

# The Future of Exercise (1997 and Beyond)

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# The Importance of Genetics

What you can be, in a physical sense, was determined before you were born, by your genetic potential; what you will be is determined by your environment and your experiences. So your future physical size and ability can be influenced in some respects, but not in others. Given the genetically determined physical potential of the average man, he has about as much chance of becoming Mr. America as he does of flying by flapping his arms. Becoming Miss America is equally difficult and requires physical potential that probably exists in one woman out of an average 100,000 women. Almost anybody can produce an enormous level of physical improvement as a result of proper exercise, but final results will not be the same in all cases. The fact that somebody else produced a certain level of physical size and strength does not mean that you can duplicate their results. Unusual levels of muscular size or strength are certainly a result of exercise, but are also a result of genetic physical potential that is actually quite rare. Playing any amount of basketball and eating Wheaties will not get you a job playing for one of the NBA teams. If that is your ambition, then you should go back and reselect your parents so that you are close to, or in excess of, seven feet tall. But since that is impossible, all you can do is to produce the best results that are possible given your individual genetic potential.

In some cases, the potential for the development of an unusual level of muscular size can be recognized at a glance; assuming only that you know what to look for and recognize it when you see it. For example: individuals with the potential for the development of unusually large muscles in the forearms invariably have very long muscle bellies and relatively short tendons near the wrist, while people with longer tendons and shorter muscles have far less potential for increased muscular size. The following photographs illustrate these differences very clearly.



In the photograph to the left, both of the men whose forearms are shown here had developed their forearm muscles very close to the maximum size possible, yet the differences in size are obvious at a glance. The largest forearm shown here had unusually long muscles and very short tendons, while the other forearm had long tendons and short muscles. People, both men and women, who have unusually large muscles in their lower legs invariably have long calf muscles and short Achilles tendons.

Blacks usually, but not invariably, have relatively small calf muscles; when this is the case, as it usually is, this is a result of the fact that Blacks normally have very short calf muscles and long Achilles tendons. Most Blacks also have larger than

average buttocks, when compared to white individuals of about the same overall size.

Hundreds of coaches, particularly football coaches, have been trying for years, so far with a total lack of success, to increase the size of their Black athletes' calf muscles while reducing the size of their buttocks; believing that doing so will make these athletes run faster and jump higher and farther. When, in fact, if they could increase the size of the calf muscles while reducing the size of the buttocks, the results would be that the athletes would then be slower when running and could not jump as high or as far.

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The calf muscles contribute little or nothing to either running or jumping, serve primarily as shock absorbers; you cannot jump high enough to even get your feet off the floor while using only your calf muscles. When running you first throw your lower leg out in front of you, using the quadriceps muscles (the front of the thighs) and the hip flexors, and the calf muscles contribute absolutely nothing to that movement. Then, when the involved foot is planted on the ground in front of you, the body is pulled forward towards the planted foot, that part of the movement being performed primarily by the muscles of the buttocks, again with no meaningful contribution of the calf muscles.

Thus an increase in size, and the weight, of the calf muscles would make it harder for you to throw the lower leg as far or as fast as you could with smaller calf muscles. So you would be slower rather than faster.

The large buttocks usually seen on Blacks is not a result of more fat in that part of the body, is, rather, an indication of large buttocks muscles; and since the buttocks muscles are the primary producer of power when running, any decrease in their size would also make the athlete slower rather than faster. So if the coaches could actually increase calf size and decrease buttocks size then they would be hurting their athletes rather than helping them. But you will almost invariably be wasting your time if you ever attempt to explain either of these points to a coach. Most of whom appear to be totally unaware of the differences in a muscle and a palm tree.

Less than forty years ago, practically every coach in the country refused to let any of their athletes lift weights, fearing that doing so would make them slower when in fact it will make them much faster. Today, most professional sports teams encourage their athletes to perform strength-building exercises, but it does not follow that the situation has been improved to any meaningful degree; because they usually hire a so-called "strength coach" who is, or was, either a bodybuilder or a competitive weightlifter, assuming, I suppose, that such people are "experts" on the subject of strength training, which they seldom are. The unavoidable result being that athletes trained by such people do little or nothing in the way of increasing their strength, while being encouraged to perform exercises such as the "power clean" and "jump squats," neither of which will do anything in the way of increasing strength and both of which are very dangerous. While a very few strength coaches do know what they are doing, the vast majority produce very little in the way of results apart from unnecessary injuries. The fact that a man has produced very large muscles or is stronger than usual does not mean that he knows much, if literally anything, about the requirements for proper, productive and safe exercise.

Then why were they hired as strength coaches? Because the people who hired them knew absolutely nothing about strength training. A clear case of the blind leading the stupid.

While I do not know just how much income is produced by football every year, I do know that about 60,000 knee injuries that require surgery are produced by football annually; so at least the doctors are making a lot of money from football. Being a violent sport, football will continue to produce thousands of serious injuries annually, and this will continue to happen regardless of any future safety precautions; but injuries of any kind should never result from strength training. On the contrary, properly performed strength training should go a long way in the direction of preventing injuries even on the playing field.

In May of 1973 I was performing research in cooperation with Dr. Elliott Plese of the Department of Physiology of Colorado State University in Fort Collins, Colorado, when I got a telephone call from the vice-president of a bank in Florida, Jacky Hardy. He told me that he had a very famous football player with a badly injured knee that he wanted me to examine for the purpose of evaluating his injury. When I then told him that I was not a medical doctor and could not treat the injured knee regardless of the circumstances, he told me that he knew that but nevertheless wanted my opinion of the possibility of rehabilitation, to which suggestion I agreed so long as the athlete agreed to then go to an MD for treatment.

The football player was, indeed, quite famous, his name was Dick Butkus; but not having been much in the way of a football fan at the time, his name meant nothing to me when I first heard it. I told Jacky Hardy to send Butkus out to Colorado in one of my airplanes that was scheduled to make a trip from Florida to Colorado a few days later, and he did. When I first saw the injured knee I told Butkus that the knee was almost gone, that he would be lucky if he did not lose the lower leg, that he should not even be walking on that leg and certainly should not consider trying to play football again.

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When he was standing upright, the injured leg was bent sideways so far that it appeared to be on the bare edge of breaking off at the knee. It was bent 23 degrees away from the normal, vertical position.

Having explained the gravity of the situation to Butkus, he then told me that he had to continue to play football, that he had played-out his previous contract and would be required to pass a very detailed physical examination performed by a doctor employed by the Chicago Bears professional football team in order to get a new contract. Then he told me just what the coach of that team had been doing to him during the previous year's playing season: they had been injecting his knee with pain-killing drugs and then sending him onto the field to play.

Having heard Dick's story, I then told him . . . "While what I am going to suggest comes very close to outright fraud, I am prepared to do it only because of what they have been doing to you, which actions were nothing short of an outright crime. I cannot replace or repair the knee joint, it is simply gone, but, if you can stand the pain, and it will be very painful, I can make the muscles of your leg very strong in spite of the injured knee. Then, if their supposed "experts" are dumb enough to sign a one-legged man to a contract to play football, then that is their problem. Tit for tat.

Dick agreed to my suggestion, and he was able to tolerate the pain, and we did increase the strength of his leg muscles to an enormous degree in a relatively short period of time. Whereupon he returned to Chicago, was examined by the team's doctors and passed all of their tests with flying colors. Which told me a great deal about the actual knowledge of these supposed "experts." The team then signed him up with a five-year, "no cut" contract, meaning that they would be required to pay him for five years regardless of what happened afterwards. And, of course, it did happen: the knee failed as soon as he started playing again, which is exactly what I told him would happen.

While there is an old saying among football players that you have to be willing to "play hurt," there should be reasonable limits to such activities, but no such limits were applied to Dick, they had him playing when he should not have been even walking.

Initially, the team refused to pay him, but finally caved in and did pay him the agreed-upon salary for the next five years; after all, they worded their contract with Dick, and thus were legally bound by its terms and conditions. Fraud upon the part of Dick and myself? Perhaps, but given the circumstances I believed it was justified.

Subsequently, I took Dick to Oklahoma City where his knee was operated on by the best knee surgeon in the world at that time, Dr. O'Donahue. I filmed the operation with several professional motion picture cameras and the resulting film was very dramatic to say the least; the doctor almost cut his lower leg off at the knee, and then put it back on in a proper fashion. Dick's wife, Helen, having seen only the first couple of minutes of the film, jumped up from her seat, ran out into the hall outside the projection room, and vomited. The film literally made her sick.

Several people suggested that Dick should get a so-called "total knee" replacement; that is, an operation that would remove all of the remaining parts of his normal knee and replace them with an artificial knee; but, at that time, such operations were generally not very satisfactory, so Dick told them that he would wait until such time as I got around to inventing an artificial knee that would work properly.

Twenty-four years later, he is still waiting, because I have never made any attempt to design such an artificial knee, and never will. I am one of those seemingly rare people who know what they know, but also know what they do not know, and I know absolutely nothing in regard to the requirements for an improved artificial knee. Even today, such total knee operations are seldom performed upon relatively young subjects, because the artificial knees apparently do not last very long.

Unfortunately, Dick still suffers some knee pain if he stops performing regular exercise, but with regular exercise can remove the pain entirely. I will return to the subject of exercise performed for the purpose of physical rehabilitation in later chapters, but this one example should demonstrate the value of exercise for rehabilitation very clearly.

Unfortunately, the vast majority of both physical therapists and medical doctors still know little or nothing about the potential benefits of proper exercise for physical rehabilitation, while continuing to use treatment protocols that are utterly worthless and that are sometimes even dangerous.

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And, in general, most of the scientists working in the field of physical rehabilitation are equally misinformed, continue to believe theories that are simply stupid while failing to even investigate things of very real value. After all, they are the supposed “experts,” and just who am I to try to tell them what is right and what is wrong in the field of exercise physiology?

Having been the principle speaker during more than 1,000 medical seminars performed over a period of twenty-odd years, I am clearly aware of the actual level of knowledge now existing in this field throughout most of the medical community. Which level of knowledge is pitiful at best.

So, if the bodybuilders and competitive weightlifters, together with the physical therapists, medical doctors and scientists do not understand much if anything about the requirements for proper exercise, then just where can you go in order to learn something of real value about exercise? Which is the purpose of this book: an attempt to set the record straight, to explain both the potential benefits and the problems related to exercise.

Almost every week I get telephone calls from outright strangers who ask me where they should go to school in order to learn the true facts about exercise. And I invariably tell them . . . “I don’t know; if such a school exists, I am unaware of it. The schools that do exist, and there are many of these, will probably teach you absolutely nothing of value; instead, will probably attempt to brainwash you into believing outright nonsense.