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Specificity in Strength Training - The Facts and Fables

Do not be misled… and you can be, on the subject of specificity.

There are no degrees of specificity… either you have it, or you do not. A movement is either utterly specific, or it is not specific at all.

This being true, as it is, it obviously follows that the only possible way to produce specificity in anything is by performing the act itself. In effect, the only possible specific training for basketball is the act of playing basketball… the only possible specific training for swimming is swimming itself, and so on.

Strength is general, and contributes to any activity… but the applied demonstration of strength is specific. Learning to apply your strength properly in any activity requires skill training… not strength training, but skill training can come from only one possible source, the practice of the sport itself.

If it were possible, which it is not, to design an exercise in such a way that it was nearly specific, then the use of such an exercise would hurt you far more than it could help you. And the closer it came to being specific, the worse it would hurt you.

All intelligent coaches are clearly aware that practice carried beyond a certain point is of no value… that it may actually produce a reduction in skill. Why? Simply because a tired athlete changes his style of performance. He begins performing his movements differently, as he must to compensate for his reduced strength, the unavoidable result being that he learns two or more styles of performance… a fresh style and a tired style, so to speak.

He forms two or more sets of motor memories, which inevitably leads to confusion… and his performances suffer as a result.

One of the oldest tricks in the world of sport, if bullfighting can be called a sport, is directly related to specificity. The night before a bull is to be fought, his horns are shortened by approximately a quarter of an inch… the next day, before he has become accustomed to his shorter horns, he goes into the ring to fight and die.

And there stands the brave matador, being barely missed by the enraged bull… being missed by one-quarter of an inch, being missed by the amount of that bull's horns were shortened.

The bull knows exactly where the tips of his horns are, if he must use them effectively. Shortening his horns by as little as a quarter of an inch will cause him to miss his target entirely.

Did you ever get a grain of sand inside of your sock? It feels like a boulder and changes your entire style of walking or running… then, when you finally get it out, it turns out to be so small that you can barely see it.

True specificity is just that exact, and hitting or missing the target can easily be determined by far less than a quarter of an inch or a grain of sand.

While I am clearly aware in advance that the following examples will undoubtedly infuriate at least some of my readers; nevertheless, it illustrates my present point rather clearly… so I will use it.

I have been a hunter for nearly 50 years, for sport, as business, and in connection with wildlife conservation work… in this country, in South America, in India, in Australia, in Malaya, but mainly in Africa. During these years I have hunted just about everything that walks, crawls, swims or flies, from quail to elephant, including men.

I hunted for quail for sport and for food, killing them… most of the other animals were captured alive, for translocation to animal parks or for relocation with wildlife conservation work; such controlled hunting is called just that, control hunting… a carefully calculated thinning out of the herds when an overpopulation of animals reaches a point where the habitat itself is being damaged.

A given area of land can contain and feed a limited number of animals, and when the number of animals passes a certain point, then the habitat itself will be destroyed and all of the animals will die. So herds have to be thinned out, numbers have to be reduced… to save many animals, some animals must die. Some years ago in Africa, this was my job… and during that stage of my career, I personally killed more than 600 elephants, which, in that business, is actually rather small. When I moved back to this country from Africa, nine years ago, several men that I knew personally were killing at least 1,000 elephants a year, 1,000 each, every year for a period of many years.

This is certainly not sport and it is certainly not fun… it is, instead, outright butchery; even if, as happens to be the case, necessary butchery.

There is no stalking of lone tuskers, little or no danger to the hunters, no romance, no adventure… instead, you pick out a particular herd and then kill the entire herd, bulls, cows, juveniles and even babies. Remember, the idea is to reduce the number of elephants within a particular area; and this must be done by killing elephants of both sexes and all sizes in order to preserve a balance of sexes and sizes.

So you select a herd of 40 or 50 elephants, or more… and then, in something under three minutes you kill them all. When the shooting is over, the bodies are literally stacked up.

To a witness of such a slaughter, things happen so fast that the result is nothing short of outright shock… one moment a herd of elephants is moving slowly by, and the next moment they are all dead. The shots come so thick and fast, and the elephants drop so suddenly and in such numbers, that a man seeing this for the first time literally cannot believe his own eyes.

Two men who know what they are doing can kill an entire herd of 50 elephants in less than a minute… each man will drop an elephant approximately every two seconds… one shot, one elephant. And it must be done in this fashion… because, if the herd has time to realize what is happening, some will escape. Then, the next time they run across a man, perhaps a poor unarmed African on a bicycle… well, look out, elephants have long memories. So you must kill the entire herd and leave no survivors anxious to even the score.

I have been personally involved in such slaughters, on the shooting end, at least 30 times, and have been a non-shooting witness to another 50 or so slaughters… none of which experiences give me any prideful memories, but all of which actions were utterly necessary, even if unpleasant.

In such a situation, when the action starts, there is literally no time for thought… instead of thinking, you react, instinctively, in accord with your learned and practiced skills.

Afterwards, a first-time witness to such a slaughter will invariably ask you a certain question… a question I have been asked many times, and a question that I could not even begin to answer until recently.

“Where do you aim,” they ask, “in order to hit the brain?”

I never could answer that question because the aiming point is always different… if a big elephant is close, with his head high, then you might shot in the mouth… turned away, you might shoot behind the ear… facing you at an angle, in front of the ear… but never in the same place twice.

But I could never tell someone else where to aim… because, you see, I was not shooting at the elephant at all; instead, I was shooting at the elephant’s brain… and since it made no difference what part of the elephant was between my gun and his brain, I did not even notice the external part of the elephant where I aimed.

I knew where the elephant’s brain was located. I aimed at the brain, and the fact that my bullet had to pass through some other part of the elephant in order to reach the brain was utterly irrelevant.

And… you do exactly the same thing in any sporting activity; you do not think about it, you simply do it… there is literally no time for thought, so your reflexes have to be exactly right, exactly right.

For elephants I used a double-barreled .600 caliber rifles as long as I could get ammunition for it… then, I was forced to change guns due to a lack of ammunition for my old standby. I could not hit a thing at first; not while shooting as fast as possible, at least.

Why? Because my reflexes were attuned to an exact skill, with a certain tool… total specificity. The newer tool was supposed to be better, and it might have been more accurate from a bench rest position, but I certainly could not use it accurately while shooting quickly.

The point should not be perfectly clear… there is only one possible way to obtain specificity, by performing the act itself, with the same tool, in exactly the same manner.

An exercise that is nearly specific will simply mess up your skills… an exercise that is almost specific will have the same bad result. So do not try to be specific in your exercises… in any case, doing so is impossible, and the closer you come, the greater the danger of hurting your skill.

Build strength in the best way possible… with little or absolutely no regard to how that strength is to be used; then learn to use that strength to your greatest advantage in the only way possible, by practice of the sport itself.

Adding a few ounces to the weight of a basketball will do absolutely nothing in the way of increasing your strength for playing basketball… but it certainly will ruin your skill in basketball.

Adding a few pounds to the weight of a basketball will do very little in the way of increasing your strength… and it will still have some bad effect on your skill, although not as much as the previous example.

So it is obvious that the closer we come to having specificity, the worse off we are… until and unless we have total specificity, in which case we are simply throwing a normal basketball in our usual fashion, which will increase our skill while doing nothing for our strength.

Build the muscles that are involved in basketball, or any sport… and build them the best and fastest way you can; without trying to be specific, without trying to duplicate the action of the sport itself.

Anything else is insanity. Anything else will hurt you far more than it helps you.

If fly my own airplanes an average of nearly 1,000 hours a year, and I have now flown a total in excess of 23,000 hours over a period of nearly 38 years. I am still the holder of a current airline transport license… yet, this very day, when I flew a Cherokee 6 for the first time in about three months, I could instantly tell that my skill in that airplane was far below par.

I have owned three airplanes exactly like that one during the last twelve years and have a total of at least 3,000 hours of experience in such planes, but it still did not feel quite right to me after less than three months out of practice… even though I have flown other airplanes approximately 200 hours during that period of three months.

To build your skills… or even to retain your skills… you must practice any activity with total specificity. For the last three months I have been flying a jet only, and when I went back to the Cherokee 6, my reflexes were wrong… not wrong enough to get me killed, not wrong enough to keep me from flying the airplane safely, but certainly wrong enough to keep me from doing a perfect job of flying, wrong enough to make the difference between winning or losing any sort of contest of flying skill against an equally qualified pilot who has been flying the Cherokee regularly.

So flying the jet did not help me in flying the Cherokee… in fact, it hurt me, because it was slightly different… not greatly different, just slightly different. If the difference had really been great, then the jet experience would not have hurt my skill.

Years ago, I used to fly a heavy bomber and an earlier model Cherokee… and the experience in one did not hurt my skill in the other, because the difference was great.

I could belabor the point into the ground, and perhaps I already have… but I am concerned when I read claims being made that are apparently based on outright insanity, dangerous false claims, grossly misleading claims.

At this time (March 6, 1977), the entire field of strength training is up to its ears in myth, superstition, fear, doubt, ignorance, and outright lies… and while I make no claims that I know all the answers, at least a few simple facts are perfectly clear.

Specificity in strength training is an outright myth, an utter impossibility… and it is a good thing it is impossible, because it has absolutely no value in the way of increasing strength; and… anything approaching specificity is even worse, because it will do little or nothing to increase strength but it will hurt your skills.

Some of the same people who have been doing so much talking recently about the supposed advantages of specificity in strength training are also responsible for the spreading of other fables of equal value… in other words, no value.

A second such example concerns the best speed of movement during exercise. A third example concerns the supposed differences between so-called fast-twitch and slow-twitch muscles fibers.

You must move suddenly, they say… fast exercise produces fast muscles, they claim. Hogwash… pure unadulterated garbage, utterly false and dangerously misleading information.

It take heavy resistance to build strength… absolutely nothing else will do it. And… the faster you move, the lighter the resistance must be.

It is utterly impossible to lift a heavy weight rapidly… you can throw it, but you cannot lift it; and throwing weight will not build strength.

In an obvious attempt to mislead people who are not aware of the real facts, it has recently been stated that you must move rapidly during strength building exercises. Move at 136 degrees per second, they say, hoping to give the impression that such a speed of movement is fast… when, in fact, such a speed of movement is actually quite slow.

A fast athlete can move his limbs at a speed in excess of 2,000 degrees per second… something on the order of twenty times as fast as their so-called fast speed of 136 degrees per second.

But… he cannot do so while moving against resistance. Maximum possible speed of movement is possibly only when there is literally no resistance, against zero resistance. Then, if you add even a slight amount of resistance, the resulting movement will be slower. And the more resistance you add, the slower the speed will be… until, at last, when you reach the highest possible level of resistance, the resulting speed will be zero.

When maximum possible speed is being produced, then every slightest bit of the available strength is being used to accelerate the mass of the limb itself… and absolutely no remainder of strength is available to overcome resistance.

Then, if resistance is added, you must reduce the speed of movement… nothing else is even possible, and anyone who claims otherwise is either a fool, a liar or both.

So… since it is obvious that heavy resistance unavoidably requires slow movement, and since it is well established and beyond dispute that heavy resistance is required for building strength… it unfailingly follows that proper strength training literally demands a fairly slow rate of movement.

In the state of Florida, competing weight lifting is a sport at a the high school level… but, until five years ago, the DeLand, Florida, high school had never had a weight lifting team.

But they do now… starting from scratch five years ago, with no previous experience to go on while competing with other schools that did have previous experience. The DeLand high school team has now won 55 meets in a row. Never tied, never defeated, state champions during each of the last four years and apparently well on the way to repeating that unbeaten, untied record for a fifth year.

And how do they train? Primarily with pure negative work, performed in a very slow fashion, as slowly as possible. Such training builds raw strength. They then learn to use their strength by practicing the specific lifts involved in their sport; the bench press and the clean and jerk; the bench press being a fairly slow lift and the clean and jerk being a very fast lift.

If the resistance is heavy enough, then it does not matter how slowly you move during strength training exercises. In fact, if the resistance is as heavy as it must be for producing good results, then you will literally be forced to move quite slowly, very slowly.

The third fable being bandied about at the moment concerns the supposed differences between the so-called fast-twitch and slow-twitch muscle fibers. At this time, nobody knows anything of the slightest value on this subject.

When and if we are able to determine the facts in this matter, regardless of what facts may be, so long as they really are facts, then we will publish the facts in clear detail. In the meantime, however, if you are interested in fables, then you can read all sorts of stated opinions based on outright distortion, guesswork, and simple lies.

But what does science say? Quite frankly, almost anything you want to hear. The scientific community has largely deteriorated into a pure bureaucracy primarily interested in perpetuating itself; the name of the game being research grants… and, publish or perish, with little or no regard for the value of what is actually being published.

I am in favor of the stated purpose of science, an unbiased search for truth… unfortunately, as someone recently said, science is contaminated with people. Being people, it unavoidably follows that at least some scientists like money; thus, hardly a day passes that I fail to get at least one letter from some well known scientist offering his services in research in return for my money, of course… and they usually make it quite clear that the results of their research will exactly match my expectations.

In plain English, many scientists will lie for money… and quite a number of them are doing just that at the moment. Well, I need the help of such people as much as I need another hole in my head… so we closely supervise our own research with the cooperation of very carefully checked scientists who do not stand to gain a cent from their work in this field.

I personally do not believe that honest research can be done for money. And right or wrong in that opinion, I will not touch it with a ten-foot pole.

So we spend a great deal of money for research, far more than everybody else in this field combined, but that money does not go to pay anyone performing this research. We are interested in the simple truth, whatever it turns out to be, and it just happens that the truth has a way of hiding itself when money becomes involved.

At this very moment we are completing construction of a 90,000 square foot building, more than two acres under one roof, and this building will contain the largest and best equipped human performance laboratory in the world for the sole purpose of conducting large-scale long range research into every area of physiology related to human performance.

Some people would have you believe that they already know all the answers. Well, I do not claim to know any of the answers, and I am not even too sure about a lot of the questions. If I was, then I would not need to do more research… but since I do know the answers, we plan a great deal more research, literally as much as we have time and resources for. Perhaps some day we will know a few final answers… but in the meantime, we do at least know what works best in the present state of the art, and we know quite a number of things that do not work at all regardless of the claims made about them.

But even when research is conducted with a total lack of bias, which it seldom is… and even when research is conducted under the best possible conditions, it still follows, unavoidably, that a large part of the conclusions are tainted with subjectivity for the simple reason that the absolute facts are really never known.

Two years ago, in the direction of removing subjectivity (that is to say, opinion) from research, I started work on a totally computerized type of exercise… an exercise device linked to a computer in such a way that the computer would perform two functions; first, the computer will direct the athlete, telling him exactly what to do, how to do it, how fast to do it, how hard to do it, how long to do it… and, secondly, the computer will also make an exact record of what the athlete actually does.

For the first time in the history of strength training, we will be able to determine exactly what has occurred during training… and we will also be provided with an almost perfectly accurate record of the many changes produced by the exercise, the magnitude of changes, the rate of change, and many other important factors that previously involved a great deal of outright guesswork for the simple reason that no accurate method existed for measuring many of the changes produced by exercise.

Within another year at the latest, we will at last be able to conduct research in strength training that is utterly without bias… accurate to a degree almost beyond belief, and then… and only then… will it become possible to determine the final answers to many important questions.

But again… a present lack of final answers does not mean a lack of useful information. On the contrary, we do have a great deal of very practical knowledge. We know a number of things that work very well indeed, producing rapid and steady increases in athletic performances… and, we know a number of things that do not work at all, or work very poorly, and things that are dangerous and should be avoided entirely.

At the moment, in the world of strength training, some people seem to be suffering from a knee-jerk reflex. If I say up, they say down… if I suggest something is good, they immediately condemn it as being evil… if I say slow, they say fast, and so on. Whatever I say, they immediately say the opposite. Apparently being unable or unwilling to think for themselves, such people merely react… a knee-jerk reflex; I hit a nerve by pointing out the weakness of their previous statements, and they immediately jerk. So I would strongly suggest that you carefully investigate the real facts before attempting to make use of many of the suggestions now being put forth in the world of strength training.