OverSpeed Training: The Most Effective Method for Training the Most Valuable Physical . . .

The ultimate goal of top experts and athletes around the world is to organize the training process to be as close as possible to the competitive effort and even to a level beyond that. Reaching those levels is possible in two ways: The most natural is to put the athletes in the company of strong rivals as this transforms each drill into a furious competition. The other way is more interesting for coaches, experts, and athletes because it involves raising the talent level in a situation where there is an absence of strong rivalry. In these cases the athletes improve mostly because of the system of training, as they do not have the luxury of the natural selection that comes from the strong competitiveness of even level athletes.

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Putting athletes in the company of strong rivals is applied much more often in countries with larger populations, and systematic training is preferred by smaller nations because they suffer from a smaller number of talents to choose from. Lets take an example from the two most popular sports in the world: soccer and track & field. Our statement that these are the most popular is based on the fact that the world federations of these sports are the largest international organizations ever. With more than 200 member countries, they are larger than International Olympic Committee or even the United Nations.

n the sport of soccer, the greatest amount of success in the World Cups and Olympic Games has been achieved by the largest countries (from 60 to 165 million population), like Italy, Germany or Brazil. On the other hand, great achievements have also been realized by smaller countries (less than 30 million population), like Argentina, Uruguay, Holland, Hungary for the men's soccer). On the women's side were successful large countries like USA (285 million), China (1.25 billion) or relatively small countries, like Sweden (8 million) or Norway (4 million). These examples confirm that larger countries can rely on the number of talents, when the smaller ones don't have that luxury and they have to find a way to compensate for that smaller number. The truth is that experts need to study both ways, because the clubs, the universities and even the high schools are pretty much in the situation of the smaller countries in they have to deal with a lot of clubs and schools, who want to recruit the best talents. Therefore, we do not only have to recruit and chase the best talents, but at the same time we have to produce and develop them. The level and competitiveness at these soccer tournaments is getting so high and the number of talents less and less for such a level so the only way to provide a constant flow of good players is a well structured system all the way from beginners to top-level international players.

In the sport of track & field, for example, sprinters of the USA are good because if you want to reach the international level you have to overcome large numbers of excellent sprinters and those who survive such strong competition will be great. In the1968 Olympic Trials in Eugene, Oregon, the best European sprinter, Roje Bambuke from France, broke the European record, and still only qualified 28th. That day the first three finishers, all Americans, ran for the first time in the world, a 100 m dash under 10 seconds. In this case the major reason for such domination is the size of the American nation and the fact the sprint is a popular event in this country. In other words, the atmosphere allows the American coaches to acquire great experience in work with the sprinters.

On the other hand, sprinters from smaller countries or counties where it is not as popular as it is in America, are also able to win the highest possible awards at the World Championships and Olympic Games. In the modern era, the Italian sprinter Pietro Mennea held the World record in 200 m dash for almost 20 years and won the Olympic games, coming from a country which doesn't have any traditions in the sprints. 1972, the Soviet sprinter Valeri Borsov, shocked the world, winning 100 and 200 m dash in the Olympics. The same for Haizly Crawford from Trinidad & Tobago, in 1976, winning the Montreal Olympics in 100 m dash. All of them are examples for brilliant set up and execution of system of training and preparation. Other examples are the distance runners form East Africa, like Kenya or Ethiopia, where every workout is a survival of the limits of the speed that they can handle. That's why every major international track event contains their strong presence and they play a major part in the placements and rankings between the top runners. In the absence of large numbers and strong competition a system of training is important in the development of athletes.

Roger Bannister is an example of improvement through a system of training. In 1954 he was the first to break the 4 min barrier in the 1 mile run. He achieved this by cutting the mile into pieces of 100 m, 200 m, and 400 m and then running those pieces in his training. As he improved his times in those pieces he began to improve his time in the 1600 m distance of that event. They are the product of a systematic approach to training that enables them to develop the talents they have available.

Then, you have a situation like the Dream Team of basketball that wins the Olympic games effortlessly because of the exclusive competitiveness of the NBA. Next to them we can put the wonderful soccer players from South America, whose magical skills are reason for tearful joy for the fans. With this brilliant technique they have won half of the World Cups for men and when they don't it is not a matter of skills, but a matter of organization and other non-soccer factors. All these cases just show there is a large variety for the way athletes can get to the top. But looks like all individual cases on base of clubs and schools most of all need a system to transfer a good athlete into an excellent one.

It is wonderful when you have case where there are a number of good athletes in each event. In this case the coach enjoys the limitless intensity that each one of them demonstrates. There is no doubt that he who survives this training environment will be great. You may ask, but who has the greatest potential in the group? Maybe with another system someone else could reach higher results. Even unanswered, this competitive situation is the reason many potential talents are lost in the early stages, but, who cares when we have the champion? However, in such high level of sport today it is well understood that very rarely do we have the luxury of such an abundance of talent. Most coaches, with a great deal of effort, try to develop the athletes they have in their hands to the highest possible level. In this case, the most important task for the system is to develop the natural physical qualities of the athletes to the highest possible level. There are five major qualities: speed, agility, strength, endurance and flexibility. The most important of them all are speed and agility. We will take the risk to say that lately agility is even more important than speed for most sports and especially the ball games, such as soccer, basketball, volleyball, tennis, baseball, ice and field hockey, team handball and so on. The fact is that the best ball player is not the fastest on the team, not the strongest, and not the one who has the best endurance or flexibility, but rather the one who can apply these qualities in the most effective way according to the game situation.

The best and most common way to train athletes is to make their practice as close as possible to the competition. This doesn't mean only with respect to energy and time but also to intensity. Intensity is the most manageable from a scientific point of view rather than volume because to determine the cutting edge amount work done (volume) it is necessary to apply a number of complicated tests. Blood analysis is one way to figure out the lactic acid level which is a good indicator of the state of our athlete on any particular day. At the same time, intensity is easier to control because the organism of the athletes, age 12-25, can completely recover from stressful intensity practice after a minimum of 7 days. This is the base of overspeed training.What is OverSpeed?

OverSpeed is when athletes move the whole body, or parts of the body, with speeds higher than the competitive speed. Even now when sprinters, the synonyms of speed, train they mostly try to run pieces of 30-50 yd. During this kind of practice, they usually accelerate to gaining the maximum speed possible and then try to maintain this speed for the distance mentioned above. In other words, they try to maintain the highest possible speed for as long as it is possible. In doing this, they try to extend the barrier as far as possible. After many repetitions it will be possible. The problem is the fact that the athlete will not always be in his best condition when the coach is trying to get him to run these maximum speed pieces. Eventually the athlete will be running with a speed lower than his best, which means such a practice is a waste of time and doesn't provide any gain. The necessity of running 30-50 yd pieces with maximal speed comes from the fact that even top world sprinters cannot run their fastest for even such a short distance as 100 meters, which lasts around 10-11 sec for the best men or women. Usually they are gaining speed up to first third of the distance, then in the second third they are at the level of their fastest, and in the last third, close to the finish they are a little slower than in the second one. This fact is due to the complicated biochemical and physiological processes of the human body. This is a rule, we cannot change the time in which the athletes are capable of producing maximum intensity work, but, what we can change is the production, what they can deliver, for this physiologically limited period of time of maximum intensity work. This will be possible only if we can provide the kind of practice for the athlete where they have to move with the highest possible or even faster than that. Only in this situation can we activate most all of the motor units of the working muscles in synchronized work and in special circumstances we can even recruit new motor units. These special circumstances are when we can put the athletes to run faster than they are capable of. How much faster? Practically, now it is possible up to about 20% faster, which is a great improvement over the highest possible. That means the athlete, who is capable to run 40 yd for 4.90 seconds will now be able to run the distance for 3.9-4.0 seconds. How can that be provided? So far, we know three different ways, with possible variations.

The first of them is running downhill, when the acceleration of the body mass provides the desirable overspeed at the bottom of the hill. The variation in such an organization is a manageable ramp, where purposely, with the help of certain device, we can change the inclination of the ramp. This is more comfortable because the coaches can manipulate the incline up to degrees they need to. But this is extremely expensive and difficult to build. Besides, it is possible to train only a few individuals at a time, but not large teams. An important consideration is that such a device provides very limited abilities for training agility.

The second way to provide overspeed training is if we use a device to pull the athlete in the direction of the movement. It's usually an electronic device, with control over the speed, to use on a track. The problem of this approach is that a coach cannot engage more than one athlete at the time and such equipment, which is necessary to be heavy, always has to be moved on and off the track. In other words it takes a lot of time and effort to organize this kind of practice and it

is also very expensive

The third possibility is using the elastic qualities of various rubber bands, stretch cords, bungee cords. In this case we can tie with bungee cords hooked to the waist belts of two athletes, who are very close with respect to top speed and body weight. With this organization we can train as many athletes as the area can fit.

It's necessary only to have about 2 yd distance between each pair for safety. It means that the narrow side of soccer field easily can handle 30-35 pairs, basketball 7-8 and so on. All these numbers far exceeds the number of players on respective teams. And this is if you exercise them at the same time. If the coach decides to alternate them, which most of the time is necessary for rest, the number of the people can be doubled. Some requirements for better training of the athletes include:
- Bungee cords or the rubber bands to be capable for comfortable stretch up to double length. The waist belts to be made in a way easy to move the position of the hook, allowing drills for agility.
- Stretches of the elastic part of the equipment to be gradually improved, providing safety transition to the overspeed effort

It's understandable that our athletes, from earlier examples, with best times of 4.90 sec at 40 yd dash are put in a situation more often (every week) to run these distances for 3.9-4.0 sec, after a period of time practicing in this way, without any doubts, they will run 40's faster than 4.90. How much faster?For period of 12 to 16 weeks, depending on how many practices per week of 2 or 3, also depending on the age and level their improvements will vary between 0.3 to 1 seconds.

This is the bottom line for relatively good athletes. It's possible for much bigger improvements for most of the people, who haven't done this kind of work before.

The improvement of speed in one direction is not the only benefit from this kind of training. Far more important, we can say priceless, for ball game sports, is that the athlete can be trained with quick switches of direction, and they can be gaining the highest possible speed in a new direction for an extremely short period of time. In other words, on the base of overspeed, this kind of training can affect one of the most unknown ways for improvement of the class of an athlete. This is the least studied physical quality in sport. Even the definitions for agility are very controversial. In our opinion, agility is a physical quality, which allows the athlete for multiple switches of direction of movement of the whole body, or parts of the body, in the quickest manner with the ability to generate the highest possible speed in the new direction for the shortest period of time. Therefore, the practice with elastic resistance can be very beneficial, particularly in the area of switching of direction and the development of greater acceleration. In other words we rely on the elastic qualities of the material to create not only circumstances for training of the overspeed, but also for overspeed agility. The most important part of overspeed agility training is that this can be made specific for each sport by implementing the competitive drills for any given sport into the training. This could be dribbling, head balls, jumping, and running in different directions and even better it can be done with a partner.

With the specificity of the movement, overspeed agility is the most efficient way for building the bridge between the other parts of the conditioning of speed, strength, endurance, flexibility and the competitive efforts. We already had the chance to mention that the strongest, the fastest, and those with the greatest endurance are not necessarily the best. The best one is usually the athlete who can use these qualities in the most effective manner when he/she competes. In contemporary sport there is no better way to develop the athletes potential to the limits, than using this system for developing overspeed agility.

We thank Galia Tzvetkov for allowing us to share this article with our members. Please visit their website at www.overspeedtraining.com