Is sport specific strength & functional training a Myth?

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Like most people, you have probably heard and read in numerous books and articles that if you want to compete at a higher or the elite level within your sport, you will have to follow a sport specific strength programme. People see this programme as a "magical" one that will use a combination of exercises that are specific to your sport and body to give you the desired results. These exercises are seen not as just normal exercises, but as special ones reserved for the elite few sporting individuals wanting to achieve greatness.

Coaches and parents alike, love hearing the words "sport specific" or "functional training" when it comes to the design of a strength and conditioning programme. Due to this supposed prerequisite, the art of marketing and selling the strength programme to parents and coaches began. To the laymen who does not know what actual pure strength, pure power and pure speed is about, it makes sense that if you are a golfer, that you would need a golf specific strength training programme to facilitate your training.

There is a preconceived idea of taking the exact movement that is done in a sport, like throwing a baseball, hitting a tennis ball with a racquet or pulling with your arms through the water in the freestyle swim stroke; that if you take that exact movement and mimic it against more resistance or in an unstable environment, that it should cause your body to 'SUPER COMPENSATE' (becoming stronger or better) in strength or stability on the sporting field and that this type of training should in essence be the best?

Back in the day, training for a certain sport consisted purely of doing that specific sport or event. For example, in doing the 100m dash you trained for it by running a 100m dash or when training for tennis you only played tennis and so on. Further down the line however people only then realized that if they did varied activities, it would transfer to the sport or event that they did. An example being; with the 100m dash, they discovered that by doing intervals of 200m (a longer distance than the 100m) it would transfer greater improvements to the 100m dash than by just doing the 100m dash as training alone. Due to this discovery, the science of sports coaching and training evolved.

In the era of the gladiators, there was a Greek physician by the name of Galen (AD129-210) who is accepted by some to be one of the originators of sports specific training, as he devised training drills that replicate the movements done in the gladiator arena. Later on was it discovered that by doing non-sporting activities such as weight training, that it would improve athletic ability as well, this after which "sport specific strength training" had developed.

According to **Dr Michael Yessis** a well known Sports Scientist**,** sports specific training must fulfill one or more of the following criteria:

- The exercise must ***duplicate the exact movement*** witnessed in a certain segment of the sports skill.
- The exercise must ***involve the same type of muscular contraction*** as used in the skill execution.
- The special exercise must ***have the same range of motion*** as in the skill action.

It is thus very clear, that the idea of sport specific training or functional training comes from hundreds of years back. The difference here being, that hundreds of years back sport specific training was actually just that, "sport specific"; meaning they trained their sport. They maybe broke it up into smaller segments, but it if you were a gladiator you would train to do striking

or stabbing movements with the sword, or if you were runner you only ran and so on.

In our modern era, being allegedly smarter and more advanced, the idea of being sport specific in training has all of a sudden involved exercises that are not entirely specific to the sport and being something very different. For example, a tennis player doing a lunge with a dumbbell that is 10 times heavier than the racquet, moving at 10% of the speed, this could lead to altered muscle recruitment patterns. Here is another example to explain what altered recruitment patterns are: a person with shoulder pain has excessive shoulder elevation during shoulder flexion to 90 degrees as compared to a person without shoulder pain. The elevation is present even after the person no longer experiences the pain because of the altered recruitment pattern of the muscles.

1.1 Lunge forehand

In the picture example above, the movement does not duplicate the exact movement of a tennis forehand - the arm is bent too much and no movement is initiated from the hip or torso; it does not require the same type of muscular contraction and thus causes an altered muscular recruitment pattern - due to the weight being heavier, other muscles activate to compensate and other motor units are recruited; the range of motion is not the same (arm swing is only coming from the shoulder joint and rarely ever will a player in a game lunge like that).

One can guarantee that if this exercise is shown to a Tennis Coach or parent of a tennis player, they would think this is the best thing since sliced bread!

Another example is the exercise below for a swimmer:

1.2 Alternating band pullover

With regard to this specific exercise and numerous other so called "core stability" strength combination exercises, there are 2 problems facing you when doing it:

1. The more stable the exercise the more strength you can apply or generate and the more unstable the less strength or force can be applied.
2. The more force and strength you apply the more unstable it will become and the less force or strength you apply the more stable it will be.

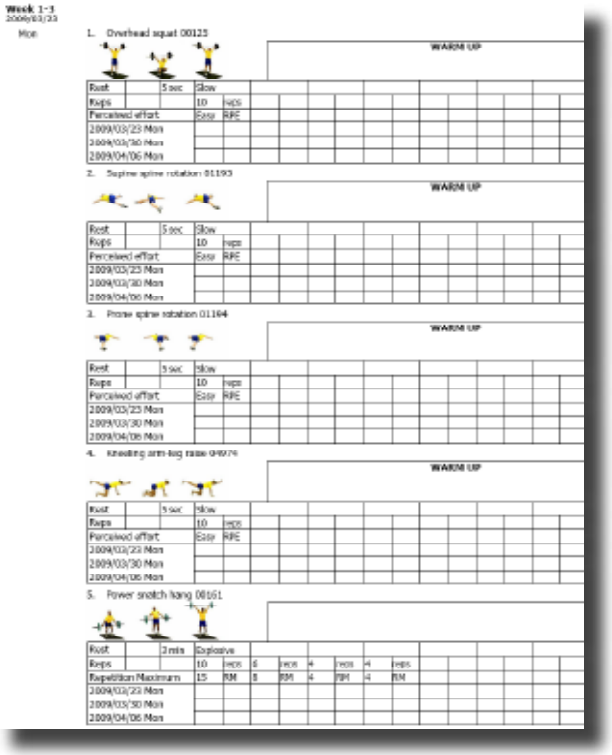
In other words you have 2 goals namely **strength** and **stability**, and by doing it this way they keep working against each other and therefore you don't get the maximum potential strength development or the maximum stability development for which the exercise was initially intended.

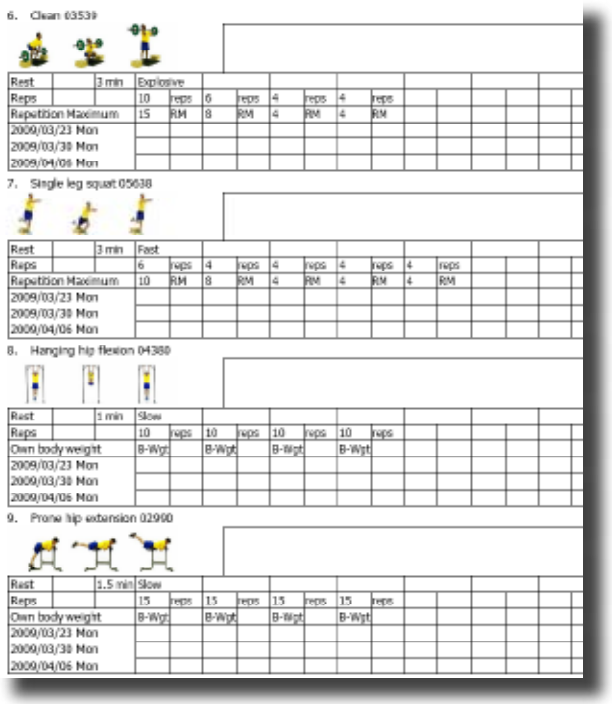
What are the key factors?
What is your primary aim for the exercises in the programme?
The questions you have to ask yourself when looking at the exercises as a coach or the specialist designing the programme are the following:

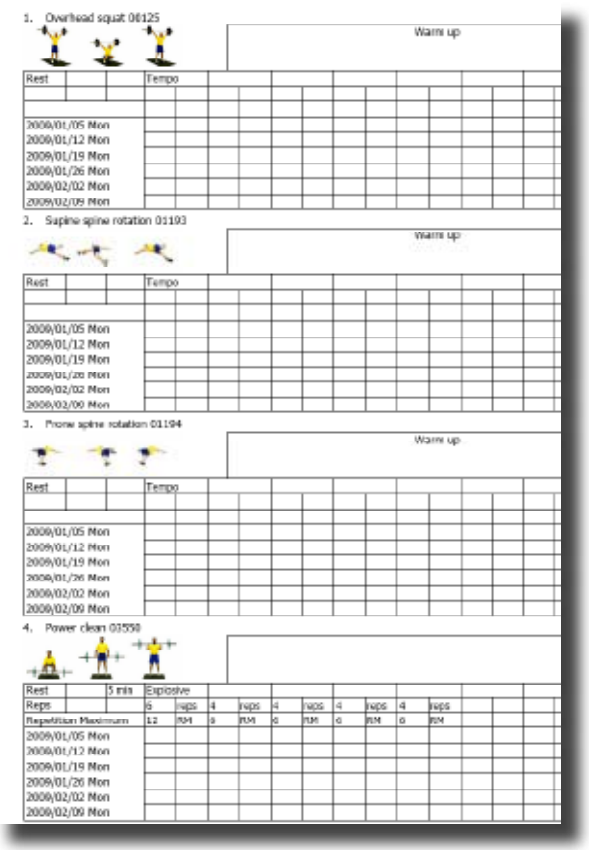
1. What is my intended goal with this exercise?
2. Does this exercise fit in with the goal of the programme?
3. Is this exercise really necessary?
4. Does the effort and time I put in justify the results I will get?

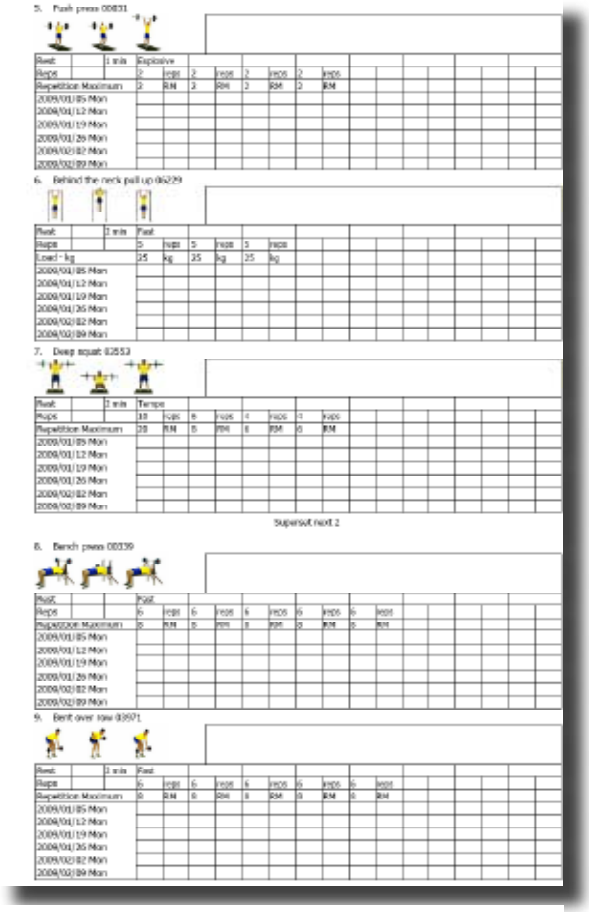
In other words, the designed strength and conditioning programme has to be goal specific and NOT sport specific!! If your goal is to be a better golfer, go and train golf! If your goal is to be more powerful as a golfer; go and train for POWER! If you want be a better swimmer go and swim! If you want more strength as a swimmer, train for more strength!

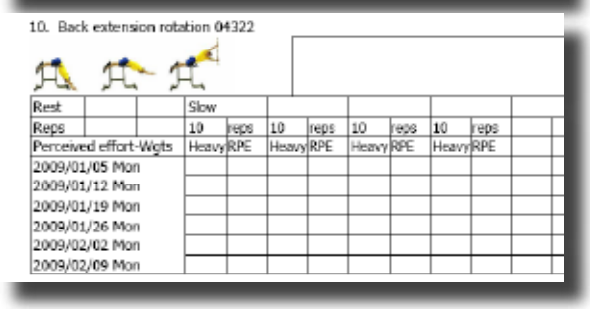
Below you will find an example of Godfrey Mokoena's conditioning programme. He is the long-jump Beijing Olympic silver medalist who recently, on 4 July '09, did a personal best with an SA and African record of 8.50m in the long jump. This is his programme during a strength and power cycle, note: there are no funny jumping exercises or jumps in unstable environments on balls; the prescribed exercises basically entail lifting heavy weights really fast.











You can now compare Godfrey's programme with Olympic Swimmer and World champion Gerhard Zandberg. Both Gerhard and Godfrey require high levels of strength, power and speed. Godfrey competes in a lower body dominant sport and Gerhard in an upper body dominant sport.

You will notice that in Gerhard's programme there are basic strength movements, no exotic magical movements, you will also notice that even though they do two vastly different sports their programmes are very similar because their goals are similar in the two phases of strength and power.

11. Hanging hip flexion 04380

Rest		2 min	Slow																
Reps			10	reps	10	reps	10	reps	10	reps									
Perceived effort-Wgts			Heavy	RPE	Heavy	RPE	Heavy	RPE	Heavy	RPE									
2009/01/05 Mon																			
2009/01/12 Mon																			
2009/01/19 Mon																			
2009/01/26 Mon																			
2009/02/02 Mon																			
2009/02/09 Mon																			

Just as a matter of explaining what makes these athletes special in their strength training. I will give you an example of what they actually do with some of the following exercises given below. I will start with Godfrey.

Single leg squat 05638

Godfrey does the above exercise with 130kg on his back for 4 repetitions, he only weights 74kg.

Power clean 03550

Gerhard does this exercise with 110kg for 4 repetitions. For power-endurance he completes it with 77kg for 40 repetitions explosively! He is just over 2m tall which makes this exercise especially difficult for him.

Performing these exercises at the level these athletes do takes unbelievable focus, determination and strength. Both these athletes have reached the top level in their sport and the programmes you see have helped them get there without using "sport specific / functional" exercises as the primary focus. They also do pilates type exercises and what can be called, against my will, "functional strength exercises" but those exercises are only supplementary to their main goals of increasing strength and power.

In conclusion, if you want to become better within your sport:

- Train your sport first and foremost
- Analyze the needs within your sport and your own physiology
- Determine your goals according to that analysis
- Then if you discover you need more strength, power, stability, core strength, speed, endurance or flexibility, choose the 2 that will improve your performance the most
- Make those 2 your MAIN focus for the next season with any other components being the secondary components.
- Make sure your programme addresses the 2 components in their purest form for maximum results.

The "magic" happens in the combination and in the intention of the execution. This is the magic ingredient that needs to be added to anything that you do - if you execute each exercise with the correct intention and focus; that is when you will achieve the desired results and success.