Free Weights Versus Machines

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Free weights and machines are just tools to place stress and tension on your muscles. At STANFORD we use barbells, dumbbells, machines, leverage equipment, manual resistance, and body weight exercises. This provides variety psychologically and physically, allowing us to use change as a motivator.

Your muscles cannot tell where the tension comes from. It is far more important the way the tools are used. Your passion, effort and intensity will determine your results, not the equipment.

Each type of equipment has advantages and disadvantages. Free weights are cheap, low maintenance, and readily available. Dumbbells and barbells are versatile and can be used for many exercises. The barbell, as we know it, was developed in 1902. Before this time, people interested in exercise used fixed weights and kettle bells that could not be easily adjusted for varying degrees of resistance. Compared to anything before it, the barbell was a stroke of genius. But the barbell is not without limitations. There are some exercises that cannot be done with free weights that can be done with a machine. How would you do a leg curl with a barbell? Another disadvantage is that free weights provide resistance in only one direction - straight down - while your muscles move in a rotary fashion, producing areas in the movement that are heavier or lighter than they should be. A properly designed machine can provide balanced rotary resistance throughout a much greater range of motion than a free weight.

A good machine can do anything that a free weight can do except develop the skills of performing that particular exercise with a free weight. While lifting weights, some of the strength increases are a direct result of your nervous system becoming more coordinated at doing that particular exercise. The more difficult the exercise is to learn or balance, the greater the amount of neurological contribution to the initial strength gains. If you are competitive powerlifter or weight lifter, then you must use a free weight in the exercises in which you compete in order to be as skilled as possible in that event. If you are not a competitive lifter, then it doesn't matter.

We don't do "a lot" of bench pressing at STANFORD, only because we can get better results in less time doing other things. We do bench press though, because many players like to and it can be a productive exercise. We just don't spend thirty minutes doing it. Occasionally, we have athletes who are finished playing who want to get "good" at the exercise. They begin spending time bench pressing, using a routine from their favorite muscle magazine. Initially they are able to increase their weights every workout. They might even begin to say, "Man, I wish we had used this routine our whole career. Think how strong we would be."

Six weeks later, their bench is up twenty pounds and they are not making any more progress. This is the same thought process that runs through the head of every beginning lifter who makes a five pound increases each of his first eight workouts and figures at that rate he will be bench 400 pounds in six months.

What happens is this: The lifter's skill level in that particular exercise has caught up to his strength level. The initial neurological adaptations take place very fast compared to actual functional strength increases. One trick new strength coaches use when they first come into a program is to "test" the players to see "how much" they lift. They will choose exercises that the athletes have not done, have not done often, have not done in a long time, or have not trained in the fashion that the new coach tests (e.g., one rep max. instead of repetitions). He will then test them eight weeks later and show a huge "increase" in "strength" in order to make himself look good. This is called "pushing numbers" and is neither difficult to do nor the best way to train athletes.