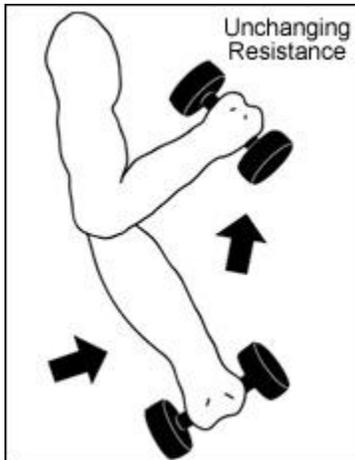
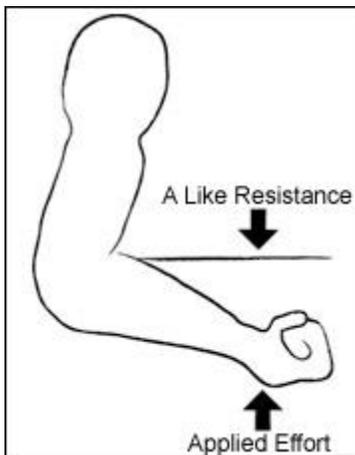


# Isokinetics vs. Fixed Weights



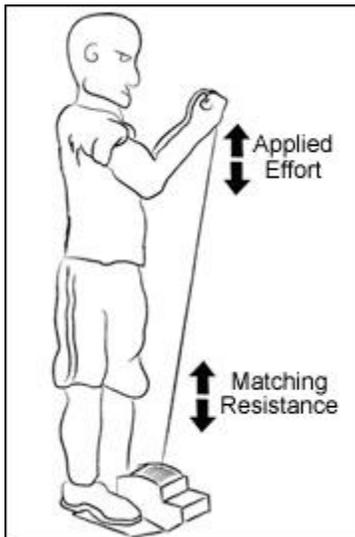
## ISOTONIC CONTRACTION

The resistance provided by weight, friction brakes, etc., has for hundreds of years been the conventional means of Isotonically loading a contracting muscle to exercise. Because of skeletal leverage, in most "range of motion" movements, the middle one-third range is usually twice as strong as the weakest third of the range. The load must be limited to the maximum amount that can be moved at the weakest joint angle and which tends to allow the user to move the weights ballistically through the range. The resistance has its greatest mechanical advantage on the muscle at the extremes of the range. Here the lever system is most extended or flexed, and the load on the muscle is greatest at these points. consequently, the total work done is significantly less than maximum capacity over the larger part of any range of motion.



## ISOMETRIC CONTRACTION

There is no movement in an Isometric contraction as the muscles contract against an immovable resistance. Resistance becomes a function of the force applied and the muscles develop near maximum tension, but no perceptible joint capacity of the muscles, at least in the one static position. Improvement is in the low-speed strength category and primarily affects only the fibers active at the one shortening length exercised.



## ISOKINETIC CONTRACTION- ACCOMODATING AND SAFE

Resistance is a function of the force applied. The Isokinetic device returns the speed at which the user can move throughout a "full range of motion." The load will accommodate anything from fingertip pressure to hundreds of pounds. the user applies maximum effort and an Isokinetic device automatically varies the resistance. As the muscle's tension capacity and skeletal advantage through the range of movement, the resistance naturally accomodates to the muscle's force transmitting capacity at every point in the range. Isokinetic constantly loads the muscles near their maximum with each repetition regardless if it is the 2nd or 10th repetition of the exercise, and without overstressing or under stressing the muscles at any point. Thus, the accomodation resistance of the exerciser correlates to the user's immediate and specific muscular capacity.