Table of Contents

Golf Ball Secrets

The Right Golf Ball Will Lower Your Scores!

By Robert J. Cotter, Jr.

Introduction 1

Chapter 1  Golf Ball Design...The Inside Story 3

Chapter 2  Dimples, Compression, and Spin Rate 7

Chapter 3  How To Drop 5 Strokes A Round! 10

Chapter 4  Self-Assessment ... Determine Your Right Ball 14

Chapter 5  How to Maximize Golf Ball Performance and Break 80! 17
Introduction

As a golf ball design engineer, I have worked for many years designing product for touring pros and recreational golfers alike. It has always been a rewarding experience seeing the design process progress from initial conception to spotting the final product on store shelves.

These days, when any conversation turns to golf and individuals learn of my firsthand experience in the golf industry, many questions about golf balls arise. Here are some of the most common:

- Is there really a difference between the vast array of golf balls?
- Won't I be a better player if I use the same ball as the world's number 1 player?
- What do I need to know about golf ball construction?
- What is the best ball for me?
- Which ball will help improve my golf game?

You may also be confused by the vast array of golf balls available today? It seems every few months there is the newest and greatest golf ball coming out onto the market. According to the advertising, this new ball or "family" of balls will do everything for every type of golfer.
For instance:

*If you’re a high handicapper then this latest breakthrough ball will help you hit your longest, straightest shots!*

*If you’re an accomplished player then there is a new ball for you that will give you pro like performance, with a penetrating ball flight and drop dead action on the greens!*

The purpose of this book is to cut through much of the hype and help you choose the right ball for your game and golf swing. The answer to the questions above and more will be revealed in the pages that follow. By mixing a little science with common sense, you will soon have a handle on everything you need to know to make an informed buying decision.

I will also introduce you to the number 1 way you can take full advantage of all this great golf ball technology. You’ll be amazed… it the fastest way to break 80!

**There is a right golf ball for you and your game.**

**This guide will help you discover it.**
Chapter 1  Golf Ball Design … The Inside Story

When confronted by the huge variety of product out there in the marketplace, it's best to keep things simple. A basic understanding of golf ball construction will help you make the best buying decision. So let's look at the various types of ball constructions and what they are designed to achieve.

There are basically 3 major ball types on the market today. Let's take a look at their constructions and what type of golfer should use them to lower his or her total score:

2 Piece Golf Balls

This type of ball makes up a large portion of the market from all the leading manufacturers. It features a large, solid rubber core. The cover is typically a type of special plastic called ionomer. Golf ball engineers can alter the performance of the finished ball by changing the size of the core, the hardness of the core, and the softness of the cover.

2 Piece balls are typically your distance balls. In past years, 2 piece balls had hard covers and cores that resulted in lower spin and therefore more distance mainly through increased roll. Today 2 piece balls are not as hard and still provide the distance advantage desired by most golfers, as well excellent cover durability (resistance to cutting).
Today’s softer 2 piece balls are truly a revolution! You see, distance in a golf ball is all about the core. In days past, a hard, “fast” core would equal more distance. This was great except for the fact that the resulting balls were hard as rocks (you may remember them, especially on cold days). But recent breakthroughs in core composition have enabled golf ball engineers to develop fast but soft cores. In essence, the 110-120 compression 2 piece balls from 15 years ago have evolved into a new breed of 75 compression balls today. This is great news for golfers with slower swing speeds.

2 piece balls are also better for higher handicapped golfers looking to improve their game. Since they are typically lower spinning, undesirable slice or hook spin will not be as pronounced and the ball will fly straighter. A distance ball with less side spin; a great combination for the novice or high handicap golfer!

### 3 - 5 Piece Golf Balls

These types of golf balls have been on the scene for about 10 years now. They feature a large, solid rubber core (e.g. shown in blue) surrounded by a thin layer of a plastic-like substance (the composition varies per manufacturer). This 2 piece assembly is then surrounded by a plastic or urethane (soft rubber) cover. Some manufacturers also incorporate a double or "dual core" design; hence, a 4 piece total construction.

The multiple components that make up this ball construction present the golf ball engineer with the unique opportunity to "fine tune" the finished
ball performance by adjusting the size, hardness, and thickness of the core, layer, and cover.

Imagine all the variables!

The majority of low handicap and professional golfers play this type of ball these days. Although this type of construction typically spins more when struck, engineers can adjust the core and thin layer to end up with a sort of "hybrid" ball that is long but playable for the more accomplished player.

3 or 4 piece balls still incorporate a fast core, but the extra layer under the cover (often referred to as the mantle layer) allows the engineer to maximize ball performance. Combine that extra layer with a softer cover for more feel and spin on the wedges and you have a high performance product for the accomplished player, or a player who is for the most part in control of his or her "unintended" sidespin.

3 Piece "Wound" Golf Balls

Does this look familiar? This used to be the standard in performance golf ball construction until the mid 1990's. These balls featured a small solid or liquid filled center, surrounded by yards and yards of tightly wrapped rubber thread. This wound center was then encased in a cover of plastic, synthetic rubber, or urethane.
Once the rage of the industry, this "wound" type of construction has disappeared from the golf ball market. This type of ball is much more expensive to manufacture than the other 2 types. In addition, engineers have been able to surpass the performance of these balls with new materials combined in the 2 piece and 3-4 piece (layered) designs.

Note that one manufacturer is introducing the first 5 piece (5 layer) golf ball this year. Several Tour players are already using it in pre production. Technology keeps moving forward!

Now that let's look at some more golf ball features and what they really mean to your game:
Chapter 2  Dimples, Compression, and Spin Rate

Dimples

Over the years there has been much written about dimples and their importance to the overall design and performance of the ball. Luckily, this is one aspect of the design that the consumer should not waste any time contemplating.

Ever since 150 years ago when golfers found that the then modern gutta percha balls flew longer and straighter when their smooth surfaces were roughened up and nicked, the fascination with dimples began.

Today, we know that dimples serve to reduce the aerodynamic drag acting on the surface of the ball thereby resulting in longer distance. Combined with the backspin imparted by the golf club, today’s balls flight characteristics are nothing short of spectacular!

Yet, whether the ball has 392 or 440 or 2000 dimples should be little concern for the golfer. Dimple quantity, shape, and depth is primarily a golf ball refinement tool for the ball designer. It allows the engineer to tweak the flight performance of a particular final ball construction by complimenting the internal ball characteristics (core size, hardness, mantle layer, etc…). So leave any dimple performance obsession behind and just be amazed at how cool they look!
**Compression**

Just like the wound ball construction mentioned earlier, the practice of designating compression values for golf balls has disappeared. In not too distant times, a particular brand and model of ball came in 90 and 100 compressions. With this practice often came the misperception that 100 compression golf balls were longer than their 90 counterparts because they were harder. In reality, any distance difference was negligible (insignificant). Though there was a slight feel difference between the compressions, this was also a minor difference.

As mentioned earlier, the whole designation of compression has completely changed in as recently as the past 5-10 years. With the advent of *long but soft* 2 piece balls, compression numbers have been abandoned. It will be interesting to see what happens going forward, but golfers now have one less number to contemplate when ball shopping.

As an interesting side note, a golfer's sense of **feel is almost entirely attributed to the sound** a ball makes at impact. Plug a golfer's ears and the feel distinction between the old traditional 90 and 100 compression Brand “X” golf balls disappeared!

**Spin Rate**

Of all the physical and performance characteristics a golf ball possesses, by far the one every golfer should pay most attention to is **spin rate.** This is the property that has the most affect on the quality of your shots, your score, and your golf happiness!

A ball that flies perfectly straight, disregarding the effects of wind, has pure backspin. If you slice or hook the ball, **undesirable side spin** is at work. Limit or control the amount of side spin, and good things happen.
Essentially, the spin rate of a golf ball can be quantified by studying the spin rates that result when the same ball type is hit by a driver and an 8 iron. Golf ball companies standardize the conditions under which the balls are hit, so that the results become meaningful when comparing different balls. Hence, they are all hit under the same conditions.

Since the driver has the least loft of all the clubs, it creates the least backspin (a lower initial spin rate) than any other club. Driver spin rates vary from approximately 2000 rpm (revolutions per minute) for low spin balls to 4000 rpm for high spin balls. There are other factors related to the club design and impact conditions that affect spin rate also but for this analysis I will keep it in general terms.

What does this mean for the consumer? Simply put, if you have trouble controlling "unintentional" side spin (i.e. if you hook or slice), you should be playing a lower spinning ball. Your shots will be straighter and you will benefit from more distance due to increased roll. In addition, if you have a slow swing speed typical of many men, women, senior, or children golfers, the new class of soft but long golf balls are a great choice (more on that later).

If you are a more accomplished player and have better control over the side spin of the ball, higher spinning balls may be a better choice for you and your game. They will produce plenty of distance off the tee and provide enhanced performance for approach shots into the green.

In the next section, we'll take a look at a real on course situation and see how choosing the right ball for your game can make a dramatic difference in your scores.
Chapter 3  How to drop 5 strokes a round!

Did you skip ahead to read this chapter first! Yeah…I bet you and everyone you know who plays would like to drop 5 strokes by playing the right type of ball.

By now you should now have an understanding of some of the science behind golf balls and their constructions. Let's apply this information to a real world golf situation and see what happens.

Let's say you are a typical recreational golfer and shoot 95-100 for 18 holes. That would tend to indicate that you have inconsistency with several of your clubs, and since the driver is typically the hardest to control, we'll start there.

You are also an avid golf fan and keep up with the top players and the equipment in their bags. You think to yourself, "________ is playing really well right now and is using the brand new "XXX" ball. So you buy a sleeve and head to the course for your Saturday morning round.

You step up to the tee on number 1 with this new "higher spin" ball cued up and give it a mighty lash. But your timing is off my friend and your standard slice producing swing is now in motion. Sure enough, the ball starts straight down the fairway, starts to climb and then begins its journey toward the right side of the fairway (or left if you're left handed).

Now the pleas commence. "Oh no, don't go over there. Come on, stay in, stay iiiiiiiinnnnn…….@#!/&@!." It's no use, that ball will be found but it's 15 feet off the fairway in the long rough.
Not the start to the round you were looking for.

Now let's replay that shot again with one major difference. Let's tee up a lower spin ball and see what happens with the same swing.

There it goes starting off down the middle. It starts to climb (but not as much), and begins to bend right. But wait a minute, it's not slicing nearly as much! And it seems to be a little bit longer! This one you can talk to and it seems to listen!

When you arrive at the ball your tickled to find it on the short grass, 2 feet inside the edge of the fairway. All is fine…all is good…golf is great!

Let's look at what happened here:
Here's a summary of the before and after:

<table>
<thead>
<tr>
<th>1st Shot</th>
<th>2nd Shot</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Higher Spin Ball</td>
<td>• Lower Spin Ball</td>
</tr>
<tr>
<td>• Same Swing</td>
<td>• Same Swing</td>
</tr>
<tr>
<td>• High Trajectory</td>
<td>• Lower Trajectory</td>
</tr>
<tr>
<td>• <strong>Enhanced Undesirable</strong></td>
<td>• Reduced slice spin</td>
</tr>
<tr>
<td>• Side Spin (slice)</td>
<td>• More distance</td>
</tr>
<tr>
<td>• Ball in the <strong>Rough</strong></td>
<td>• Ball on the edge of <strong>Fairway</strong></td>
</tr>
</tbody>
</table>

Where would you rather play from?

The advantages with the second shot are obvious. But let's take it further and really examine the two situations and how they will affect your score.

When you arrive at the ball in the fairway every thing is go. You have a nice lie, your mood is level if not confident, you are thinking that par is a reasonable goal. The flag is ahead, you are where you are supposed to be, and you feel in control.

Now contrast that with the ball in the rough. It's the first hole of the day, you felt good on the tee, but seeing your ball sail wide of the fairway instantly changed your mind set. Now your old game is here. Now you feel you must force the next shot to have a chance at par. Now you try to be super human and make the once in a lifetime shot.

What's worse your view of the green is now slightly impeded by a group of trees up ahead. So now you have to try to concoct a controlled fade from the rough with a long, angry swing to an obstructed green. You can probably guess the results!
You may be thinking, "Well maybe a low spin ball will help me with the longer shots, but won't I lose control with the shorter shots and around the green?"

The answer to that question is:

Not nearly as much as you my think.

First of all your "second shot" is being hit off of the fairway so you will naturally be able to get your maximum backspin on the ball for enhanced control. The more back spin the higher the ball will fly, and descend more vertically into the green (i.e. - less roll, more control).

It is also important to remember that most of us play on courses that have greens that simply are not as hard and fast as those at tournament sites. If they were, there would be a lot of unhappy recreational golfers out there hitting crisp iron shots that bound off the back of the green…and course management would be sure to hear about it.

As far as feel around the greens, the control gained off the tee with a driver and the other full shots will offset any loss in "feel" around the greens. Remember, we are not talking about the rock hard, low spin balls of yesterday. Today's lower spinning balls are lower compression and quite pleasant to hit. They may even help you get more long putts to the hole!

Oh yes, back to the 5 shot improvement. On a typical par 72 golf course there are typically 4 par 3 holes. That leaves 14 potential driving holes per round. If you decide to use a driver on some or all of these holes, the above scenario presents itself. In fact, you have the potential to lower your score by more than 5 strokes by merely choosing the right ball!

This is a truly a real scenario (cause and effect) for most golfers…and something important to keep in mind.
In this section you will determine the correct ball for you based on your current level of play and your goals. When choosing the correct type of ball, the most important consideration you must have is "will this ball help improve my game." If your goal in golf is lower scores and more enjoyment (...read lower scores!), you should resist any temptation to choose a ball because:

... this or that Pro plays this particular ball and he or she is a great player.

... somebody at the club likes this type of ball (somebody else at the club will like some other type of ball!).

... they are buy one dozen, get 3 free.

So let's look at your game and goals and make the right choice:
Category 1 - The Novice Golfer

If you are just starting to play or are inconsistent this is your category. Your score is typically 105 or greater for 18 holes and your handicap is over 25. About 25% of recreational golfers fall in this category. You can definitely benefit from trying a lower spinning, 2 piece golf ball. If you hit the ball hard and generate a lot of ball speed, a more traditional low spin 2-P ball is appropriate. If you have a slow swing speed, the new softer compression (soft but long) 2 piece balls are a great choice. Combined with a higher lofted driver, they will help you get the ball in the air and increase your distance.

Category 1 golfers, next time you are looking for golf balls, remember to read the package as if it were a food item. You should be looking for claims such as "low spin", "low initial driver spin", "low spin distance ball", or "long and soft".

Category 2 - The Intermediate Golfer

You are fairly accomplished but suffer from the occasional "big number". You are basically a bogey golfer with a few pars thrown in and a rare birdie. Your scores range from the high 80's to the mid 90's. You have a pretty good handle on your game and are looking to become a little more consistent in order to shoot in the 80's and begin to flirt with the 70's.

The type of ball you should be using depends on a few more factors. If you can hit it reasonably straight and or have a predictable shot pattern, a medium spin 2 or 3 piece ball would be a good choice. If your shot pattern is erratic, you should stick with a lower spinning 2 piece construction.

Category 3 - The Accomplished Golfer

You are a skilled golfer and have a handle on most aspects of the game. Your handicap is <12 and you score in the 70's and low 80's. You have command of your swing and hit the ball with authority and consistency. Your touch around the greens is excellent and you have a handful of birdies per round to offset your bad hole. You need a ball that is long off the tee but provides the feel you desire for the shots around the
green and putting; your scoring shots. You would most benefit from a 3 or 4 Piece performance ball.

Some additional comments for all categories:

- Play at least 2-3 full rounds with a particular ball type to judge its affect on your game. That way, you experience its performance through the entire range of shots and conditions.

- Keep game improvement as your #1 consideration when selecting a golf ball. They are all white, they all have dimples, and they all have the potential to fly a great distance. Stay one step ahead of your competition by making the smart choice.
Golf ball manufacturers have a variety of methods by which they test new product designs. They work intensely with touring professionals getting feedback on prototype ball constructions, and then tweak the balls based on the comments to achieve the desired performance parameters. For “game improvement” product aimed at recreational golfers, the process is similar. Feedback is received from select groups of recreational “test” golfers. Not a bad task if you can get it!

However, most of the hard data comes from testing with “mechanical” golfers. You may be familiar with the infamous “Iron Byron” golf ball hitting machine that can strike the ball time after time with precision and accuracy. This allows the manufacturer to measure the true performance of any new ball design with the greatest level of confidence, and pinpoint the exact amounts of spin, carry and roll, etc. This is only possible because the mechanical golfer has a reproducible swing.

As a golf ball design engineer, I have been fortunate to meet and interact with many of the game’s top touring pros as part of the ball testing process outlined above. Standing next to a professional golfer as he or she makes swing after swing affords a rare opportunity to study the swing from a vantage point few golfers get to see. Believe me, I took full advantage of this opportunity, analyzing every movement these top golfers (in every shape and size) made to achieve their repeating swings.

During one of these occasions I was focused intently on the swing action of a rather famous major championship winner…

And then suddenly it happened…

In an instant I discovered the secret, the common denominator, or what I would later call “The Key” to a repeating golf swing. A quick test of this theory on my own swing and some associates proved what I believed to be true; it worked, it was teachable, and it was the key fundamental in a repeating golf swing.

It also became very clear that real improvement in this game was not possible until a golfer developed a reproducible or repeating swing. When
a repeating swing takes form, breaking 80 is in reach for most any golfer and the resulting feeling of satisfaction from the game is immeasurable!

Over the past 15+ years, I have taught thousands of golfers this simple, yet power technique to put their swing on auto pilot and crush the ball with authority and precision.

In the past 7 years alone, golfers from over 60 countries have put The Key To A Repeating Golf Swing to the test and the feedback and testimonials have been incredible. I now invite you to see how The Key can transform your game and make this your breakthrough season in golf.

As the main part of your purchase of my multi part game improvement package, you now have the new edition of The Key To A Repeating Golf Swing manual in your possession. I encourage you to take full advantage of the personal instruction therein and put it to work in your game, and email me with your success story. I know what it has done for the games of thousands of novice, mid handicap, and scratch golfers. Now it’s your turn!

One Final Note: In the text of “Golf Ball Secrets” I have stressed the great lengths to which the golf ball manufacturers go to develop game
improvement product for golfers at all levels. The right game improvement golf ball combined with a *repeating golf swing* is a winning combination for precision shots and lower scores.

In addition, if you have read this far, you may be wondering why specific golf ball brands haven’t been mentioned in this report. With the speed at which products are developed, marketed and offered to the public (a cycle often less than 4-5 months), it is difficult to make specific brand recommendations in a static text like this one.

To assist you in making the right golf ball choice to maximize your game, every customer of the *The Key To A Repeating Golf Swing* instructional package also receives Bonus #1 which includes new Golf Ball Reviews and Recommendations for a variety of golfer types and abilities, from total beginners to the highly skilled:

One of the tragedies in this game is the extensive effort novice to accomplished players will put into carefully choosing their golf club equipment (loft, shaft flex, special club head alloys, etc…), only to neglect choosing the right ball to compliment their equipment. It’s all too common for me to hear a golfer describing his or her new, tuned $400 driver, and then when I inquiry what ball they play, the response is something to the effect, “*whatever I find in my bag!*”

That’s why I added this ball recommendation bonus. As a U.S. patent award winning golf ball engineer, I enjoy helping golfers select the ball that fits their game details, so they can lower their scores (in some cases even
before they make their next swing). **I take this commitment seriously** and deliver these ball reports throughout the season and beyond (no further charge, ever).

If you have specific ball questions and would like assistance ahead of my unique Golf Ball Reviews and *Special Reports* you will be receiving on an ongoing basis, you may email me at info@instantgolflesson.com.

Thank you. I look forward to working with you on your game.

Robert J. Cotter, Jr.
Instant Golf®

http://www.InstantGolfLesson.com