins Program (former World Wrestling Champion and fitness instructor for the Toronto Maple Leafs and Buffalo Sabres), as illustrated in my teaching manual.

See level 3 - strengthen the correct muscle groups.

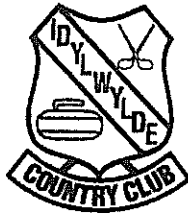
- deltoid lifts (remember Paul Bertholy) 10 pounds with left arm only for a R.H. golfer.
- leg squats
- trunk rotation drills and the ball toss with a partner
- sit ups (20 reps)
- 20 lb. dumbbell curls (20 reps)

Indoor Golf School drills:

- 3 lb. steel rod - position drills & strengthening drills
- 8 lb. medicine ball drill
- the swish drill for speed

Sincerely,

Tony Evershed
C.P.G.A. Master Professional



TONY EVERSHED

C.P.G.A. MASTER PROFESSIONAL

April 1, 1998

Mr. Mike Silver
Head Professional
Highland Country Club
279 Commissioners Rd. East.
London, Ontario
N6C 2T4

Dear Mike:

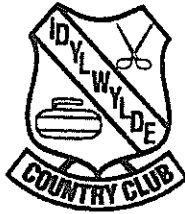
Thanks for your visit to my golf school in March. Here are the results of my fitness program:

- * my weight is now 185 lbs
- * my fitness level has increased tremendously
- * my swing speed is now 118 mph from 108 mph
- * balance & timing is much improved

As you can see the combination of diet and fitness program has really worked.

Sincerely

Tony Evershed
C.P.G.A. Master Professional



TONY EVERSHED

C.P.G.A. MASTER PROFESSIONAL

November 1, 1998

Mr. Mike Silver
Head Professional
Highland Country Club
279 Commissioners Rd. East
London, Ontario
N6C 2T4

Dear Mike:

It is now one year later and the first year has proved to be very successful. Hopefully your project will work as well on the other students as it did for me.

My preference was the new ping ISI driver. It's remarkable how far the proper equipment goes.

Best wishes on the completion of your thesis.

Sincerely,

Tony Evershed
C.P.G.A. Master Professional

UNDERSTANDING THE BASICS

INFORMATION COVERED IN YOUR FIRST LESSON

- The Basic Laws of Golf Ball Flight
 - Swing Path (club head control)
 - Correct Body Positions (static drills)
- Power Sources (how it is developed/strength & motion drills)
 - Timing
 - Balance
- Importance of Equipment
- Pre-shot Routine (Training Away From the Ball)
 - The Importance of Motion

Armed with the proper basic knowledge of golf, you are now ready to begin to develop a consistent, repeatable golf swing. Remember, training your body to swing a golf club takes time and patience. A Golf Shed Teaching School Instructor will always be available to answer your questions, or to simply "tune up" your practice sessions.

After having successfully completed each of the levels of our program you will receive a certificate of merit denoting your achievement. As you progress through the program you will see your swing, and consequently, your game, improve. The reward is yours to be had. Now... On to level two!

Position #1

LEVEL 2

"The Grip"

TOP HAND

.....

Grip rests against the palm.

.....



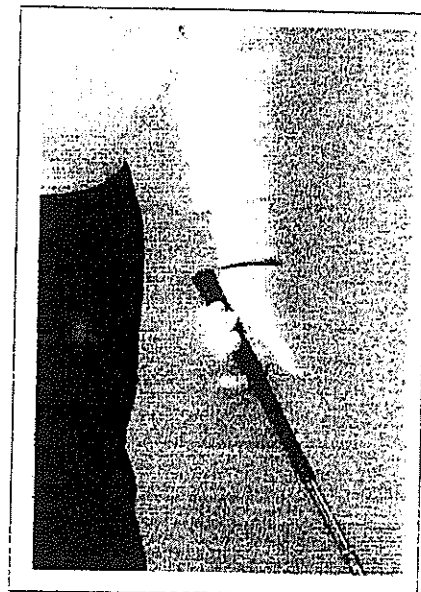
.....

The butt should extend 1/4" from the top of the hand.

PRESSURE POINT-

Squeeze with last three fingers.

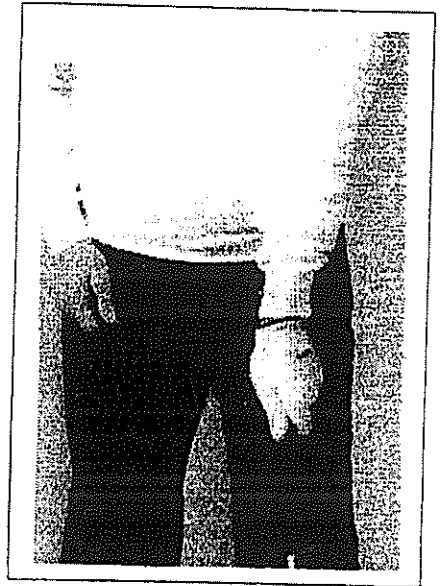
.....



STRONG GRIP

"V" created by thumb and index finger points at right shoulder.

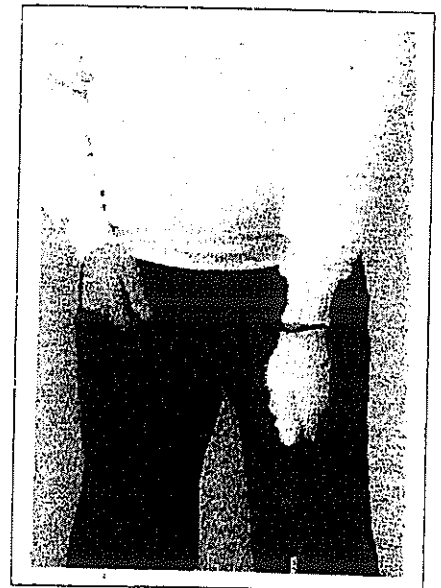
2 knuckles showing when the golfer is looking down.



NEUTRAL GRIP

"V" points between right shoulder and golfer's head.

1 knuckle showing when the golfer is looking down.



WEAK GRIP

"V" points at golfer's head.

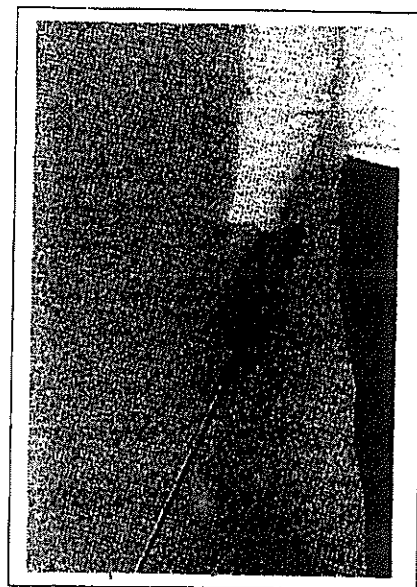
Thumb straight down the shaft.

No knuckles showing when the golfer is looking down.



BOTTOM HAND

Club is placed in finger tips.



VARDON GRIP

Recommended grip.

Baby finger overlaps index finger of top hand.



TEN FINGER GRIP

Recommended for juniors and for those
without flexible wrists.



COMPLETED GRIP

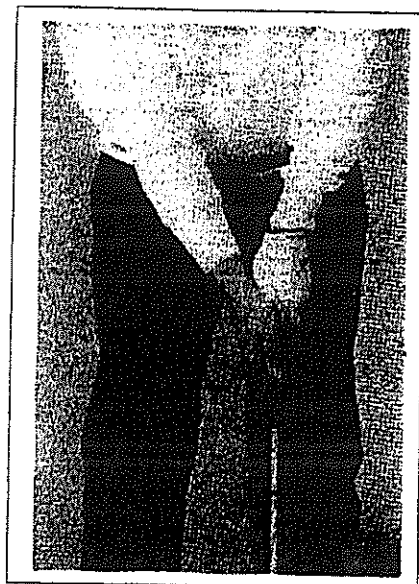
STRONG GRIP

Both V's point at right shoulder.



NEUTRAL GRIP

Both V's point between player's head and shoulder.



WEAK GRIP

Both V's point at golfer's head.



REVERSE OVERLAP

An excellent method to avoid wrist break and de-acceleration.



INDEX OVERLAP

This method locks the hands nicely together.

The triangle should be moved in unison using a shoulder stroke.



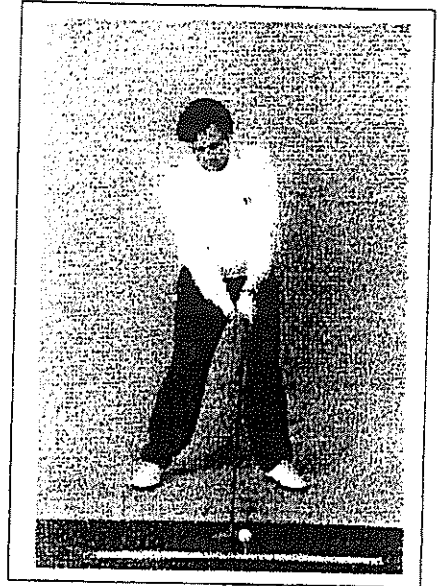
CORRECT POSTURE AND ALIGNMENT OF THE BODY

KEY POINTS

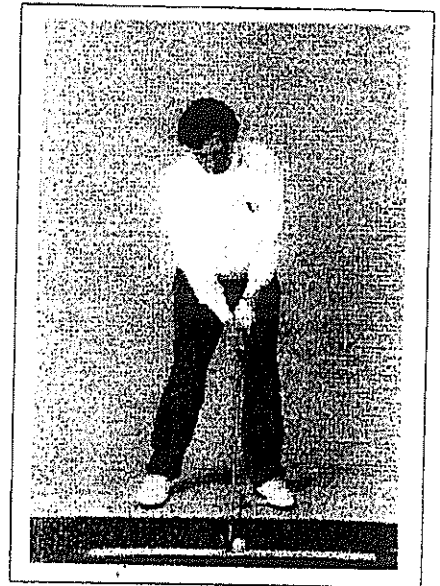
- Ball position remains constant for all clubs.
- Back foot in stance becomes wider with the longer club.
- Body weight is evenly distributed.
- Head position is well behind ball.
- Shoulders are not even simply because one hand is placed lower on the grip.

**CORRECT ALIGNMENT AND BODY
POSTURE ARE IMPORTANT
BASICS. WITHOUT THESE BASICS
YOU CAN'T BUILD A REPETITIVE
GOLF SWING.**

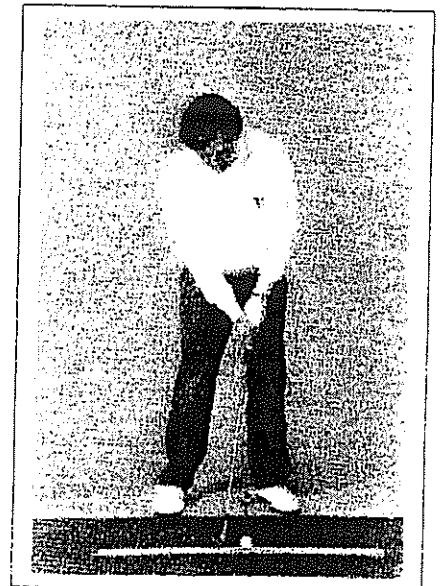
DRIVER



5 IRON



PITCHING WEDGE



-
- Back is relatively straight.
 - Hips to knees form another straight line.
 - Knees to the heels another line.
-



-
- Notice the shoulders hips and feet are parallel to the imaginary target line.
-



-
- Arms are relaxed and hang approximately one closed fist from the body.
-



MY FOUR T METHOD

TURN-TRUNK-TRIANGLE-TOGETHER

STATIC PRACTICE IS NECESSARY TO DEVELOP CORRECT POSITION OF THE BODY AND CLUB

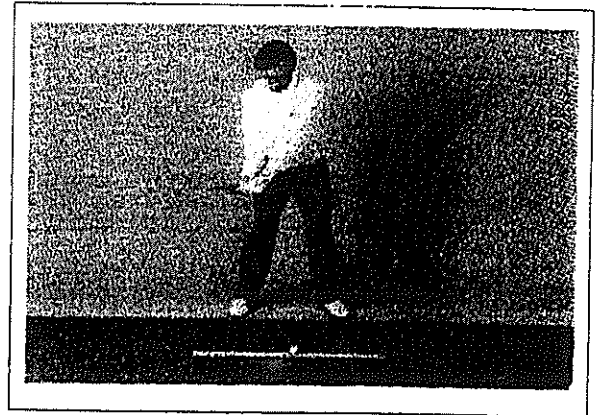
.....
"While the shoulders are turning the arms must swing the club back to waist high"

Training tool is parallel to target line.

Left wrist remains flat.

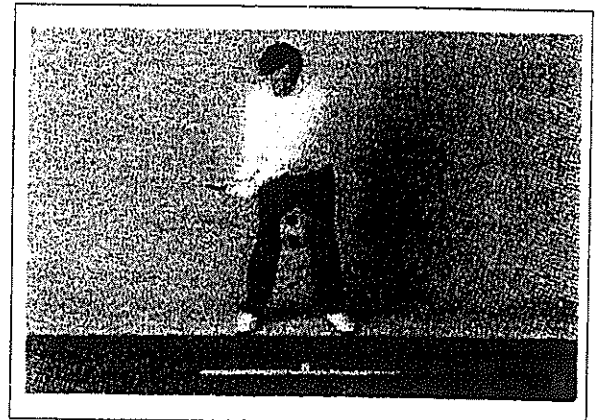
Right wrist is bent.

Head position remains steady.
.....



.....
Toe of golf club is pointing upward.

The soccer ball will not drop because your weight should be on the inside of both legs. Notice very little weight transfer of lower half.
.....



STATIC TRAINING IS THE IMPORTANT FIRST STEP.

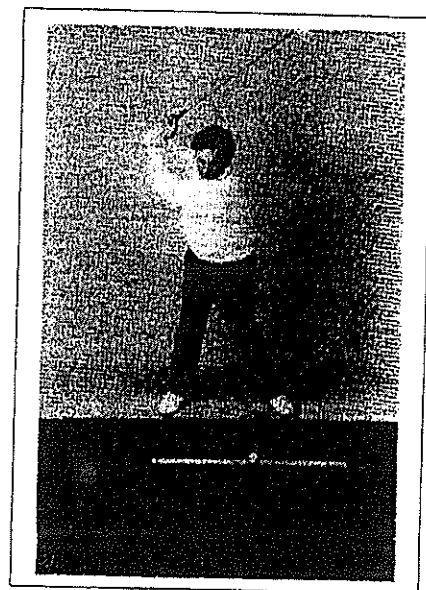
**"A BABY MUST FIRST LEARN TO STAND BEFORE
THE MOTION OF WALKING CAN OCCUR."**

The ideal is to turn the shoulders 90° and the hips will automatically turn 45°. Remember, an individual's flexibility and muscle mass will influence the degree of turn possible.

Power is created with the lower half resisting the upper half.

We must produce a spring-like wind up of your upper body against your lower body.

75° of your weight is shifted to the inside of the back foot. Left knee is behind the ball.



From static position #3 (waist high) the golf club is lifted upward to the top. This creates a vertical swing plane and helps produce power. A flat swing plane must be avoided.

Notice the golf club is pointed at the target.

Hold this position for 5 seconds.

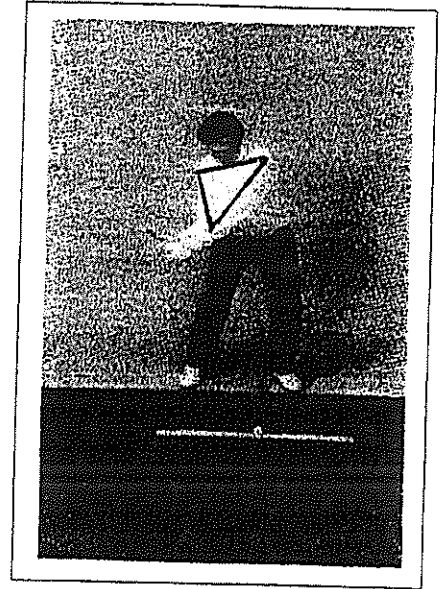
Repeat 5 times.



The turning of the shoulders only- help maintain the triangle formed between the arms and shoulders and the (body) trunk turns in conjunction with the triangle.

Stop and hold position for 5 seconds when hands reach waist high.

Repeat 5 times.



Position #5

LEVEL 2

"The Down-swing"

From the top, simply drop the butt of the club toward the ground.



Toe of club points skyward.

Top half of body resists the lateral pull of lower half and remains very steady becoming the pivotal point for the body rotation after impact.

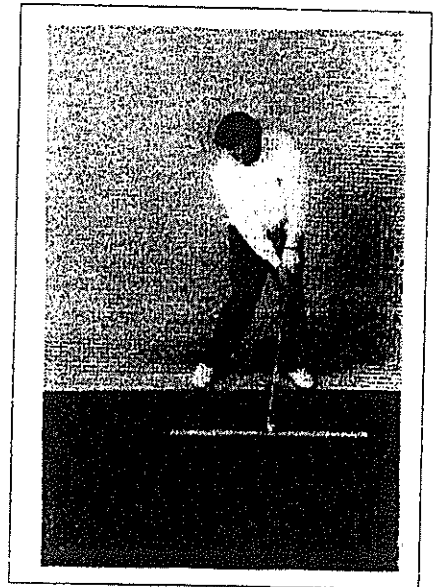
Lower half weight is transferred very slightly from the back foot to the front foot.

Legs will bow if this position is developed correctly.



Back heel leads the toe.

Note: the back heel is just slightly off the ground at impact, helping keep the hips and shoulders parallel to the target line to impact.

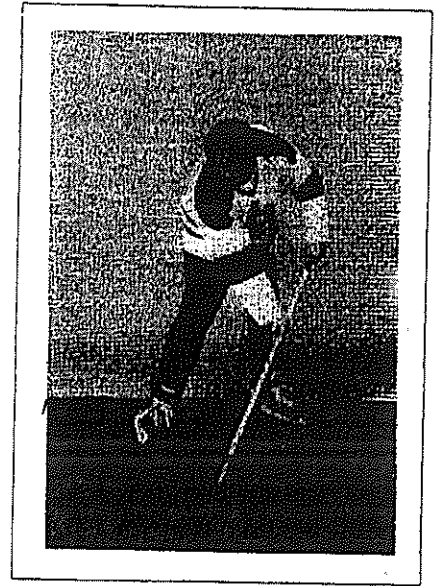


Notice the arms remain very close to the body which helps keep the club head on the correct swing path.

Reference back to position #2, "the set-up" and you'll find the two positions very similar.



Notice the similarities of positions in shooting the puck. Bottom wrist still bent holding the lag well past impact, top wrist still flat. Weight has shifted to front foot, hips have cleared to allow the lagging power of the upper torso to unleash its force.



LEVEL 2

Position #7

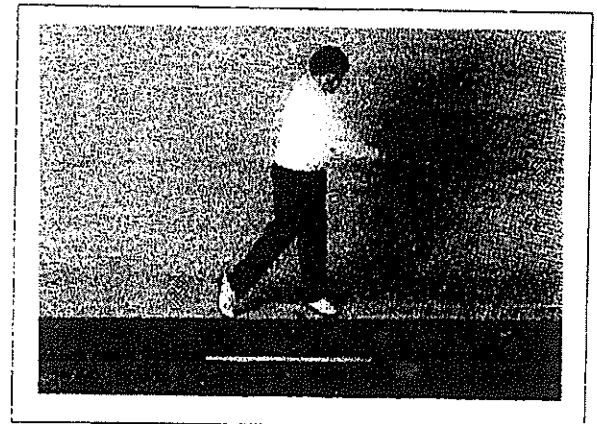
"Waist High Past Impact"

Hips are now parallel to the ground and face toward the target.

95% of weight is now on the front foot.



Toe of club is pointed upward and is parallel to target line.



A GOOD SWING IS ALWAYS IN BALANCE.

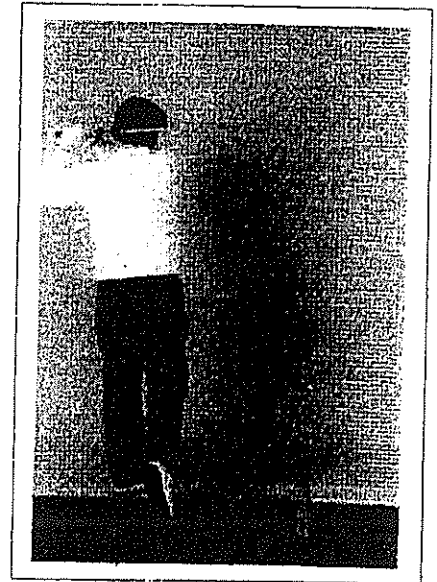
BALANCE INDICATES CONTROL.

.....

The arms simply bend from position #7 (waist high past impact) to position #8.

Flexibility will determine the amount of shoulder turn in each student.

.....

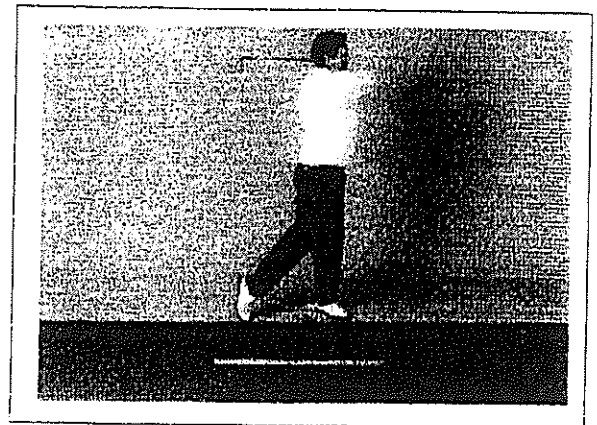


.....

Hips and shoulders are parallel to the ground.

Body is in total balance.

.....



LEVEL 3

"Strengthen the Correct Muscle Groups"

PLEASE BE CAREFUL AND START SLOWLY.

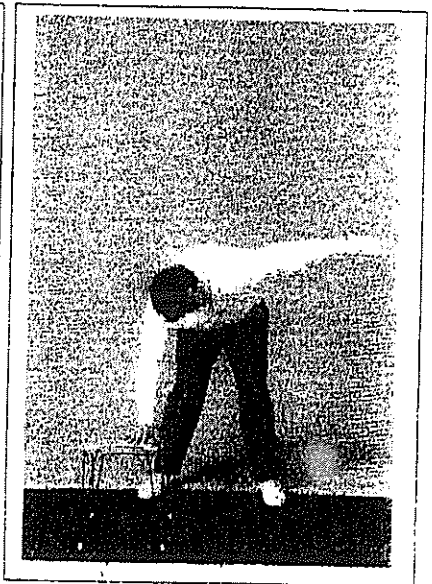
IF IN DOUBT CONSULT YOUR MEDICAL DOCTOR, NOT YOUR SWING DOCTOR.

These are some of the drills taught to me by my personal instructor (Fred Atkins) Former World Wrestling Champion and fitness trainer for the Buffalo Sabres and Toronto Maple Leafs. "Stretch for Strength" was his favourite expression.

DELTOID LIFTS

5lb Dumbbell.

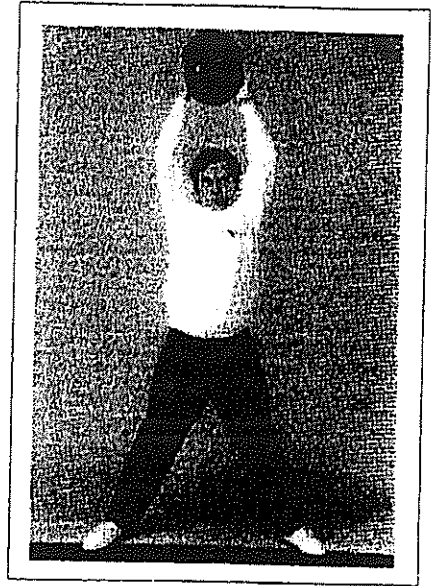
10 Repetitions.



LEG SQUATS

Helps strengthen upper thighs and the important hip muscles.





**TRUNK ROTATION DRILLS GIVE YOU
A GOOD STRETCH.**

THE STEEL ROD WILL ACHIEVE GOLF'S MASTER MOVE.

.....
The butt of the rod should be pointed at the ground.

Separate the hands for this drill.

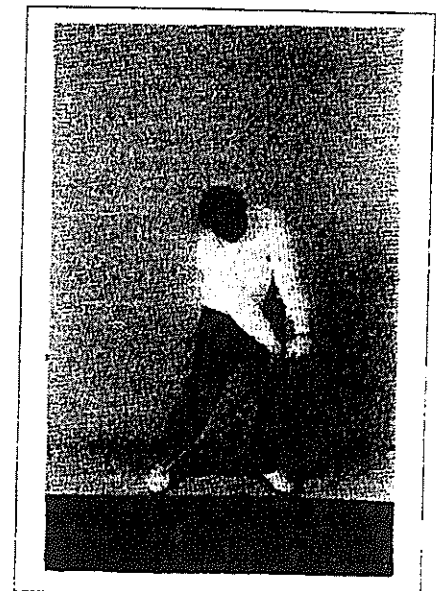
As the front arm (left) pulls the back arm (right) resists.

This is the most important position in the golf swing.
.....



.....
Exaggerate the impact position by keeping the front hand (left) very flat and the right bent as much as possible.

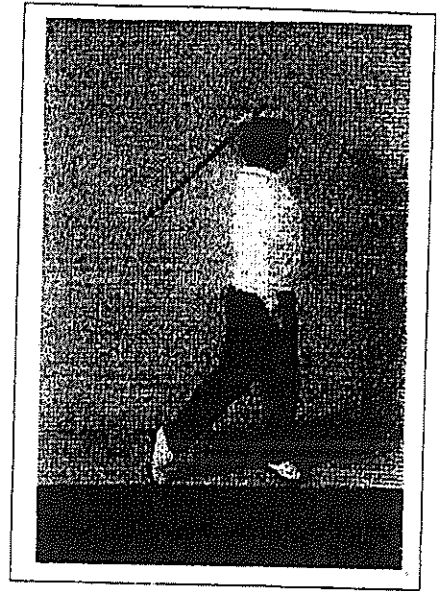
MORE LAG MEANS MORE POWER.
.....



Finish with front (left) arm only.

Exaggerate the finish by rotating the shoulders just a little extra.

Grip should still be firm in the palm.



BE CAREFUL: THESE TRAINING RODS ARE HEAVY. CONSULT WITH YOUR INSTRUCTOR AS TO THE CORRECT WEIGHT AND LENGTH FOR YOU.

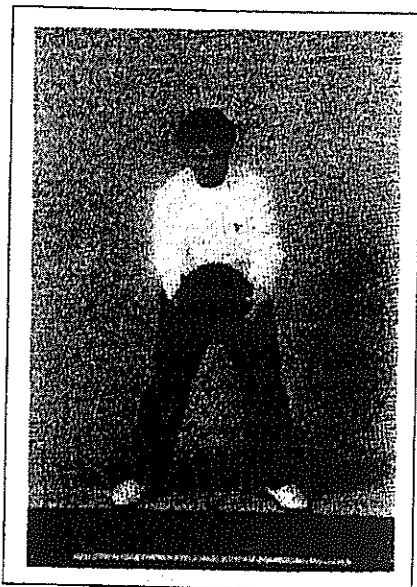
**THERE IS NO SECRET TO THE MASTER MOVE-
JUST TRAIN THIS POSITION.**

5 DRILLS PER SESSION FOR 4 WEEKS IS A MUST.

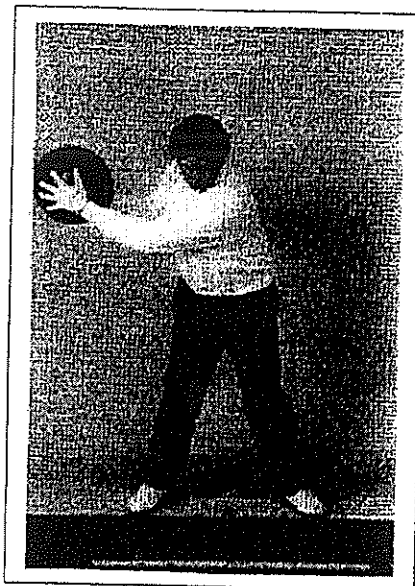
DO BOTH STATIC AND MOTION DRILLS.

**SLOW MOTION AND BALANCE DRILLS HELP
STRENGTHEN THE GOLFING MUSCLES.**

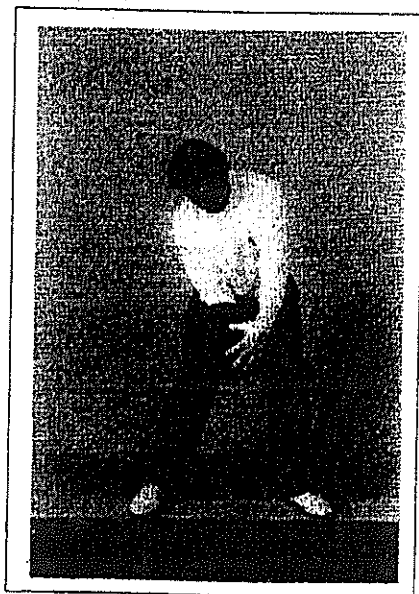
Begin with a 5lb medicine ball then advance to a 10lb ball when
your balance and strength improve.



THE SET-UP



THE TAKE-AWAY



IMPACT



ROTATION PAST IMPACT

5 STATIC AND 5 FULL MOTION DRILLS.

4 WEEKS OF TRAINING IS RECOMMENDED.

TWO 2 HOUR PRACTICE SESSIONS SHOULD INCLUDE THIS DRILL

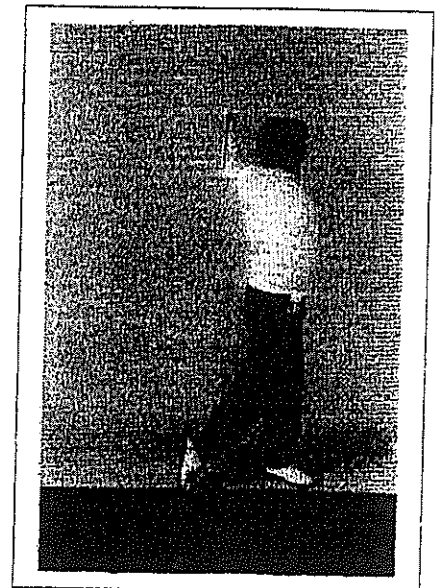
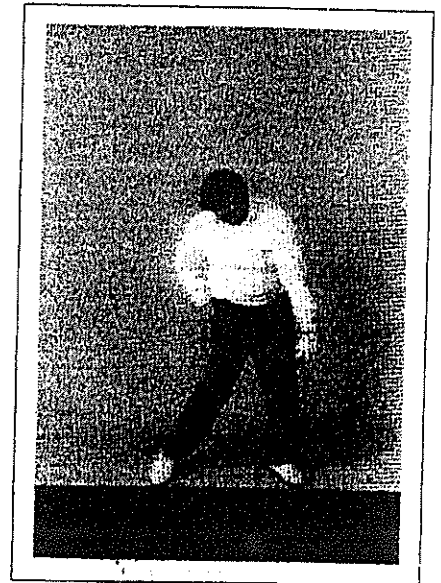
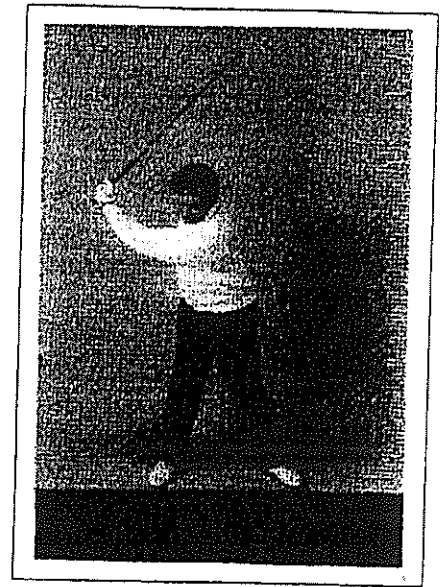
THE SWISH DRILL

Take a wood shaft that is gripped without a club head. Hold with your top hand only then proceed to accelerate the shaft as quickly as possible making a swishing sound as the shaft increases speed.

KEEP YOUR BALANCE.

SPEED DRILLS SHOULD HELP INCREASE DISTANCE.

5 FULL MOTION DRILLS ARE NEEDED IN EACH PRACTICE SESSION OVER THE FOUR WEEKS.



LEVEL 4

"Club Fitting"

AFTER HAVING COMPLETED LEVEL THREE, IT IS IMPORTANT TO FIT YOU WITH A SET OF CLUBS DESIGNED TO ACHIEVE MAXIMUM BENEFIT BASED UPON YOUR SPECIFIC PHYSICAL NEEDS.

REFER TO THE FOLLOWING CUSTOM CLUB CHARTS

Men's						Ladies'					
Woods	Lofts		Lies		Lengths		Lofts		Lies		Lengths
	Std	Trad	Std	Std	Trad	Std	Trad	Std	Std	Petit	
1	11°	-	55°	43"	-	12°	-	53°	42"	41.5"	
2	13°	-	55.5°	42.5"	-	14°	-	53.5°	41.5"	41"	
3	16°	-	56°	42"	-	17°	-	54°	41"	40.5"	
4	19°	-	56.5°	41.5"	-	20°	-	54.5°	40.5"	40"	
5	22°	-	57°	41"	-	23°	-	55°	40"	39.5"	
6	25°	-	57.5°	40.5"	-	26°	-	55.5°	39.5"	39"	
7	28°	-	58°	40"	-	29°	-	56°	39"	38.5"	
Irons	Std	Trad	Std	Std	Trad	Std	Trad	Std	Std	Petit	
1	17°	17°	55°	39.5"	39"	-	-	-	-	-	
2	20°	20°	56°	39"	38.5"	21°	21°	54°	38"	37.5"	
3	24°	23°	57°	38.5"	38"	25°	24°	55°	37.5"	37"	
4	28°	26°	58°	38"	37.5"	29°	27°	56°	37"	36.5"	
5	32°	30°	59°	37.5"	37"	33°	31°	57°	36.5"	36"	
6	36°	34°	60°	37"	36.5"	37°	35°	58°	36"	35.5"	
7	40°	38°	61°	36.5"	36"	41°	39°	59°	35.5"	35"	
8	44°	42°	62°	36"	35.5"	45°	43°	60°	35"	34.5"	
9	48°	46°	63°	35.5"	35"	49°	47°	61°	34.5"	34"	
PW	52°	50°	63°	35.5"	35"	53°	51°	61°	34.5"	34"	
SW	56°	56°	63°	35.5"	35"	57°	56°	61°	34.5"	34"	

Face Angle of Wooden Clubs		
Face Angle	Relative Directional Tendency	Ball Trajectory
Open	Pronounced Slice or Push	Higher
Slightly Open	Slight Slice or Push	Slightly Higher
Square	Square Hit	Normal
Slightly Closed	Slight Hook or Pull	Slightly Lower
Closed	Pronounced Hook or Pull	Lower

Shaft Flex Selection		
Shaft Flex	Type of Golfer	Carry Distance -Drives
L-Ladies'	Average Women Golfers- Young Juniors	160 yds. or less
A-Flexible	Senior Golfers And Stronger Women. Swing Speed 60 m.p.h. +	160 yds. to 185 yds.
R-Medium	Men Who Possess Average Swing Speed and Strength. Also Many Women Golf Professionals. Swing Speed 75 m.p.h. +	175 yds. to 220 yds.
S-Stiff	Scratch and Low Handicap Amateurs, Golf Professionals and Strong Players Who Lack Control. Swing Speed 95 m.p.h. +	210 yds. to 250 yds.
X-Extra Stiff	Used by a Few Touring Professionals Who Need Extra Control From Very Fast Swing Speeds 115 m.p.h. +	240 yds. and over

Swing Weight Range by Shaft Flex		
Shaft Flex	Swingweight Range	Average
L-Ladies'	C-3 to D-0	C-7
A-Flexible	C-6 to D-3	D-0
R-Medium	C-8 to D-5	D-2
S-Stiff	C-9 to D-6	D-3
X-Extra Stiff	D-1 to D-8	D-4

Grip Size	
Relative Size	Designation
Extra Large	1/16" oversize
Very Large	3/64" oversize
Large	1/32" oversize
Slightly Larger	1/64" oversize
Average	Standard size
Slightly Smaller	1/64" undersize
Very Small	1/32" undersize

Set Make-up Guide				
Shaft Flex	General Handicap	Woods	Irons	No. Clubs
L-Ladies'	18 or Less	1,3,5,7	3-9, PW, SW, P	14
	Over 18	1,3,4,5,7	4-9, PW, SW, P	
	Over 18 (Alternative)	1,3,5,6,7,8	5-9, PW, SW, P	
A-Flexible	18 or Less	1,3,5,6 (or 7)	3-9, PW, SW, P	14
	Over 18	1,3,4,5,7	4-9, PW, SW, P	
	Over 18 (Alternative)	1,3,5,6,7,8	5-9, PW, SW, P	
R-Medium	14 or Less	1,3,4,5	3-9, PW, SW, P	14
	15-24	1,3,5,7	3-9, PW, SW, P	
	Over 24	1,3,4,5,7	4-9, PW, SW, P	
S-Stiff	10 or Less	1,3,4 (or 5)	2-9, PW, SW, P	14
	11-18	1,3,4,5 (or 7)	3-9, PW, SW, P	
	Over 18	1,3,5,7	3-9, PW, SW, P	
X-Extra Stiff	10 or Less	1,3,4 (or 5)	2-9, PW, SW, P	14
Note: A Third Wedge, Utility or Trouble Woods and a #1 Iron Should Be Considered				

Wood vs. Iron Distance Equivalency	
#4 Wood	= #1 Iron
#5 Wood	= #1 or #2 Iron
#6 Wood	= #2 or #3 Iron
#7 Wood	= #3 or #4 Iron
#8 Wood	= #4 or #5 Iron
#9 Wood	= #5 or #6 Iron
#10 Wood	= #6 or #7 Iron
Wood Trajectory is Higher With Less Roll vs Iron Trajectory	

Golf Club Troubleshooting Guide	
If You Do This	A Possible Solution Could Be
Hook or Pull the Ball	<ul style="list-style-type: none"> • Open face angle to more slice (Woods) • Use a stiffer flex shaft • Use a more tip stiff shaft • Check for too upright a lie • Check for proper club length • Check for too small a grip • Increase swingweight

cont.

Golf Club Troubleshooting Guide *cont.*

If You Do This	A Possible Solution Could Be
<p>Slice or Push the Ball</p>	<ul style="list-style-type: none"> • Use a more flexible shaft • Use a more tip weak shaft • Check for too flat a lie • Check for proper club length • Decrease swingweight • Check for too large a grip • Close face angle to more hook (Woods) • Check for weight in grip end of club
<p>Hit Ball Too High</p>	<ul style="list-style-type: none"> • Decrease loft • Use a stiffer shaft • Use a more tip stiff shaft • Check for proper club length • Check for excessive face roll (Woods) • Use a deeper faced club • Check for excessive hook in face angle (Woods) • Check for Back-weighted club
<p>Hit Ball Too Low</p>	<ul style="list-style-type: none"> • Increase loft • Use a more flexible shaft • Use a more tip weak shaft • Check for proper club length • Use a shallow faced club • Check for excessive slice in face angle (Woods) • Use back-weighted woods
<p>Accuracy Generally Inconsistent in Both Directions</p>	<ul style="list-style-type: none"> • Shaft too flexible • Use a more tip stiff shaft • Swingweight too heavy or too light • Check all lie angles • Check for proper club length • Check for proper grip size • Check for weight in grip end of club
<p>Unsold Feeling During the Shot</p>	<ul style="list-style-type: none"> • Swingweight too light • Total weight too light • Shaft too stiff • Use a more tip weak shaft • Check for proper club length • Check for excessive weight down shaft • Check for weight in grip end of club • Check all lie angles • Possibly improper designed clubhead <i>cont.</i>

Golf Club Trouble Shooting Guide cont.

If You Do This	A Possible Solution Could Be
Loss of Distance	<ul style="list-style-type: none">• Swingweight too heavy• Total weight too heavy• Trajectory too high (Irons)• Trajectory too high or too low (Woods)• Shaft too stiff• Use a more tip weak shaft• Use a light overall weight shaft• Check for too large a grip• Check for proper club length• Check for excessive face roll (Woods)• Check all loft angles

Club Head Design

Model or Brand - Irons _____ Stain Color _____ Insert Color & Type _____
 Model or Brand - Woods _____ Club Head Notes _____

Loft

Woods	Irons
<input type="radio"/> Strong 1°	<input type="radio"/> Strong 2°
<input type="radio"/> Standard	<input type="radio"/> Strong 1°
<input type="radio"/> Weak 1°	<input type="radio"/> Standard
<input type="radio"/> Other _____	<input type="radio"/> Weak 1°
_____	<input type="radio"/> Weak 2°
_____	<input type="radio"/> Other _____

Lie

Woods	Irons
<input type="radio"/> Flat 2°	<input type="radio"/> Flat 2°
<input type="radio"/> Flat 1°	<input type="radio"/> Flat 1°
<input type="radio"/> Standard	<input type="radio"/> Standard
<input type="radio"/> Upright 1°	<input type="radio"/> Upright 1°
<input type="radio"/> Upright 2°	<input type="radio"/> Upright 2°
<input type="radio"/> Other _____	<input type="radio"/> Other _____

Club Length

Woods	Irons
<input type="radio"/> Standard (43" men's #1) (42" ladies' #1)	<input type="radio"/> Standard (39" men's #2) (37.5" ladies' #3)
<input type="radio"/> 1/2" longer	<input type="radio"/> 1/2" longer
<input type="radio"/> 1" longer	<input type="radio"/> 1" longer
<input type="radio"/> 1/2" shorter	<input type="radio"/> 1/2" shorter
<input type="radio"/> Other _____	<input type="radio"/> Other _____

Face Angle- Woods

<input type="radio"/> Open (2° slice)	Bulge and
<input type="radio"/> Slightly Open (1° slice)	Roll Notes:
<input type="radio"/> Square (0°)	_____
<input type="radio"/> Slightly Closed (1° hook)	Facing Notes:
<input type="radio"/> Closed (2° hook)	_____

Swingweight & Total Weight

SW Woods _____
 SW Irons _____
 Notes on Total Weight _____

Grip Size

<input type="radio"/> 1/16" oversized	Grip Core Size
<input type="radio"/> 3/64" oversized	Notes: _____
<input type="radio"/> 1/32" oversized	_____
<input type="radio"/> 1/64" oversized	_____
<input type="radio"/> Standard	_____
<input type="radio"/> 1/64" undersize	_____
<input type="radio"/> Special Arthritic	_____
<input type="radio"/> Other _____	_____

Grip Material & Model

Rubber
 Rubber and Cord
 Leather
 Model _____
 Color _____
 Grip Notes: _____

Shaft Flex

L-Ladies'
 A-Flexible
 R-Medium
 S-Stiff
 X-Extra Stiff
 Other _____
 Tipping Amt _____

Shaft Material & Pattern

<input type="radio"/> Steel	<input type="radio"/> Pro-fit
<input type="radio"/> Lt. Wt. Steel	<input type="radio"/> TT Lite
<input type="radio"/> Very Lt. Wt. Steel	<input type="radio"/> Extralite
<input type="radio"/> Graphite	<input type="radio"/> Flex-Flow
<input type="radio"/> Other _____	<input type="radio"/> UCV-304
Pattern	Microtaper
<input type="radio"/> Dynamic	<input type="radio"/> ND
<input type="radio"/> Dynamic Gold	<input type="radio"/> Other _____
<input type="radio"/> FM Precision	_____
<input type="radio"/> Jetstep	_____

Set Make-up

Woods 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 Men's Right Hand Ladies' Right Hand
 Irons 10 20 30 40 50 60 70 80 90 PWO SWO 3WO Men's Left Hand Ladies' Left Hand

PUTTER RECOMMENDATION

Club Head Design Model Brand or Type	Loft	Lie	Length	Grip Type & Model	Swingweight or Total Wt.
_____	<input type="radio"/> Strong 1°	<input type="radio"/> Flat 2°	<input type="radio"/> 32"	<input type="radio"/> Rubber	_____
_____	<input type="radio"/> Standard	<input type="radio"/> Flat 1°	<input type="radio"/> 33"	<input type="radio"/> Leather	(Specify)
_____	<input type="radio"/> Weak 1°	<input type="radio"/> Standard	<input type="radio"/> 34"	<input type="radio"/> Model _____	Comments _____
_____	<input type="radio"/> Other _____	<input type="radio"/> Upright 1°	<input type="radio"/> 35"	_____	_____
_____	_____	<input type="radio"/> Upright 2°	<input type="radio"/> 36"	_____	_____
_____	_____	<input type="radio"/> Other _____	<input type="radio"/> Other _____	_____	_____

Additional Putter Information: _____

ADDITIONAL COMMENTS AND RECOMMENDATIONS - FITTING OR SWING

LEVEL 5

"Correct Practice Routines"

THE EXTENDED CHIPPING TRAINER

MINIMUM 15 MINUTE TRAINING SESSION TWICE WEEKLY FOR 4 WEEKS

.....

TRIANGLE

Form the triangle position as shown.

.....



- Notice the open stance at address.
 - 70% of weight is on the front foot.
 - Hands and arms relaxed and very close to body.
-



TRACK

Concentrate on striking down and through the ball for 4",
knocking the tee over.



TARGET

The club path travels down the track toward the target.

The triangle is maintained with no visible wrist break in
either hand.

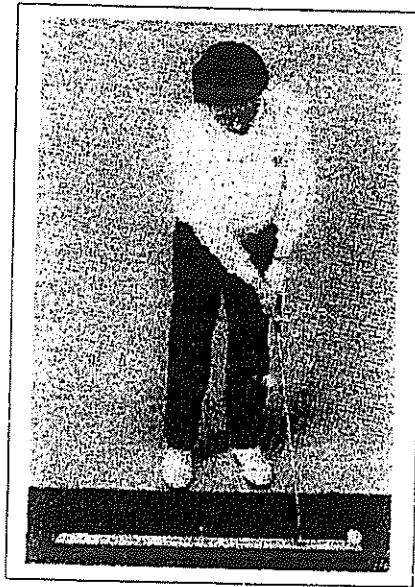
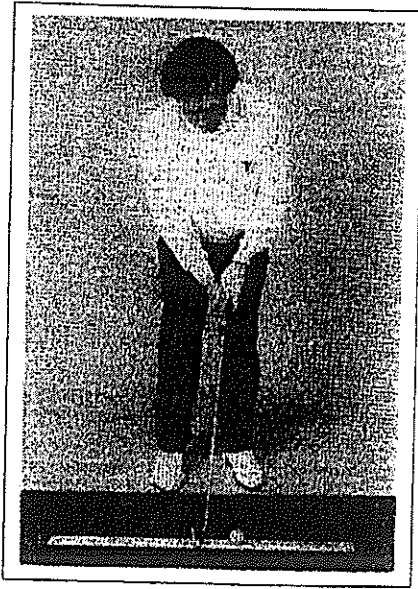


-
- The slight shift of motion to the forward foot causes the shoulders to turn the triangle and the club head path moves inside the track and upward.
 - Notice the extended shaft remains motionless and does *not* contact the body.
-



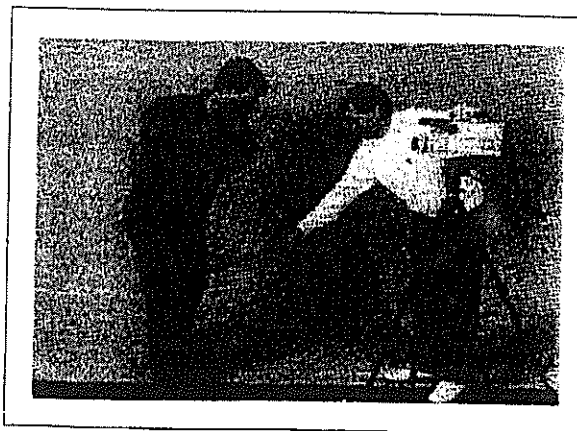
PUTTING ACCELERATION DRILL

Place a ball on the target track approximately 3" in front of an inserted tee. Move the club head back slowly until it contacts the tee. Accelerate the putter through the ball using *no* wrist action.



VIDEOTAPE YOUR SWING

It is highly recommended that the student's swing be video taped. Visual learning is a key factor in the development of knowledge and a check point for correct positions.



ON THE COURSE

The completion of Level 5 now takes the professional and the student onto the golf course for 9 holes of instructional golf.

Many professionals never get into golf course strategy with their students. This often neglected area should be given emphasis, and, therefore is included in this program.

PLAYING THE ROUND **SOME OF MY THOUGHTS**

Stay with the Game Plan

Plan your strategy for a round and stick with that plan. If the first few holes give you trouble, don't try to muscle your way through the next holes to compensate for it. This will only dig you in deeper. Remember, the pin is always in front of you-play for the pin, not for your previous mistakes.

Swing Corrections

Stay away from swing corrections during the round! Face it, you're not going to correct your swing problems over 18 holes of golf, so save yourself and your playing mates some stress- The course is designed for playing, so enjoy it. The time for preparing the swing is on the lesson tee and on the practice tee. It is extremely difficult to think about swing mechanics and swing well. One whole swing thought to help you execute well on the course, is to concentrate on achieving a smooth tempo. A proper swing becomes difficult if this tempo is outside certain limits.

Keep the Ball in Play

There are not many things that can be as disturbing in a round of golf as losing a ball or sending it out of bounds. A great round can be ruined by having to take a stroke and a distance penalty. All of a sudden you're fighting to avoid a triple bogey on a hole. And this is hard to do when you are disgusted with yourself for the penalty situation.

It would seem that the majority of our students are power-conscious. They love to brag about long drives, and hitting lofted clubs for their second shots to long par fours and par fives. If your ability will allow you to accurately and consistently do this, great! Stop reading this manual and start playing. There is such a thing as getting too much distance, especially from an iron. It is usually achieved at the sacrifice of direction.

Instead of hammering a five iron to the green, take an easier swing with a four iron and nail the green. After all, we are allowed to carry 14 clubs in the bag-let's start using them.

Concentrate

Many missed shots are caused by not concentrating during the swing. You may be thinking of problems at the office, or at home. Remember, you're on the course to play the game, do it properly. Be careful to step back away from the ball whenever your concentration has been broken by something in your line of sight or by some noise. The importance of concentration cannot be over-emphasized.

Where to Aim

Your target need not always be the centre of the fairway or the pin on the green. If you tend to fade your tee shots, line up to the left side of the fairway. If you tend to draw your tee shots, line up to the right side of the fairway. This way you will be in the fairway a greater percentage of the time. Also stay away from trouble- if there is trouble on the right, tee the ball to the right side of the box and aim to the left side of the fairway.

When approaching the greens, line up in a similar manner. Keep your shot-making ability in mind and your score will reflect it.

Play Your Own Game

You would be well advised to always consider the course your opponent. In this way, you shouldn't feel the need to match the swing and distance of your playing partner, who "crushes" the ball. Swing *within* yourself *through* the ball.

Positive Thinking

Cultivate positive thoughts during the round. Visualize exactly the desired result before you begin your stroke.

If you *talk* to yourself before you make your shots, then say positive things like, "Now swing a smooth stroke down the right side of the fairway," rather than, "Now don't duck hook this tee shot, stupid." When the mind concentrates on negative thoughts, it often causes the body to perform exactly what the player wants to avoid. It is better to have the mind concentrating exactly on what it wants the body to perform. Then the mind and body can work together rather than in opposite directions.

Dealing with Adversity

You are not going to hit every shot perfectly during a round. realising this helps you control your emotions when the bad shot or the bad break occurs. Losing your temper on the course not only can be annoying to the other players in the group, but can be very damaging to your ability to execute the remaining shots.

If a round is going bad, take small steps to right it. For example, try to get two pars in a row to stop a string of bogies. 2 bogies in a row to stop a string of double bogies. Remember, don't kill the ball and try and save your score. Chances are, if you're having one of those days, your round won't shine anyways, so just do the best you can with the rest of the holes.

When all else fails, and everything seems to go wrong, make it your goal to control your emotions so as to improve your own mental health and dignity and to not ruin the game for your playing companions. It is, after all, only a game.

Execute Under Pressure

Why can so many students of the game of golf make the good move on the practice swing and yet, when they swing with the ball there, we see a completely different motion? The student is under much more pressure when he is playing a shot on the course: He has to live with the consequences. This causes fear and anxiety, even in friendly competition.

Maintain your composure through self-discipline, keeping past success patterns in mind, understanding the cause of this pressure, and controlling these emotions as much as possible.

Analyse the Round

The only reasons for analysing the round after it has been played are to identify the weakest parts of your game and so that adjustments in strategy can be made in planning for future rounds.

Count the number of good and bad wood shots, the good and bad long iron shots, the good and bad short iron shots, and the number of chips and putts. Also, the number of greens hit in regulation or less may be counted.

Keep track of the problems you are having hitting the ball (ie hooking all fairway woods, slicing the three iron, hitting the PW fat, etc.). This and any other round information you gather should be brought with you to your lessons. You can then concentrate your valuable practice time on more than "whacking" drives. Your practice time can be custom tailored to work on your weakest shots. With such a routine, your game can only improve.

Remember, building a sound swing is important. But also of great importance is knowing what to do with it when you take it to the golf course.

Excerpt from: "Boosting Your Biomarkers of Youth" - Prevention Magazine

WEEK 1*			Comments
Frequency & Duration	Aerobic Exercise Track	Borg Scale Intensity*	
Day 1:	Divide your exercise walk into two separate sessions of 10 minutes each. Total time: no more than 20 minutes.	You determine the intensity. <i>(Fill in, please.)</i>	<p>If you have trouble walking for 10 minutes straight, divide your exercise into even smaller sessions of 3 or 6 minutes each.</p> <p>Attempt to exercise at the same time every day. This way, you'll begin to incorporate your training into your daily routine.</p> <p>Every time you exercise, get into the habit of evaluating the intensity of your exertion. As you become better trained and more conditioned, you'll find your Borg Scale number will remain constant even though your pace quickens.</p>
Day 2:	Follow yesterday's regimen. Do the same concerning your exercise intensity.	<i>(Fill in, please.)</i>	
Day 3:	Walk or cycle for a total of 20 minutes in two separate sessions.	Increase your pace slightly. If you're 12, aim for 13 or 14. <i>(Fill in, please.)</i>	
Day 4:	Repeat: Walk or cycle for a total of 20 minutes in two separate sessions.	Aim for 13 or 14. <i>(Fill in, please.)</i>	<p>There is no muscular conditioning during the first 12 days of BioAction Plan A.</p>
Day 5:	REST. If you feel restless and want to do something, just walk or cycle for one 10-minute session.	<i>(Fill in, please.)</i>	
Day 6:	Today, undertake two 15-minute sessions—or three 10-minute ones.	Moderate: 13 or 14. <i>(Fill in, please.)</i>	
Day 7:	Once again, either walk or cycle for two 15-minute sessions—or three 10-minute ones.	Shoot for 14+. <i>(Fill in, please.)</i>	
			<p>Exercise training is a slow, gradual process; and rest is critical part of any good program.</p> <p>Some of your Biomarkers have already started to change. For example, there are already measurable changes in your glucose tolerance; and your muscles have more carbohydrate stores than they did before Day 1.</p> <p>You've finished your first week! The hardest part, believe it or not, is already over.</p>

WEEK 2

		Strength-Building Track	Comments
		Aerobic Exercise Track	Borg Scale Intensity
Frequency & Duration	Your second week begins with two 15-minute walking and/or cycling workouts.	Your target: 14. <i>(Fill in, please.)</i>	
Day 8	<p>Your second week begins with two 15-minute walking and/or cycling workouts.</p>	<p>Your target: 14. <i>(Fill in, please.)</i></p>	<p>At the end of each workout, continue walking at a slower pace—11 on the Borg Scale—for 5 minutes longer, then stop and stretch. You should be exercising on a regular schedule. Being hit or miss about it—exercising at different times each day—is a recipe for failure, at least in the beginning when your commitment may tend to waver.</p> <p>Don't forget to warm up for 5 minutes and cool down for 10. And never, ever forget to s-t-r-e-t-c-h, one of the main safeguards against exercise injury.</p> <p>The fact that there is no formal exercise today doesn't mean immobility. Walk up some stairs instead of taking an elevator. Cycle over to a friend's house across town instead of hopping in the car. In the grocery store, carry a basket instead of pushing a cart. In general, stop looking for ways to avoid movement and activity.</p> <p>Simply slow down if you find you have trouble completing 30 minutes at this pace. Duration is more important than intensity.</p> <p>Exercise should already be easier for you than it was on the first couple of days. This is because your muscles immediately began adapting to the regular bout of daily exercise. The muscles you've been using are now beginning to take up and process oxygen more efficiently; and your aerobic fitness (VO₂ max.) has already started to improve.</p>
Day 9:	<p>Let's up the ante to two 20-minute sessions—walking or cycling</p>	<p>Your target: 14. <i>(Fill in, please.)</i></p>	
Day 10:	<p>Free day. No formal exercise required.</p>		
Day 11:	<p>For 30 consecutive minutes, either walk or take a bike ride.</p>	<p>Less intense: 13. <i>(Fill in, please.)</i></p>	
Day 12:	<p>Once again, a workout of 30 minutes—without rest—is your goal.</p>	<p>Goal: To maintain a steady pace. <i>(Fill in, please.)</i></p>	

WEEK 2 Cont

	Aerobic Exercise Track	Strength-Building Track	Comments	
Day	Frequency & Duration	Borg Scale Intensity	% of Maximal Lifting Capacity *	
Day 13:		<p>Warm up as we described in Chapter 4; it should include at least 5 minutes of stretching. Then for the next 20 minutes or so, build your strength. The exercises below are illustrated in Chapter 4.</p> <ul style="list-style-type: none"> ■ Knee extension: 3 sets of 8-10 repetitions for each leg. ■ Hip and knee extension: 3 sets of 8-10 repetitions. ■ Push-ups: 3 sets of 3; 6 if you can manage it. ■ Now work the biceps in your arms: 3 sets of 7 curls. 	<p>Your goal is to lift 80% of your maximal lifting capacity. You determined your maximal lifting capacity when you took the Strength Test in Chapter 3.</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(Fill in, please.)</p>	<p>This is a banner day—your first day of strength training! As you grow stronger, you'll be lifting progressively more weight. It's very important to be lifting a weight that's right for you—and your strength. If your joints hurt while you're lifting, drop down to a lower weight. Don't forget to warm up, s-t-r-e-t-c-h, and cool down.</p>
Day 14:	<p>Walk or ride your bike for a minimum of 30 minutes.</p>	<p>Do the same routine as yesterday.</p> <p style="text-align: center;">Goal: 14 or 15.</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(Fill in, please.)</p>	<p>Goal: 14 or 15.</p> <p style="text-align: center;">_____</p> <p style="text-align: center;">(Fill in, please.)</p>	<p>If you're up to it, extend your aerobic exercise period to a total of 40 minutes, but no more. It's likely your muscles are sore, but have no fear. The soreness will be gone in a few days.</p>

Maximal lifting capacity, which is the most weight you can lift with one try, is predicted by how many times you lift a weight of X amount. You established your maximal lifting capacity when you took the Strength Test in Chapter 3. To decide how much weight to lift each day, take the goal percentage (see amount listed in Strength-Building Track above) of your maximal lifting capacity. For example, on Day 13 the goal, as usual, is 80%. If your maximal lifting capacity is 25 pounds, you should lift 20 pounds. You'll be retaking the Strength Test every 2 weeks and readjusting the amount of weight that you lift. If you're faithfully adhering to the program, your readjustment should always be upward.

WEEK 3

	Aerobic Exercise Track	Borg Scale Intensity	Frequency & Duration	Strength-Building Track	Comments
Day 15:	Walk or ride for 40 minutes without rest. Option: Retake the Quarter-Mile Walking Test.	Goal: 15 <i>(Fill in, please.)</i>	No, there's no strength training on the agenda today. Your muscles need time to recover.	% of Maximal Lifting Capacity	Drink a glass of water before you begin your aerobic session. Get used to drinking plenty of fluids before and after each workout whether you feel thirsty or not.
Day 16:	One 40-minute walk or bicycle ride is your aerobics regimen today.	Goal: 13 or 14. <i>(Fill in, please.)</i>	Repeat Day 13's strength-training routine.	Goal: 90% <i>(Fill in, please.)</i>	Test how your daily aerobics training has affected your heart rate. Retake the quarter-mile walking test we outlined in the beginning of this chapter and measure your heart-rate response immediately afterward. It may be too soon to notice any improvement. But when you take the test again in another two weeks, you should notice that your pulse is slower.
Day 17:	REST. If you've been faithful to our program, you deserve it.		No strength-building today.		
Day 18:	Forty minutes of aerobics, please.	Goal: 15. <i>(Fill in, please.)</i>	Again, no strength training.		Stretching becomes even more important now that you're incorporating strength training into your overall exercise effort.
Day 19:	Forty minutes of aerobics.	Goal: 15. <i>(Fill in, please.)</i>	Knee extensions: 3 sets of 8 repetitions. Hip & knee extensions: 3 sets of 8 repetitions.	Aim for 80% of your maximal lifting capacity <i>(Fill in, please.)</i>	There are two components of your strength-building program: upper- and lower-body training. We want you to alternate between the two. Today, it was your lower body that got the workout. Tomorrow, it will be your upper body.
Strength-Building Track					
	Aerobic Exercise Track	Borg Scale Intensity	Frequency & Duration	Strength-Building Track	Comments
Day 20:	Forty minutes of aerobics.	Goal: 15. <i>(Fill in, please.)</i>	Push-ups: 3 sets of 4-6 repetitions. Arm curl: 3 sets of 6 repetitions for each arm.	% of Maximal Lifting Capacity 90% of your max. lifting capacity <i>(Fill in, please.)</i>	If you find the number of repetitions too tough for you, decrease the amount of weight. If you're having trouble doing the exercise even with little or no weights, take more time to recover between each repetition and set.
Day 21:	No aerobic exercise today. However, in its place, do at least 5 extra minutes of warm-up and stretching.		Knee extension & flexion: 3 sets of 8 repetitions. Hip & knee extension: 3 sets of 8 repetitions.	80% of your max. lifting capacity <i>(Fill in, please.)</i>	Those lead Biomarkers—your lean-body mass and strength—have started to respond by Day 21 of the program—that is, if you've been faithful about following our instructions. Here's what's occurring in your body: <ul style="list-style-type: none"> ■ You're already a little stronger, probably because your body is "learning" to use more and more muscle cells every time you lift and put stress on your muscles. ■ In turn, your muscles are undergoing a kind of renovation. They have begun the process of tearing down damaged muscle and replacing it with newly rebuilt protein tissue. ■ The capillaries around your muscle cells are growing increase their blood and oxygen supply.

WEEK 4

	Aerobic Exercise Track		Strength-Building Track		Comments
Day	Frequency & Duration	Borg Scale Intensity	Frequency & Duration	% of Maximal Lifting Capacity	
Day 22:	Forty-five minutes of aerobics today.	Goal: 13 <i>(Fill in, please.)</i>	Bent-knee push-ups: 3 sets of 5 each. Arm curl: 3 sets of 9.	30% of your max. lifting capacity <i>(Fill in, please.)</i>	As you begin your fourth week of training, you should start to notice improvement in your ability to perform both the aerobics and strength-building exercises.
Day 23:	Another 45 minutes of aerobics	Goal: 16 <i>(Fill in, please.)</i>	No strength training today.		The longer and more intense your aerobic exercise becomes, the more important the cool-down phase after you finish becomes.
Day 24:	Once again, 45 minutes of aerobics.	Goal: 16 <i>(Fill in, please.)</i>	Knee extension & flexion: 3 sets of 9 repetitions. Hip & knee extension: 3 sets of 9 repetitions.	30% of your max. capacity <i>(Fill in, please.)</i>	We hope you aren't forgetting the very important stretching phase of the program. Stretching is a long, slow process. Although you may not as yet feel any changes in flexibility, they're there. Every time you stretch, you're stimulating the muscles and tendons to lengthen. Your maximal lifting capacity has also increased, in most cases, noticeably.
Day 25:	Forty-five minutes of aerobics.	Goal: 16 <i>(Fill in, please.)</i>	Push-ups: 3 sets of 5 each. Arm curl: 3 sets of 6.	30% of your max. capacity <i>(Fill in, please.)</i>	By now, you should be using up 200 to 350 extra calories per day. If you've been careful to consume less calories, especially fat calories—you should also be noticing a drop in your weight.

WEEK 4 (continued)

	Aerobic Exercise Track		Strength-Building Track		Comments
Day	Frequency & Duration	Borg Scale Intensity	Frequency & Duration	% of Maximal Lifting Capacity	
Day 26:	REST.		REST.		You deserve a reward for staying with the Biomarkers Program this long. Go out with your spouse, your family, or your friends. Plan an outing that requires a little walking—a trip to an amusement park or a museum, perhaps.
Day 27:	Back to that daily regimen of 45 minutes of aerobics.	Goal: 15 or 16 <i>(Fill in, please.)</i>	Knee extension & flexion: 3 sets of 6 repetitions. Hip & knee extension: 3 sets of 8 repetitions.	30% of your max. capacity <i>(Fill in, please.)</i>	Both the strength training and aerobic phases of the program are putting stress on your skeleton, so it too responds and starts to make positive adaptations. When you sweat now during your workout, you're not losing as much potassium, sodium, and other important electrolytes as before. Exercise stimulates the sweat glands to decrease the losses of these important substances. But keep drinking lots of water.
Day 28:	Forty-five minutes of aerobics.	Goal: 16 <i>(Fill in, please.)</i>	Take a respite from strength training today.		

WEEK 3

	Aerobic Exercise Track	Borg Scale Intensity	Frequency & Duration	Strength-Building Track	Comments
	Frequency & Duration			Frequency & Duration	
				% of Maximal Lifting Capacity	
Day 29:	The usual: 45 minutes of aerobics. Option: Retake the Quarter-Mile Walking Test.	Goal: 16 <i>(Fill in, please.)</i>	Test the improvement in your strength by repeating the tests you first took in Chapter 3. Use the tests' results to adjust the weight you'll lift over the next two weeks.		Chapter 3's tests will serve as the basis for the intensity of your strength training over the next two weeks—Weeks 5 and 6 of the program.
Day 30:	Only 30 minutes of aerobics.	Goal: 16 <i>(Fill in, please.)</i>	Push-ups: 3 sets of 7 repetitions. Arm curls: 3 sets of 7 repetitions. Chest & shoulder exercise: 2 sets of 3 repetitions.	Goal: 30% <i>(Fill in, please.)</i>	For the second time—you also did it at the beginning of Week 3—retake the quarter-mile walking test. What's your heart-rate response this time? If you're able to perform more than 15 push-ups, add some weight to your body, via a weight belt, to increase the intensity.
Day 31:	Back to 45 minutes of aerobics.	Goal: 16 <i>(Fill in, please.)</i>	Knee extension: 3 sets of 8 repetitions. Hip & knee extension: 3 sets of 8.	Goal: 80% <i>(Fill in, please.)</i>	As you increase the pace and intensity of your exercise, you're also increasing the burn-off of calories, enabling those of you who need to shed body fat to foster this process. You've used approximately 400 extra calories today. This is about equivalent to the calories you would put into your body by eating one slice of a fruit pie.
Day 32:	No aerobics today.		Push-ups: 3 sets of 8 repetitions. Chest & shoulder exercise: 3 sets of 8 repetitions.	Goal: 80% <i>(Fill in, please.)</i>	

WEEK 5 (continued)

	Aerobic Exercise Track	Borg Scale Intensity	Frequency & Duration	Strength-Building Track	Comments
	Frequency & Duration			Frequency & Duration	
				% of Maximal Lifting Capacity	
Day 33:	Forty-five minutes of aerobics.	Goal: 16 <i>(Fill in, please.)</i>	Leg exercises of your choice: 3 sets of 8 repetitions.	Goal: 80% <i>(Fill in, please.)</i>	If you're feeling particularly strong, try a fourth set of 5 or 6 repetitions.
Day 34:	Same as yesterday and tomorrow.	Goal: 16 <i>(Fill in, please.)</i>	No strength building today.		Make certain that you're drinking plenty of fluids. Force yourself, if you have to. As exercise causes you to sweat more, it's important to replace the water your body is losing.
Day 35:	Forty-five minutes of aerobics.	Goal: 16 <i>(Fill in, please.)</i>	Push-ups: 3 sets of 7 repetitions. Chest, shoulder and upper arm exercises: 3 sets of 8 repetitions.	Goal: 80% <i>(Fill in, please.)</i>	By now, you should be significantly stronger than when you started 5 weeks ago.

Aerobic Exercise Track	Strength-Building Track	Comments
<p>By now, you see the pattern. You should be walking or cycling 45 minutes per day, 4 to 5 days per week. Your intensity should be close to 16.</p>	<p>Alternate upper- and lower-body exercise from one day to the next. You should be doing 3 sets of repetitions of each exercise at about 90% of your maximal lifting capacity. * Perform these strength-training routines 3 or 6 times per week. No more, though. Your muscles need at least one day of rest.</p>	<p>Aerobics: By this time, your walking pace should be brisk. As an option, you may want to slow down your pace and wear a weighted belt (see Chapter 4). When you wear the belt, your intensity, despite the slower speed, remains the same. (Yes, hand and ankle weights are okay, too. However, weight on your back is easier to carry.)</p> <p>Strength Building: We urge you not to repeat an exercise routine on consecutive days, to allow time for each set of muscles to recover. Alternating should keep your muscles from feeling sore. If not, then you're probably lifting too much weight. We suggest you cut back.</p>

From here to the end of BioAction Plan A, your goal percentage will remain 80% of your maximal lifting capacity.

WEEK 7

Aerobic Exercise Track	Strength-Building Track	Comments
<p>Repeat all the exercises of the previous week. By now, you and your partner(s) should be exercising on a very regular schedule.</p> <p>Option: Begin the week by retaking the Quarter-Mile Walking Test.</p>	<p>The first day of this week, remeasure your muscle strength with the tests in Chapter 3 then readjust your weights.</p>	<p>Even if you cannot see that your legs are larger, your muscle cells have grown and they're contributing to your growing strength.</p> <p>Don't you find you're sweating more? This is another adaptation exercise. Sweating is a good thing because it helps your body keep its internal temperature in a safe range and avoid the danger of overheating during workouts.</p> <p>Your blood volume has also increased, lessening the prospect of dehydration, another danger to guard against.</p>

WEEK 8

Aerobic Exercise Track	Strength-Building Track	Comments
<p>Drop back to 4 days of aerobics this week, 45 minutes each day. Try something new: Decrease the intensity to during one aerobic workout. On another day, try raising the intensity to 17. Can you do it?</p>	<p>Do your usual strength-training regimen, but for only 4 days this week.</p>	<p>You may be feeling tired and slightly overwhelmed by your steady exertion of the last 7 weeks. That's why we're factoring in one or two extra days of rest here. We'd still like to see you moving about and working those muscles, however. Use these so-called days off to go on a hike in the countryside with friends or a walking tour of some historical landmark. What we don't want you to do is to take literally—and sleep or stay in bed on your days of rest.</p>

WEEK 9

Aerobic Exercise Track	Strength-Building Track	Comments
<p>The schedule this week are 5 or 6 days of aerobic exercise at an intensity of 16. For 2 days, you may increase the duration to 30 minutes, but for the remainder of the sessions, stick with 45 minutes.</p> <p>Option: Begin the week by retaking the Quarter-Mile Walking Test.</p>	<p>This week we move you up to 6 days of strength training. Do the same routines as before, just remember to alternate them.</p>	<p>As time goes on, are you finding you feel more energized? Exercise may make you feel tired immediately after you stop. But its overall effect is just the opposite. It gives people more energy for carrying out the duties of their daily lives.</p> <p>By now your maximal aerobic capacity has improved by almost 10%, which is largely responsible for your increased energy level. Your strength is also showing dramatic improvement due to increase in muscle size and use.</p> <p>A reminder: The cool-down period after you stop exertion is critical. Never skip over it, no matter how much of a hurry you may be in. Slow, languid s-t-r-e-t-c-h-i-n-g exercises, by the way, are the key to reducing muscular aches and pains from other forms of exercise.</p>

WEEK 10

Aerobic Exercise Track	Strength-Building Track	Comments
<p>Your assignment: Four or 5 days of aerobic exercise—45 minutes each workout—at an intensity of 15 or 16.</p>	<p>Repeat Chapter 3's tests and reevaluate your strength on 2 consecutive days at the beginning of this week. Then, rest for 1 day. For the remaining 4 days, alternate your upper- and lower-body exercise at 80% of your maximal lifting capacity, which should have changed as a result of your test results.</p>	<p>What about that vital glucose tolerance Biomarker? For sure, your body's ability to utilize blood sugar is up by now. It's up a lot more; you've also managed to cut down on the fat in your diet and reduce your body fat stores.</p> <p>Even if you are losing body fat, your weight may not be going down as much as you expect. This is because you're simultaneously building muscle, which weighs more than fat. Don't worry about your weight. What you're doing is extremely beneficial healthwise. While you're shedding fat and building lean-body mass, you're also maintaining your metabolic rate (BMR), which, in turn, assures that you'll burn off body fat more efficiently.</p>

WEEK 11

Aerobic Exercise Track	Strength-Building Track	Comments
<p>As much as possible, if at all possible, we want you to wear that weighted belt we mentioned back in Week 6. Do your aerobic workout for 45 minutes on 5 days at an intensity of 15 and wear that weighted belt throughout.</p> <p>Assignment: Begin the week by retaking the Quarter-Mile Walking Test.</p>	<p>Do 5 or 6 days' worth of the usual strength exercises at 80% of your maximum lifting capacity.</p>	<p>If you're feeling overwhelmed and are having real trouble keeping up with your partner, you are likely going at a pace that's too intense. The Borg Scale is subjective. You rate how you feel. Slow down if it is too much. If your partner is going too fast for you, have him or her carry more weight. It will slow your partner down without decreasing the intensity of his/her workout.</p>

WEEK 12

Aerobic Exercise Track	Strength-Building Track	Comments
<p>Your assignment: 5 days of aerobic exercise—45 minutes each session—at an intensity of 16. Wear that weighted belt.</p> <p>Assignment: Be sure that your 2 days off from aerobics aren't consecutive. A good schedule might be Monday, Wednesday, Thursday, Friday, and Sunday, for example.</p>	<p>On Day 1 of this week, retest your upper- and lower-body strength (see Chapter 3). Rest on Day 2, then resume your alternating strength-building routines for the next 4 days. Aim for 80% of your maximal lifting capacity as you do 3 sets of 8 repetitions for each muscle group. Make Day 7 your day off.</p> <p>Your strength exercises should include knee extension, flexion, push-ups, chest exercise, and arm curls.</p>	<p>You are expending between 1,500 and 2,000 calories per week. If weight loss is one of your goals, it should be relatively easy on your program. You'll be surprised at the pounds you can shed over time by following the program, cutting down on fat in your diet, and eliminating your usual between-meal snacks—which were probably high in fat.</p>

WEEK 13

Aerobic Exercise Track	Strength-Building Track	Comments
<p>Your assignment: 5 days of aerobic exercise, 45 minutes per day. Be sure that the intensity from one day to the next—14, 15, 16, and 14, for instance.</p> <p>Assignment: Begin the week by retaking the Quarter-Mile Walking Test.</p>	<p>At 80% of your maximal lifting capacity, do 3 days of strength building. Devote three workouts to lower-body exercises and two to your upper body, alternating them as usual.</p>	<p>If you've gotten this far, you've got a lot of self-discipline and we commend you.</p> <p>If you've been faithful to the program, by now your muscle strength has more than doubled, along with noticeable increases in the size of your muscles.</p> <p>Your training has also resulted in some internal changes for the better that you can't as readily detect. Any loss of bone mineral has slowed or stopped. Your HDL-cholesterol levels are on the rise. And your glucose tolerance has improved, thus decreasing your risk of ever developing diabetes.</p> <p>Remember, rest is a vital part of your weekly schedule. Never think it when we offer it to you.</p>

WEEK 14

Aerobic Exercise Track	Strength-Building Track	Comments
<p>This week's target should be 6 days of walking or biking. Sessions should last for 45, even 50 minutes, not including the time you devote to warm up and cool down.</p> <p>Something new: We want you to try differing intensity levels during each session. For example, you might start out at an intensity of 13 for 10 minutes, move up to 14 for 10 minutes, shoot up even further to 16 for 20 minutes, then drop back to 13 for the remaining 5 to 10 minutes.</p>	<p>Open the week by retesting both your upper- and lower-body strength (see Chapter 3). Rest for one day, then it's back to your alternating routines. Rest on Day 7.</p>	<p>If you want to be both safe and efficient about exercise, we suggest you follow your aerobics sessions with strength training instead of doing them at two separate times each day. Why? For one thing you only have to warm up once. By the time you get to the strength building component, your tendons, ligaments, and muscles are susceptible to injury. In short, it lowers your chances of an exercise-induced injury.</p>

WEEK 15

Aerobic Exercise Track	Strength-Building Track	Comments
<p>Exercise for 5 days—45 or 50 minutes each session—at an average intensity of 15. Alternate the intensity either during the exercise or on separate days.</p> <p>Option: Begin the week by retesting the Quarter-Mile Walking Test.</p>	<p>Do 5 days of training, using your upper and lower body on alternate days. For each routine, do 3 sets of 8 repetitions at 80% of your maximal capacity.</p>	<p>By now, we hope you like the weighted belt so much that you're doing each aerobics session. It's especially effective for those of you who have not graduated from walking to jogging or running. Our Biomarkers Program is designed to get you into shape with few aches and pains as possible. By carrying weight around your waist, on your back, or in your hands, you can increase the intensity of your exercise, and burn more calories, without having to run.</p> <p>When you repeat the test for aerobic fitness, you'll notice two things: (1) it's now easier for you to maintain a fast pace; and (2) heart rate does not climb as much as it did initially. This is because your muscles now utilize the oxygen in the blood much more efficiently. As a consequence, your heart doesn't have to work as hard for you to do the same amount of work.</p>

WEEK 16

Aerobic Exercise Track	Strength-Building Track	Comments
<p>It's another week of aerobic exercise, 5 days' worth. Do the aerobic exercise of your choice for 45 to 50 minutes at an average intensity of 15. That's average, mind you. Continue to experiment and alternate intensities in the various ways that we've taught you.</p>	<p>Business as usual. Five days of training, targeting your upper and lower body on alternate days. Do 3 sets of 8 repetitions for each exercise at 80% of your maximal lifting capacity.</p> <p>At the end of this week, retest Chapter 3's strength tests one final time.</p>	<p>Congratulations! Just by getting to the point where you're reading these instructions, you've accomplished a lot. After the many weeks of adhering to our program in pursuit of your goal to keep your body younger longer, exercise has become a part of your daily life. Exercise is habit-forming, isn't it? The mere fact that you got to Week 16 means you're extremely likely to maintain your conditioning. With the worst far behind you, you can appreciate how difficult it would be to start over. To avoid ever having to start over go directly to Chapter 7, which offers guidelines on how to maintain your fitness.</p> <p>Faithful adherents to the program now have bodies that have made a remarkable series of adaptations, some of which can be seen with the naked eye and felt every day, others of which are more subtle:</p> <ul style="list-style-type: none"> ■ Your muscle strength has more than doubled. Your muscles are also larger and you've got more muscle tone. ■ Your daily caloric expenditure has increased. ■ You've probably reduced your body fat, provided you also paid attention to your diet and reduced fat food calories over the last 16 weeks. ■ Your aerobic capacity is greater. You don't get winded or fatigued as easily. ■ The leeching of mineral from your bones has slowed down, even stopped. ■ Glucose tolerance has improved, lessening the chances you'll ever develop diabetes. ■ The level of fats circulating in your blood is in better balance. ■ Your HDL-cholesterol has increased.

Appendix 3

JACK'S EATING HABITS THEN AND NOW

	<u>1975</u>	<u>1995</u>
BREAKFAST:	Eggs and bacon, melon, toast with butter	Oatmeal, fruit, egg- white omelet, dry whole wheat toast
LUNCH:	Cheesburger, french fries, milk-shake, sometimes ice cream	Chicken, turkey, or tuna sandwich, or soup and salad, or salad only
DINNER:	Steak or prime-rib, baked potato with butter, salad with heavy dressing, ice cream	Baked or broiled fish or chicken, rice or pasta lightly dressed salad, mix of vegetables, frozen low-fat yogurt
REFRESHMENTS:	Soda	Water, decaffeinated tea/ coffee

Above table from: Golf Magazine, March, 1995.
Jack Nicklaus and Ken Bowden,
Ageless Golf.

PRE-TEE FLEXIBILITY PROGRAMME

The Pre-tee stretching programme prepares your body for golf. The exercises will warm, prime and focus you before you tee off, helping to avoid the feeling of an uncoiled swing and poor coordination. There are three stages to follow.

Stage One : Warm-up Mobility Exercises

1 Trunk Mobility Exercise

Figure 1a: For set up. Keep knees bent, your back straight and maintain your spine angle as in the 'address' position. Keep hips relatively still.

Figure 1b: Slowly rotate the shoulders. Make sure you only turn the shoulders to three quarters of a full rotation. Do not turn too fast. The speed of the turn should be of one second left and right. Repeat 20 - 30 times.

2 Shoulder Mobility Exercise

With the knees bent and the hips still, slowly rotate the arm through a full circle as in a windmill fashion. Repeat this 5 - 10 times and then change direction.



Figure 1a



Figure 1b

Hamstring (sf : back of thigh)

With a club

- 1 Keep back straight and push bottom backwards.
- 2 Outstretched leg remains slightly bent, and your back supported by a golf club.
- 3 Feet face forward. Again, this correctly aligns the hips.

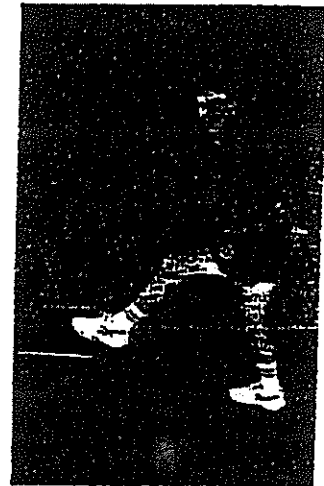
Repeat for other side.



Without a Club

- 1 Raise leg, keeping it slightly bent.
- 2 Again, keep back straight and gently push chest forward until a stretched sensation is felt.

Repeat for other side.



Spine (sf : middle back and sides)

- 1 Keep knees bent.
- 2 With arms stretched straight out in front, curve back by tucking hips and head in.
- 3 Push your spine back as far as possible.



Stage Two : Specific Warm-up

To continue to warm your body and also to pre-cue your swing, practice of the golf swing should now be performed. We recommend that you hit half to full shots progressively for at least 10 - 15 minutes. If a practice ground or net is not available, just swing freely for 3 - 5 minutes.

Stage Three : Stretching Exercises

The golf specific muscles are now stretched for final priming.

- *NOTE:**
- 1 Please refer to the stretching guidelines
 - 2 The effectiveness of the stretches will only last 20 minutes so make sure you tee off within this time.
 - 3 Sensory feedback (SF) refers to the area where you should be feeling the stretch in order to target the correct muscles.

Trunk Rotation (sf : lower back and outer leg)

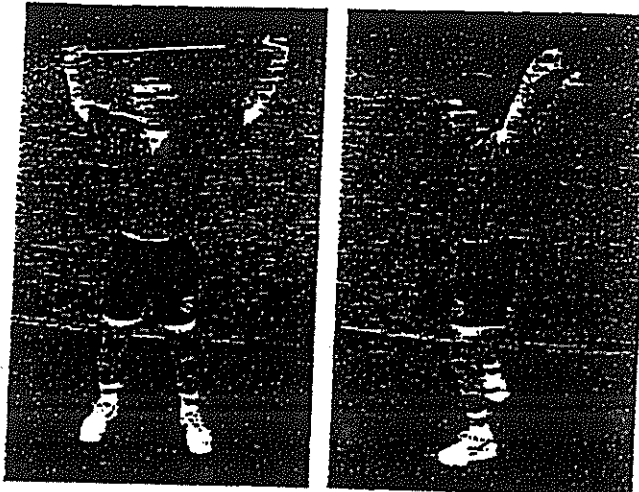
- 1 Keep your hips facing forward.
- 2 Slowly turn upper body.
- 3 The opposite hand resists against the knee of the raised leg.
- 4 Always keep your standing leg slightly bent.
- 5 Have both feet facing forward. This helps to keep your hips aligned correctly.
- 6 Forward leg needs to be bent at a 90° degree angle.

Repeat for other side.



Chest (sf : chest)

- 1 Standing tall. knees slightly bent, hold club overhead.
- 2 Gently ease club backwards.
- 3 Keep back straight throughout the exercise.



Rotator Cuff (sf : shoulder blade and rear shoulder)

- 1 While maintaining a straight back, stand tall with knees slightly bent.
- 2 Refrain from hyper-extending your lower back.
- 3 Take club over head as in the chest stretch.
- 4 Drop one arm, keeping it fairly straight.
- 5 Bend the other to approximately 90° degrees.
- 6 Hold at shoulder height, gently easing arms backward.



Repeat on other side.

Tricep (sf : back of upper arm)

- 1 Set up with legs slightly bent. hand between shoulder blades.
- 2 Pull elbow back with opposite hand, towards the centre of the body.



Repeat for other arm.

Shoulder (sf : rear shoulder)

- 1 Pull straight arm towards chest.
- 2 Keep chest facing forward (ie. resist the temptation to turn chest around).

Repeat on other arm.



Quadriceps (sf : front of thigh)

- 1 Standing tall, grasp ankle, keeping back straight and the leg you are standing on, slightly bent.
- 2 Be sure hips are facing forward and the knees are adjacent to each other.

Repeat for other leg.



Calves (sf : rear lower leg and behind knee)

- 1 Use club or a wall for support.
- 2 Keep back straight and in line with the rear outstretched leg.
- 3 Bend the front leg. The foot of the rear leg faces forward and is relatively straight.
- 4 Gently push the heel into the floor as you gently lean forward into the stretch.



POST-TEE FLEXIBILITY PROGRAMME

After playing golf, the muscles are shortened. The role of the post-tee stretching programme is to elongate these shortened muscles to maintain your suppleness and posture. The stretches also help to reduce muscle soreness as they promote your muscles to relax and decrease the risk of injury, especially to the lower back region.

Note: * For maximum effectiveness, the post-tee stretches should be done immediately after golf while the muscles are still warm or even after showering.

* Refer to the stretching guidelines.

* Repeat the pre-tee stretches and place more emphasis on the ones listed below.

PRE-TEE STRETCHES (to repeat)

- 1 Trunk rotation
- 2 Spine
- 3 Hamstrings
- 4 Quadriceps
- 5 Calves

AutoVantage
What the new car dealers don't want you to know.

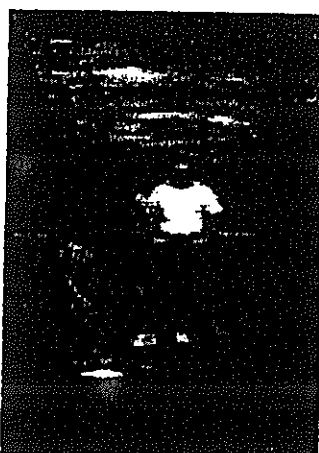
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GolfWeb **Patrick Cohn**

The Mental Side of Golf

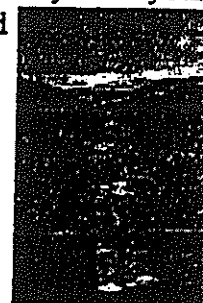
By Patrick Cohn, Ph.D.

Improving your focus on the course



Winning golf requires that you keep your focus...

"What was I thinking?" you mutter in frustration after you hit your shot over the green. You lost your focus temporarily, and it probably cost you a shot or two. Most players, at one time or another, blank out, become distracted, or are too stressed to concentrate. Even the greatest players in the world have trouble concentrating under pressure. The ability to concentrate is critical to successful performance in all sports, and especially in golf. During an average round, you spend less than 40 minutes actually playing your shots, which leaves more than three hours of downtime. In golf, it's hard to maintain concentration because you have to turn your concentration on and off several times during a round.



...no matter how interesting the scenery.

Total concentration is the ability to immerse yourself in a task without becoming distracted or pulled off task. Skilled players like Norman and Ballesteros talk about concentration as a state of "flow," being "in a bubble," or "in a cocoon," during which nothing can penetrate their focus. Concentration involves several elements. These include knowing what cues to focus on; staying focused on those relevant cues; keeping a narrow and external focus; being able to shift attention; refocusing when distracted; and controlling your thought process. Below, I discuss specific methods for improving your concentration on the course.

1. **Focus on the present moment.** To play your best, you must keep your mind in the present moment, focused on the requirements of the task at hand. One of the biggest errors you can make is thinking ahead about the results of making or missing a shot or putt, or thinking about what happened on the last hole. You must be aware of when you lose your focus, and then refocus attention on what you need to do to execute a good shot.
2. **Think only about that one shot.** To help you stay focused in the present, think about playing one shot at a time. Separate that one shot from the rest and try to look at it as a game in itself. You don't want to be thinking about the 220-yard drive you must hit to carry the pond on the last hole when you are hitting your putt on number 10.
3. **Focus on performance cues.** A preshot routine focuses your attention by giving you specific

performance cues to follow as you prepare for a shot. If you don't have a routine, your mind wanders aimlessly as you prepare to hit your shot or putt. Your routine should help you assess the conditions, help you with shot and club selection, and narrow your focus on the task. Your routine also locks your mind into the cues that you must focus on to execute your shot, such as your set-up, aim, and target. If you have trouble focusing on execution, it's time for you to develop a specific pre-shot routine.

4. **Relax your focus while you wait.** I don't know too many people who can focus for four hours straight. It is important to be ready to play when it is your turn, but you don't want to grind on or overanalyze your next shot. You also don't want to tax your concentration before it's time to play your shot. Once you select a club for your shot, relax your focus and save your concentration for the shot. Focusing intensely on your shot while you wait stresses your ability to concentrate when it's time to play.
5. **Use a warm-up routine.** All good players use a warm-up ritual starting about one hour before tee-off to help them focus their mind for play. Most Tour players start their warm-up on the practice tee after stretching. After that, they go to the green to get a feeling for the speed of the green. They finish by hitting some chip shots or bunker shots. A warm-up routine allows players to start to focus for a match, similar to a runner who has a stretching routine before a run, or a pilot who has a checklist before take-off.
6. **Cue yourself to concentrate.** Often it is hard to get focused for a shot when you hit your last shot 10 minutes ago. You must lock in your concentration once it is your turn to play. To help you click in, try using a physical trigger to focus your mind, such as tightening the Velcro on your glove before starting. At this point you want to turn your attention to preparation and execution for the shot, and if anything else enters your mind, let it pass through.
7. **Rehearse your shot while you wait.** If you have trouble refocusing after a long delay, try rehearsing your shot while you wait to play. For putting, imagine the line of the putt given what you have seen thus far. Physically take a couple practice swings and then "see" the ball rolling along your line into the hole. When it's your turn to actually putt, it will be second nature.

[Note: Parts of this article were selected from *The Mental Game of Golf: A Guide to Peak Performance*, by Dr. Patrick J. Cohn.]

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FOOTNOTES:

- (1) Evans, William J., Ph.D., and Rosenberg, Irwin, H., M.D. (1991). Boosting Your Biomakers of Youth. Prevention Magazine, March, 1991. Prevention Magazine Publisher. (Page 113).
- (2) Same as above. (Page 120).
- (3) Evans, William, J. Ph.D. (1992). Flex RX. Interior Body Building Prevention Magazine. February, 1992. Prevention Magazine Publisher. (Page 57).
- (4) Golf Ball Testing. February 22, 1996. Errol Estate Country Club, Apopka, Florida, by W. Michael Silver. Golf Balls used: 1) Titleist Tour Balata (90 compression); 2) Titleist D.T. wound (90 compression); 3) Titleist HP 2 Tour (90 compression); 4) Pinnacle Distance. Ball numbers 1-4 match category numbers in the thesis.
- (5) Quote by Reagan, William to the writer in the mid 1960's at Idylwyld Golf & C.C., Sudbury, Ontario, Canada.
- (6) Fixx, James F. with Nike Sport Research Laboratory (1985). Maximum Sports Performance, Chapter 11, The Nutritional Advantage. Random House, New York. (Page 137).
- (7) Same as above. (Page 46)

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