

Effective Strength Training for Golf:

What's the Right Approach?

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INTRODUCTION

Golf's growing popularity is hard to miss. It is evidenced by the number of new golf courses popping up, golf magazines and instructional books gracing the shelves of bookstores, golf instructional shows on television, huge media coverage of major tournaments, etc. Additionally, a great deal of research and development goes into newly designed clubs manufactured of exotic materials, different (hopefully more effective) balls, a myriad of teaching tools and drills, all aimed at shaving a few strokes off one's game.

In recent years the acceptance of supplemental physical training, particularly in the area of strength training and conditioning, has taken hold. However, a great deal of confusion and misinformation exists relative to strength training and its benefits. The March 2007 issue of the e-zine, *Golfmed.net* [1] offers some reasonable insight into what can sometimes be described as inappropriate resistance training for golfers. The authors blast many who are simply lumped into the profession of "personal trainer," especially if the said trainer has no golf experience. However, this piece also butchers much of the legitimate jargon associated with resistance training and further clouds the topic for novices in the weightroom. The authors list what they call their "deadly sins," basically what they judge to be inappropriately prescribed exercises. One, the "overhead deadlift" certainly brings a smile to those of us in the strength and conditioning profession, as no such lift exists. Questioning why one might attempt 10 repetitions with a weight that can only be lifted successfully four times also leaves experienced strength coaches scratching their heads.

Much is made, especially among those marketing themselves as golf conditioning specialists, about prescribing "golf-specific" exercises only. As a result, golfers undergo dozens of non-traditional lifts designed usually to mimic the golf swing. This makes sense to many, but is it the best means of resistance training for golf? It is the purpose of this article to review much the current state of affairs relative to effective resistance training methods and to perhaps challenge conventional wisdom relative to improving golf performance via resistance training.

A RESISTANCE TRAINING CONTINUUM

Resistance training includes a wide range of applications and resulting benefits. The lay public often quite simply lumps all forms of resistance training into the popular term, strength training. While strength training sounds appealing (after all, who among us does not want to be stronger?), all forms of resistance training do not literally improve one's strength. To facilitate the reader's understanding of this topic it is appropriate to delineate the major disciplinary approaches to resistance training. As resistance training increases in popularity, a failure to speak

one fairly common language simply adds confusion to the scene.

Weightlifting/Powerlifting

At one end of our continuum we have the competitive sports of weightlifting and powerlifting. Despite the similar goals of lifting maximum weights in a competitive venue, it is crucial to understand the differences between these two disciplines and how either sport may contribute to improved golf performance.

In modern history, the idea of lifting weighted objects from the ground to overhead began with the advent of the sport of *weightlifting* in the 1896 Olympic Games. Weightlifting involves lifting maximum, or near maximum, weights in an explosive (powerful) fashion. Weightlifters are noted for executing lifts (Snatch, Clean-and-Jerk) that register some of the highest rates of force production in sport. Similarly, weightlifters have long been noted for their outstanding flexibility.

In the 1960s we saw the advent of the sport of *powerlifting*, correctly referred to by the British (and after all, who knows more about the English language?) as “the strength set.” Unfortunately the Yanks won out and the sport has remained labeled as a misnomer, in which power plays only a small role. Powerlifting involves the Squat, Bench Press, and Deadlift.

Strength Training

Up until the late 1950s, an occasional athlete might “lift weights” to gain strength or power, or to prevent injury in their chosen sport, but this practice was frowned upon by most coaches and medical experts. American football became the first sport to embrace and prescribe *strength training* as a means to performing better on the playing field. The goal was simply to gain strength in the gym and transfer it to improved football performance. There was no emphasis on excessive muscle mass development or the lifting of maximum weights in a competitive arena.

The reader should note here that merely lifting weights does not increase strength. Strength development is a matter of repetitions and intensity. Generally, the higher the intensity (weight or effort), the fewer repetitions are possible, and the greater the gain in strength. So far on our continuum, all parties are focused on increased strength and/or power.

Bodybuilding

Competitive *bodybuilding* began around the time of World War II. Here users lifted weights, but not to measure strength. The goal of bodybuilding was simply the pursuit of muscular hypertrophy, or growth. Frequently, exercises targeting individual muscles were utilized instead of the competitive disciplines' goal of using the entire body in a coordinated fashion. Bodybuilders generally lift lighter weights for a higher number of repetitions (8-12) than weightlifters and powerlifters, thus encouraging muscular growth. Neither strength nor power are goals of bodybuilding training. Bodybuilding's location on our continuum is greatly removed from that of strength/power sports.

The above-mentioned article in *Golfmed.net* [1] wisely points out that golfers (or any other athletes) are unlikely to benefit from attempts at isolated muscle strengthening and development.

Muscular Endurance

At the opposite end of our continuum from pure strength and power sports we have those who engage in some form of resistance training, but use lighter resistances and perform a high (above 15) number of repetitions. This describes the resistance training of many in today's weightroom. Numerous reasons are given for such training, most popularly the chant of "I don't want to bulk up," Unfortunately, many believe that high load, low repetition protocols will

produce muscular growth. An online reference from Golf Digest even attributes Tiger Woods' 25lb increase in bodyweight to his lifting heavy weights six to eight repetitions. Gains in muscular growth and added bodyweight are not this simple.

In truth, weightlifters and powerlifters (those training with the fewest repetitions) are not overly muscular. Bodybuilders, who have the most muscular bulk, are not extremely strong or powerful. Unfortunately, those who train with light loads and high repetitions, while perhaps gaining some benefit in terms of muscular endurance, suffer from a lack of strength gain.

Added to this end of the continuum is much of what we see today described as functional, core, or balance training. Much of this training has come from the field of rehabilitation and one of the first goals of rehabilitation is regaining muscular endurance. But for those not in need of rehabilitation, is this the optimal spot on the continuum for improved sport performance resistance training?

In the 50 or so years since scientific resistance training methods first gained in popularity and acceptance, most sports and the general public have come to recognize the worth of a sound “strength training” plan for improved athletic performance and injury prevention. Not all sports jumped on board immediately or enthusiastically. Golf has been a relative newcomer to viewing its participants as athletes. Athletes engaged in endurance sports such as cycling, distance running, triathlon, etc. still tend to shy away from serious strength training. American boxers, long the leaders in their sport, fought for many years the notion of anything other than hitting the heavy bag and doing an inordinate amount of “roadwork.”

Fast-forward to today's world of resistance training and we note in the recent movie, *Rocky Balboa*, that explosive lifts such as the clean-and-jerk and plyometric training have made their way into our hero's modern training regimen. What effect does such training have on golf? After all, golf, like boxing, is ultimately a power and accuracy sport.

LOOKING BACK-FRANK STRANAHAN

Frank Stranahan, one of the world's most outstanding golfers of the late 1940s and 1950s, was truly a pioneer who embraced real strength training (and weightlifting) for improved performance. As reported in the April 1958 issue of *Strength and Health* [2], the “bible” for resistance training during most of the latter half of the 20th Century, Stranahan never shied away from heavy weights. His strength-training program generally consisted of four moves:

High pull (now called “power”) snatch

Squat

Deadlift

Sit-ups

For readers unfamiliar with the Snatch, this is an extremely explosive move that raises the barbell from a resting spot over the feet to overhead. Experienced weightlifters execute the Snatch in less than one second. That is a remarkably short time to raise a weight often in excess of one's own bodyweight several feet in the air.

Stranahan reportedly worked up to about 200lbs in his Snatch exercises, sometimes employing what competitive weightlifters call a “split” technique to hoist heavier weights. He snatched a total of 8-10 sets, utilizing five or fewer reps, a generally accepted requirement for truly improved strength.

The Squat calls for a loaded barbell to be held across the upper back while the athlete flexes ankles, knees, and hips to descend to a position where the tops of the thighs are at or below parallel to the ground. Stranahan utilized five or so sets, all sets with five or fewer reps.

The article reports the author losing a bet when Stranahan performed three repetitions with 385lbs.

The Deadlift is executed by raising the barbell from the platform, as in picking up a heavy package. The lifter stands up completely, raising the weight with hip, leg, and torso strength, until the barbell rests along the thighs (*Golfmed.net* [1], please note that the barbell cannot be overhead). Much heavier weights are utilized in the Deadlift and the move is not explosive in nature. Stranahan again employed strength-building low repetitions (fewer than six) and worked up to heavy single efforts *over 400lbs!* He repeated these lifts for five to 10 sets, apparently utilizing a "straight grip" without the aid of pulling straps or other techniques. Done this way, the Deadlift develops an extremely strong grip.

Stranahan finished off his twice-weekly workouts with Sit-ups. He did not place a great deal of emphasis on this move, placing a set of 20 repetitions about every third set while doing his primary lifts.

Stranahan had experience as a competitive weightlifter, having officially lifted 235lbs in the Press (no longer a competitive lift), 225lbs in the Snatch, and 300lbs in the Clean-and-Jerk. In powerlifting, minus the Bench Press, his best was 410lbs in the Squat and 510lbs in the Deadlift.

In his era, Frank Stranahan was likely alone as a golfer employing true strength and power training methods for improved golf performance. It would be many years before mainstream golf began to look to the world of strength and conditioning for advice. Stranahan would most likely be alone in his approach today, unless of course he was winning as he did then.

THE FUTURE-JASON ZUBACK AND BEYOND

Jason Zuback, today's big name in long ball driving, is reported to be a proponent of strength and power training similar to Frank Stranahan. Some years ago *USAToday* (October 17, 2001) reported that Zuback was capable of bench pressing 405lbs (Zuback is 5' 10" tall and weighs 225lbs). The same article mentions Viktor Johansson (6' 6" tall and 275lbs of bodyweight) bench pressing 465lbs. The Internet is abuzz with forums chatting about Tiger Woods' ability to Bench Press relatively large weights. It is somewhat unfortunate that so much attention is devoted to an exercise like the Bench Press, which cannot be considered either muscularly or energy-wise a very solid choice for golf specialization. One lesson learned here is that non-specific strength training may have solid transfer to improved golf swing (listen carefully, those 'functional' training pundits reading this).

Most golfers today know that numerous studies have shown that golfers can expect to gain (among other benefits) increased club head speed around 5%. Most of these gains occur regardless of one's approach to resistance training, in other words, anything will work. This is especially true for those with no resistance training background, which generally describes the sample populations used on many of these studies.

One thing is certain, no amount of pure strength training will improve a poor golfer's game. The noted success of long ball drivers results from outstanding swing dynamics and their exceptional club head speed. Nature has provided them with the physiology that contributes to much of the club head speed equation. Worth noting, however, is that even a non-specific exercise like the Bench Press does not have a deleterious effect on swing mechanics and/or flexibility.

Far too much of today's so-called golf-specific resistance training emphasizes what is known as "core" or "functional" training. Usually this type of training consists of lots of rehabilitation-oriented workouts that focus on unbalanced surfaces, abdominal training, or what most true strength coaches would refer to as other "personal training" types of workouts filled with gadgets.

While such training can be beneficial and is certainly challenging and fun, recent research (2) indicates that such unstable surface training reduces up to 70% of the muscle activation of the primary movers and reduces external force production. Numerous legitimate experts in the area of strength and conditioning question the need for such training for many individuals. Noted sport scientist Tudor Bompalao, PhD, recently stated the following:

Core strength, or the strength of the midsection of the human body (abdomen, low back muscles, and the trunk) is also a preferred target of some individuals who promote novel training concepts and gimmicks.

However, in referring to core strength some individuals go far beyond decency, racing against each other to fabricate and promote the most ridiculous exercises.

Also, these new exercises for core strength are not necessary in any means, as in many cases weight training exercises take care of core strength via the overflow of activation/irradiation mentioned above. [4]

SAFETY ISSUES

Where does a serious golfer, golf coach, or golf conditioning trainer turn in order to optimize results, while minimizing either injury or a waste of time? This writer, an experienced strength professional and no stranger to golf, realizes that the worst advice possible is to encourage the weightroom novice to head to the gym and train like Stranahan or Zuback. Advanced resistance training is a goal, not an immediate remedy. As with most approaches to maximizing performance via resistance training, there is no simple answer. Much depends on the individual in question and his or her own strengths and weaknesses. Certainly a well-rounded, periodized resistance training program makes the most sense, but this requires a flexible, not rigid, approach to such training.

One can certainly question the wisdom of exercising exclusively on resistance training machines or in utilizing only lightly weighted objects. In the former example, golf is played with the feet on the ground and ground-based resistance training should be the main focus. Similarly, using only light objects assures that the acquisition of significantly increased strength is retarded. Strength, in conjunction with speed, is the way to improved power. Power is what most golfers want to gain, not in only in the gym, but when connecting with a long shot.

Training on unstable surfaces is currently in vogue, but its application to a stable surface sport like golf can be questioned. True, we want to improve strength and power in the body's so-called "core" area, but this is very effectively done through many traditional strength/power exercises that also pay big dividends in other ways.

Speed is improved through speed training. Learning to swing quickly, while maintaining optimal posture, is crucial to success. Swinging lighter or heavier clubs is often suggested as a means of improvement. But particularly with heavier clubs, one must examine existing strength

levels, particularly the ability to safely control and decelerate large eccentric forces around the spine.

CONCLUSION

There is a time for nearly all facets of scientific resistance training. In preparation for more serious strength development, lifting light and moderate resistances a medium number of repetitions (eight to 12) makes sense. The utilization of heavier weights moved either slowly for added strength or quickly for improved power is the classic means of achieving peak performance at the right time in the competitive calendar.

Key in the rationale for such training is the actual strengthening of the so-called core musculature in a way not unlike that needed in golf. If we look at exercises such as the Squat or the Power Snatch or Power Clean, especially performed from a “high hang” position, we see the emphasis on a rigid body posture and the sequential transmission of power to the extremities (legs and arms).

And, as you know so well, this is exactly how the golf swing is executed. Is this golf-specific resistance training? It certainly seems to help Jason Zuback drive the ball down the fairway. It is certainly much more specific to developing power than struggling to maintain one’s balance on an unstable surface and possibly lift a light weight in the specific pattern of a golf swing.

Golf and strength coaches, along with sport scientists, are encouraged to explore all the many facets of resistance training in order to provide today's golfer with solid, safe, and scientific advice on how to improve their game. It must be acknowledged that any serious attempt at gaining increased strength and power for golf requires a good deal of elementary and intermediate instruction in the weightroom. Gains in strength and power take no less time or effort than does perfecting the golf swing.

Let’s remain open to all options and encourage the exchange of science-based opinions on how to most effectively train golfers for improved performance.

REFERENCES

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