

# The 1<sup>st</sup> Law of Physical Exercise Efficiency

By opposing resistance against muscle contractions instead of joint motions, anyone, from pro athletes too people to old, obese or disabled to walk or swim, can be massively strengthened, in weeks, almost painlessly

By Structural Engineer Craig Wise

Have you ever heard of an athletic career ending over worn out muscles?  
What about worn out joints or vertebra?

*Muscle Effort* and *Resistance* too it, are the two primary forces of all muscle building exercises: Resistance is the force that blocks or hinders the effort, so enough resistance causes parts of the body to be overworked.

Without the resistance hindering muscle effort, muscles cannot be worked hard enough for continued strengthening. So of these two forces, resistance is actually the muscle building force. However, maximum resistance causes failure, which is, and has always been damaging to the body.

However failure damage is what causes muscles too heal to a stronger state, and usually in days, so the next time theses same muscles face that same amount of resistance, they will be stronger and thus better equipped to handle it.

If the resistance continues to be increased each time the muscles heal, the muscles can be continually strengthened, but only until the muscles become as strong as the mechanical limits of the joints they pull. Now the exercise will fail joints before the muscles can. This is what causes bodybuilder's "Plateau".

Unlike muscles, failed joints can take months to heal, and no stronger as they retain scar tissue which increases friction. As frequent overworking of muscles continually strengthens them, this same action eventually wears joints out.

The ancient Greek fitness concepts today's methods maximize, collide the forces at joints, instead of on muscles, which explains why today's methods still only greatly strengthen bodies genetically blessed with powerful joints, and why they are useless for millions of mobility disabled people.

## Your body talks

If exercise causes joint and spine pain instead of lactic muscle pain, your body is saying this is not efficient exercise as maximum resistance is being fought by mechanical functions of joints, not hindering muscle contraction. So prolonged maintaining of muscle strength by driving the forces through joints will eventually wear the joints out. Is not that exactly the opposite of why most people exercise?

By designing devices that instead use resistance to hinder muscle contractions, instead of mechanical motions, 5 wonderful things happen:

1. The plateau can be bypassed.
2. Muscles can be strengthened, far beyond what today's joint over loaded exercises could ever dream of allowing.
3. By directly trying to resist the primary muscle motion the joints can be kept from being overworked during exercise, thus allowing massively powerful muscle exercises to work for a full long lifetime, even if joints accidentally become too damaged to do traditional Ancient Greek Based exercises.
4. Athletes can remain as athletes until a very old age.
5. Those too disabled to walk or swim can build and maintain very powerful bodies and hearts which are impossible using joint overload methods.

Mapping Load Forces' is everyday work for structural engineers who must build buildings that stand. But until now it was not considered in the methods used to build the human structure. By first mapping these two forces trainers can see exactly what each person needs, and exercisers can see exercise efficiency.

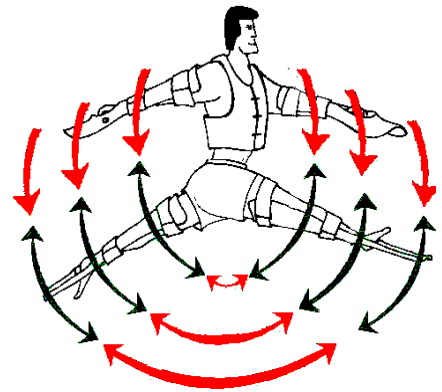
Perfectly efficient exercises can massively strengthen disabled people in their 90's because without joint loading exercise becomes virtually painless, (beside some lactic acid pain later) and they can be done in the ultimate comfort of weightless, while floating in a life jacket.

**Lower Body Oars™ (LOBOS™)** load almost every ounce of resistance only against core running muscle contractions. Because the knees are stabilized and incased by the LOBOS's hard shell, their health condition (and lower legs and feet) is of no consequence. This will allow pro athletes to hard run only their core running power to save their feet and knees for competition. More importantly this aspect will also allow people with useless legs to still power run their body cores.

These illustrations roughly show the paths of the core **muscle effort** and of the greatest amount of external **resistance**.

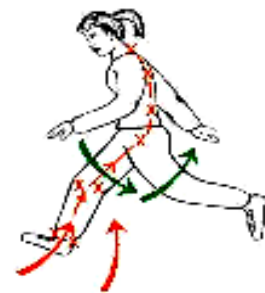
## Core Muscle Effort Resistance X = compression and impact areas

Notice the direction of the resistance forces in relationship to Muscle effort in cardio exercises  
This is not rocket science; anyone can apply this principle to see how efficient any exercise is.

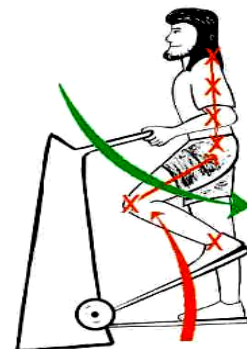


### Body Oars

Every person who can run should run, but as 'practice' to keep this ability strong. However over-running is a poor cardio exercise as pounding joints that much is destructive.



People who over-run often loose inches from their height, as that high impact resistance destroys their spinal disk material. Firms selling running shoes and tread mills continually loose fortunes assuming their buyers need to run miles, when a few hundred yards is healthier in the long term. Taking all that pressure off of running markets would attract and keep countless millions more who would never consider running, as long as they think that means "miles".



Like running, bikes-ski-elliptical-steppers-aerobics and even swimming, load far more resistance up through leg joints. But they have less impact so the knees are able to accept more core muscle effort.



Beside Body Oars, all stout modern cardio exercise methods are still dissipating most resistance into the skeleton motions then against muscle effort, so modern methods are still eventually destructive.

Fitness Engineering™ Body Oars™ LOBOS™