Potential Muscular Strength

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So far as I can determine, the information contained in this article is being presented to the public for the first time… it is obviously of greater interest to millions of people, and could be of value to quite a few people; yet it is apparently totally new… which is strange, when the simple facts are closely understood and the implications are appreciated. Strange because the facts are so simple… and so obvious.

"How strong can I become?" Or… "How big can I get in muscular condition?" Two very common questions… and the clear, simple and undeniable answers to those questions have been in plain sight all the time. Now you can know… IN ADVANCE.

If the information contained in this article is absorbed properly, then you can predict your potential muscular mass with a high degree of accuracy… and since a muscle is strong in proportion to it size, you can thus predict your potential for muscular strength as well.

BUT REMEMBER… 'muscular strength' is only one of several factors involved in 'usable strength,' so the other factors will also have to be considered for any sort of accurate prediction of your eventual level of actual ability.

HOWEVER… since skill and muscular strength are the only two factors that you can improve, it is clearly of some value to be able to predict even one of these factors.

Stated in the least number of words… "the length of a muscle determines its potential mass, and thus its potential strength."

In effect, if you know how long a muscle is… then you know how big it can become, and thus how strong it can become.

BECAUSE… the diameter of a muscle is limited by its length… and the cross-sectional area is determined by the diameter… and its cross-sectional area is directly related to the strength of a muscle.

The entire answer to how big and how strong a particular muscle can become is contained in the three brief statements directly above. Some people, upon reading those few words, will understand the simple cause and effect relationship involved in this situation… and some people won't; a few people will undoubtedly try to deny that such a relationship of length to potential mass even exists… and some people who do understand the simple facts, and who are thus forced to face the obvious implications, will hope that no such relationship exists.

BECAUSE… when they do understand the facts and appreciated the implications, some people will then be forced to face the fact that they will never be able to produce greater than average muscular mass.

For as long as I can remember, people have been aware of the so-called "Negroid calf"… and such lower legs are usually called "high calves," meaning that the bulge of muscle occurs just below the knee and does not extend very far down the leg.

But think about it for a moment… such a calf is not "high"… instead, it is short.

And being short, it can never be very wide… because the upper limits of width are determined by length.

Which does not mean that a man with such legs can never increase the size of his lower-leg muscles… but it does mean that his lower-legs will never be as large as they could have been if the muscles were longer.

A common myth attempts to relate the size of a man's bones to the potential size of his muscles… and some men with larger than average bones also have larger than average muscular size, but they also have LONGER than average muscles. And many men with rather thin bones, but long muscles, display far above average muscular mass.

And it is also common to see a man with some muscles that are relatively long and other muscles that are short… which simply means that some of his muscles can become quite large, and some cannot.

All of us make use of information that we cannot explain… we are clearly aware of something, but cannot put it into words; cannot justify a known fact. For example… can you describe a smile? Certainly not. Yet you recognize an almost infinite variety of smiles… and act upon the information thus obtained.

For at least twenty years I have been clearly aware that I could recognize the potential for great muscular mass… but until recently, I had no slightest idea how I could do it. I didn't know what I was looking for… yet I recognized it for what it was when I saw it.

I was looking for shape… or, in fact, a 'lack of shape.' And I knew it when I saw it. Subconsciously, I was aware that certain shapes are possible… and that certain shapes are not possible.

A number of years ago a certain self-confessed expert on snakes told me about a snake that he had measured and weighed; and since he tries to make a point of being very 'scientific' with his statements, he quoted both length and weight in metric figures… hoping, I suppose, to impress me, but failing to realize that I had spent a number of years in South America and was very familiar with the metric system.

And since the weight that he quoted was 40% above the maximum possible weight for a snake of the kind and length that we were talking about, I called him a liar. "If you told me that you heard that length and weight from a third party, and believed both figures," I told him, "then I would tell you that you were mistaken. But since you insist that you personally measured and weighed the snake, the only possible conclusion that I can reach is that you are a liar. Because that is an IMPOSSIBLE weight for a snake of that length.

The point of which story is that I was clearly aware even then that some shapes are possible… and some shapes are IMPOSSIBLE; or, at least, I was aware of this in relation to other animals, but had not knowingly used this knowledge in relation to men.

Many years earlier, I read an account written by a famous South American explorer in which he claimed to have killed and measured an anaconda more than fifty feet long. But he made the mistake of adding that it was "very thin, less than a foot in diameter." So I was forced to call him a liar also… because a snake of that type and length would have a bony structure more than a foot in diameter.

Fifty feet, of course, is an impossible length for a snake of any kind… but even a very thin anaconda of that length would have to be at least two feet in diameter. Think about the stated relationship of width (diameter) to length for a moment… he said MORE THAN FIFTY FEET and LESS THAN ONE FOOT… but even if we did give him the benefit of an undeserved doubt and deal with the figures of fifty feet for length and one foot for width, it is then obvious that this snake supposedly had only 'one unit' of width for each 'fifty units' of length,, or an aspect ratio of fifty to one. An IMPOSSIBLE SHAPE.

The head of a fifty-foot anaconda would be over a foot wide… and large anacondas are noted for their thick-set proportions, with a body much thicker than their heads.

My point being, again, that I immediately recognized that such stated measurements were literally impossible… because they would have produced an impossible shape. AND AGAIN… I was well aware of the importance of 'possible shape' in animals, but failed to apply the same obvious rule to humans. Or, at least… failed to realize that I was applying it to humans.

The term ‘aspect ratio’ relates to the shape of an object… a picture, a man, a snake, or a building, literally anything… it simply means the relationship of length to width, which relationship produces shape.

A square of any size has the same shape… because its aspect ratio is one-to-one, one unit of width for each unit of length. Pictures usually have an aspect ratio of four-to-three… meaning that they have four units of width to each three units of height… and thus the shape of most pictures is the same, regardless of their actual size. Which shape is not the result of an accident or arbitrary choice… but, rather, a shape that was carefully selected as the ‘correct shape’ of a picture many hundreds of years ago, because it is the shape that appears ‘natural’ to the human eye.

“Function dictates design”… and design dictates shape… and some shapes are literally impossible for a living organism, because they are not a functional shape.

There is, of course, a certain area of allowable deviation in functional shape for an organism... that is to say, given a stated length then there is a MAXIMUM width that cannot be exceeded and a MINIMUM width that sets the lower limit.

This rule applies to the length of a man’s head in proportion to its width… or the width of his shoulders in proportion to his height… or the width of a muscle in relation to its length.

Given a particular length, then a muscle cannot exceed a certain width… and since the width of a muscle (its diameter) determines its cross-sectional area… and since a muscle is strong in proportion to its cross-sectional area… then it unavoidably follows that the length of a muscle limits its potential size and strength.

NOT THE LENGTH OF THE LIMB… but the length of the muscle itself. Some men have long limbs but short muscles… other men have short limbs and long muscles.

And if you meet a man with short legs but long leg-muscles, then you are looking at a potential superman. Because he has the potential for great muscular mass and strength… and he also has the advantage of favorable body proportions. And if it happens that he is also neurologically superior… then sign him up for any sport that can be helped by strength of the legs and lower back.

I do not know the exact ratios involved in the possible aspect ratios of human muscular structures… but I can recognize a ‘long’ muscle when I see it, or a ‘short’ muscle… because the shape is different.

A long muscle has very little ‘shape’… if we judge by contemporary standards. For example, the largest muscular arms that I have ever seen on a human being belong to Sergio Oliva… they are so big that, viewed closeup in person, they are almost unbelievable… but they have no ‘shape.’ Sergio cannot knot his biceps into a high peak… because it is too long. And his triceps totally lacks the normal horse-shoe shape when it is flexed… because it is too long. Too long for shape. A length of muscular structures that make shape impossible… but a length that gives him the potential for at least three times as much mass as an average man of his height.

Careful measurements of thousands of men would be required to clearly establish the possible aspect ratios of human muscles… and I have neither the time nor the opportunity for such a lengthy study; but eventually it will be done… and if it is not done properly, it will then become impossible to accurately predict the potential muscular mass of anybody’s muscles, simply by measuring the length of his muscles.

But the present lack of such information does not make the knowledge that I am presenting here of no current value… on the contrary, if a few simple points are clearly understood, then almost anybody can make very practical application of this knowledge.

BUT REMEMBER… even when you learn to recognized a ‘long’ muscle when you see one, it does not follow that such a muscle WILL BE larger than average… but, rather, that it CAN BE larger than average. Its POTENTIAL size is greater than average… but its actual size will be determined by the type of exercise employed.

Even a slight increase in the length of a muscle would make a very significant increase in its potential mass… that is to say, if a particular muscle is only slightly longer than average, then its potential size will be far above average. Because the increased length would be on a linear scale, while the resulting increase of potential cross-sectional area would be on a geometrical scale.

For example… if a muscle was four inches long, and if its maximum cross-sectional area was twelve square-inches, and its weight at that size was one pound, and its pulling strength was 560 pounds of force.

If we doubled the length of that muscle, we would increase the other factors as follows… the muscle would be twice as long, now 8 inches, an increase of 100%… but its cross-sectional area would be 48 square-inches, an increase of 300%… and its weight would be 8 pounds, an increase of 700%… and its pulling strength would be 2,240 pounds, an increase of 300%.

In normal men of the same height, I would be very surprised to find an actual variation in muscle-length of 100%… but I have seen several examples of variation in muscle-length of 100%. And the resulting increase in potential muscular mass from an increase in length of 50% is far greater than might be supposed.

If a muscle is 50% longer, then it CAN BE… 225% as strong as the shorter muscle… and if it was, then it would be 337.5% as heavy.

Thus it is also obvious that a man with longer than average muscular-length stands to gain more from exercise than an average man does. Because there is a greater difference between the 'non-trained' size of his muscles and their potential size.

For several years now, I have been working with one subject that has an outstanding degree of muscular potential, Casey Viator… but even as recently as a year ago, I was not aware of the actual factor that gave him such great potential. But now I am.

Most of Casey's muscles are far longer than average… and a few of them are really exception in length. His forearms, for example, are simply beyond comparison to those of most men… while the average man's forearm muscles stop several inches above the wrist, Casey's extent almost to the wrist.

His triceps muscles of the upper-arms are another example of far longer than average muscles. On the average man's arm, the rear 'head' of the triceps muscle is located little if any below the mid-point of the upper-arm… but this part of Casey's triceps runs almost the entire length of his upper-arm, to just above the elbow.

If the average man's upper-arms are developed close to their maximum potential size, then two heads of the triceps will be fairly close to a line drawn across the mid-point of the upper-arm… and the resulting shape will give the classic 'horse-shoe' appearance to the back of the arm when the triceps muscle is flexed with the arm straight.

But Casey's triceps muscle are so long that this arms do not have that expected shape.

And after I finally realized just what it was that gave the potential for great muscular mass, I also realized that I have never seen a man who had unusually large arms… and who also had much if any 'shape' to his triceps.

And since the triceps muscles constitute most of the bulk of his upper-arms when the muscles of the arms are all fully developed, it suddenly occurred to me that a man can have only one or the other… BUT NOT BOTH. He can have larger than average muscular arms… or he can have the classic horse-shoe shape to his triceps… but he cannot have both.

Because… if his muscles are short, then he will finally develop a typical horse-shoe to his triceps, but his arms will never be unusually large. And if his muscles are long, then he can develop great size in his upper-arms… but he cannot ever expect the typical shape; for him, such a shape is simply impossible.

It should also be understood that having one long muscle does not mean that all your muscles will be long… Casey, for example, has long triceps and long forearm muscles; but his biceps are only slightly longer than average. Thus he does have a typical 'peaked' shape to his biceps when they are flexed.

Sergio Oliva, by contrast, has both long triceps and long biceps… so he has no shape (no 'expected shape') in either triceps or biceps; but he does have the potential for far greater than average muscular mass… and he also has by far the largest muscular arms that I have ever seen on a man, even though he is less than 5 feet 10 inches tall.

If an average-length muscle is developed to its maximum potential size, it will certainly be very impressive when compared to an average muscle that has never been developed, and it will look 'very large' to the untrained eye… but by comparison to the longer-than-average muscle that has also been developed to its maximum potential size, it would look very small.

I mentioned earlier that some people will attempt to dispute the facts that I am presenting here, will try to prove that no such relationship between length and width exists… but by so doing, they will not be disputing my statements; instead, they will be attempting to dispute physical law… I did not 'create' such a relationship, I merely noticed it and recognized both its existence and its ramifications.

I also mentioned earlier that some people will 'hope that I am wrong'… because the knowledge gained here will make them aware that they, as individuals, can never develop an outstanding degree of muscular mass.

People with long muscles will probably welcome this knowledge… and individuals with short muscles will undoubtedly have an opposite reaction. Such is human nature.

But in fact, in a rational world, such knowledge should be appreciated by anybody… it should spur the fortunately endowed individual on to greater efforts in his training… and it should remove the frustration resulting from lack of progress beyond a certain point in the case of an individual with short muscles.

You can NOT increase the length of your muscles… so you either have the potential for great muscular mass, or you do not have it… and in either case you now have some sort of reasonable guideline that can give you a clear idea of your potential size in advance.

I personally do not believe that any single individual ever reached the absolute limit of his potential muscular mass… even men like Casey Viator and Sergio Oliva could be, I think, even larger. Some men undoubtedly have reached the maximum size possible for one or another of their muscular structures; but I have never seen a man that I thought was beyond improvement in all areas.

But it should also be understood that I am not of the opinion that an absolute maximum degree of muscular size is even desirable… I am merely saying what is POSSIBLE, not what is DESIRABLE.

In some sports activities, maximum muscular size and strength would be an advantage to an individual… or, at least, maximum size and strength in some areas of the body. In other activities, such size would be a disadvantage.

Almost anything can be an advantage or a disadvantage… depending upon need. Money is certainly necessary in the real world… at least a certain amount of money, the amount that is actually needed, the amount that can be put to good purpose. Beyond a point of need, however… money can become a burden; a burden that many people would certainly welcome… primarily people who are interested in impressing others, in this case interested in impressing other people with their great wealth.

A high percentage of bodybuilders fall into a similar category in their thinking, in their attitude towards muscular mass… they have no slightest need for a greater muscular mass or strength; they are interested only in impressing other people… and thus they want as much muscular mass as possible, "the more the better," or so they think.

And when they fail to reach the size that they have set as their final goals, they frequently become unable to admit this failure even to themselves… so they lie about their muscular measurements; utterly failing to realize that they would literally look like a distorted freak if they actually had the measurements that they claim.

MORE THAN THAT… if they actually had such measurements, then they would not only look like a distorted freak, but in fact they would be a distorted freak… the resulting shape produced by such measurements would make their muscles NON-FUNCTIONAL.

FORTUNATELY… such shapes are impossible, because the size required for such shapes is impossible. Such shapes are beyond the upper limits of possible variation.

Many athletes, and many coaches, are convinced that the actual sizes and shapes attained by some bodybuilders are in fact 'non-functional'… but that opinion is in error. It is utterly impossible to increase the size of a muscle to the point that it is non-functional… maximum size may not be required, and the weight resulting from maximum size might well be a disadvantage in some cases, but a muscle will always be able to function regardless of its size… and the larger it is, the better it will function. 'Better,' at least, in the sense that it will be stronger… and all else remaining equal, greater strength will always improve any ability.

Then, too, a great deal of confusion exists on the subject of 'size'… actual size must not be confused with 'muscular size'… part of any muscular structure consists of fatty tissue, and the higher the percentage of fatty tissue the lower the functional ability. So a large, but largely fat, arm will not be anywhere near as strong as you might expect from its actual size… strength is determined by muscular size, fatty tissue contributes nothing to strength but can restrict movement, and does add the burden of non-contributing weight.

A certain percentage of fat is a requirement for normal function, since fat serves several purposes… but beyond a reasonable level, the addition of fatty tissue will tend to lower the functional ability.

Bodybuilders frequently go much too far in their efforts to reduce their percentage of fatty tissue… but athletes sometimes go too far in the other direction, adding fat instead of muscular mass. But there is a simple guideline to follow in this instance… if additional weight increases your performances, then it is desirable; and if it reduces your performances, then it is not desirable.

Judge 'desirable weight' on the basis of the weight that results in the highest level of functional ability… and let the actual weight be what it may. Which simply means that you cannot set an arbitrary 'best weight' for an individual.

Men are not 'equal'… neither actually nor potentially; they are not equal in bodily leverage… not equal in neurological efficiency… not equal in potential muscular mass and strength. Not even equal in potential skill.

Some of those factors cannot be improved… but two of them can be, skill and muscular strength. Most athletes devote a great deal of time and efforts to attempts to improve their skills, and they should… but they frequently make the mistake of almost totally neglecting the other factor that can be improved, their muscular strength. The result of such neglect being a loss of potential ability, a failure to reach a level of performance that could have been attained with the assistance of a properly conducted program of strength training. Many men become 'super' athletes with absolutely nothing in the way of formal strength training… but they would have been even better athletes with it. In fact, as mentioned earlier, a man that has reached the top without strength training actually has more to gain from it than an average man does.