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Articles

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Preventing Injuries in Sports

Injuries are produced by force… a force that exceeds the structural integrity of the body. When a force is encountered that exceeds the *breaking strength* of the body, then an injury literally must be produced. Only two factors are involved… 1) the force that *produces* the injury… and 2) the strength of the body that *permits* injury. Obviously, injuries can be avoided by either of two methods; by lowering the force… or by increasing the strength of the body.

Protective equipment (pads, helmets, etc.) are provided for athletes involved in sports that involve contact… the only purpose of such equipment is an attempt to reduce the forces imposed upon the body. So reducing the force is an approach to safety that is already in use.

But very little in the way of worthwhile efforts is being made in the direction of solving the problem of safety in the only other way possible; not much is being done to increase the structural strength of the body.

Properly conducted exercise is capable of greatly increasing the structural integrity of an athlete… the result being an athlete who will be far less likely to suffer an injury.

Proper exercise will increase the strength of the muscles, connective tissues (ligaments and tendons), and even the bones… and will also increase the possible range of movement or flexibility. All of these results will greatly reduce the chances of injury.

Up to this point in time, most of the attention given to exercise has been for the purpose of increasing functional ability… hoping for increases in strength or speed, or both, and exercise is certainly capable of producing such results; very worthwhile results that will improve the performance of any athlete in any sport… but exercise can (and should) produce these increases in functional ability while simultaneously reducing the chances of injury.

Exercise can help prevent injuries… and exercise should help prevent injuries; but in practice, it sometimes causes injuries… causes injuries in one or both of two ways. Training injuries are usually obvious. The cause and effect are so closely related that the fault is apparent… if, for example, a muscle is pulled while performing an exercise, then the blame is easy to place; but *indirect injuries* are not so easy to see, and may easily be blamed on something else.

If, for example, a hamstring is pulled during a football game, then it may not occur to the coach that the real fault exists in the weight room and not on the field. Hamstring pulls can, and frequently do, result from an improper program of exercise. If the muscles of the frontal thigh are greatly strengthened while little or no attention is given to training the rear of the thigh, then you are literally asking for trouble. Or, if the strength of the hamstrings is increased while nothing is done for the flexibility, then again you are asking for trouble.

In the first instance (no exercise for the hamstrings), the muscles of the frontal thigh may become so strong that they are capable of producing a force which exceeds the structural integrity of the hamstrings… in which case, the hamstrings may be torn loose from their connective tissue, or a rupture of the muscle itself may result.

In the second case (strength but no flexibility in the hamstrings), an encountered force may pull the hamstrings beyond its possible range of movement… with the same result, damage to the connective tissue or the muscle itself, or both.

Such injuries (and a long list of other possible injuries) should properly be blamed on a poor exercise program… but they seldom are, because most of these injuries do not occur in the weight room; do not occur until later… at which point the cause and effect situation is no longer obvious.

An exercise program should be *balanced*… the strength of the muscles on both sides of all joints should be increased in proportion. And full range exercises should be used in order to insure great flexibility.

So-called *explosive movements* should be avoided like the plague for several reasons… primarily because such a style of training is very poor for the purpose of building strength… and, secondly, because it is extremely dangerous.

On the football field or the basketball court, a player must move suddenly… but in the weight room such sudden movements is the worst thing one can do. Weights should be *lifted*… not *thrown*. When a weight is moved suddenly it is not being lifted… instead, it is being thrown. The involved muscles give the weight a sudden jerk at the start of the movement… and then, during the balance of the movement, the muscles are not in the slightest way involved.

The result is that a small part of the muscle is exposed to a very dangerous jerk… and the largest part of the muscle is exposed to nothing except the danger of injury.

Building strength is one thing… *demonstrating strength* is an entirely different matter, particularly if the lifting of the weight is used as a demonstration of strength.

A few individuals have recently gone to great lengths in efforts to promote so-called explosive training. Such training will afford little or nothing of value, and will probably produce a number of injuries that should have been avoided.

How fast one moves while performing exercises for the purpose of building strength has *absolutely nothing* to do with how fast one can move while using the strength of those same muscles. So training *slowly* certainly will not make one *slow*. And training *fast* certainly will not make one *fast*… on the contrary, fast training may well stop one from moving at all.

By fast training we simply mean the actual speed of movement… not the length of the workout. Workouts should be quite brief (or fast), but during the workout all movements should be performed fairly slowly… sudden movement and jerking should be avoided entirely.

We have conducted much research, and at the moment, we are planning several more large-scale research projects in conjunction with major universities… the results of which will be published – win, lose or draw.

In the meantime, do not be misled… regardless of what type of equipment is used, barbells, universal-type machines or Nautilus machines, do all that is possible to assure that the athletes perform their exercises in very strict style, and fairly slow movement and with a definite pause at both ends of all movements.

At the moment, a motion picture is being produced that clearly shows exactly what happens when an exercise is performed in a fast manner… at a filming speed of 14,000 frames per second it becomes possible to see what is really happening, as opposed to what one may *think* is happening. The difference is literally shocking. The same film will also show what happens during an exercise movement performed at a *proper speed*, which is a fairly slow speed. For the first time it will be possible actually to see and compare the differences.

Exercise can go a long way in the direction of preventing injury…and it should… and it will, when the simple truth is widely known.