**Theory of Exercise**

The fundamental theory of exercise is that we must stress a tissue to make it stronger. We lift weights at the gym to make our muscles stronger. The funny thing is that we are weaker after our training then when we started. After we stress our muscles during training they are left exhausted and weak. Indeed it is a measure of pride for a body builder to brag how he “Didn’t have the strength to tie my shoes!” after a “good” session.

If the goal of weight training is to get stronger than why do we try so hard to exhaust and weaken the muscles? Because it is our hope that once we have recovered our muscles will be stronger. Our muscles are changed by our efforts. In fact straining and exhausting our muscles results in their being not just repaired but improved by growing more nerves, blood vessels and proteins. When we stop to think of it this is remarkable! How does this happen?

The bottom line is nobody knows.

The ancient Yogis recognized this enigmatic ability of life to modify itself and attributed it to a life force they called “prana”. The Taoists called this life force “chi”. It is this life force that distinguishes the living and nonliving realms. If we were to routinely stretch and twist a piece of rope it would not “recover and grow stronger”. The rope would simply weaken, fray and eventually break.

The ability to grow and adapt to stress is an effective definition of living things. Rocks and sticks don’t adapt to stresses, they just crumble under them.

**Theory of Sacrifice**

In ancient scriptures the Theory of Exercise was subsumed by a larger Theory of Sacrifice. The Theory of Sacrifice is that we must give up some of what we have if we are going to gain more of it in return. The Theory of Sacrifice included not just the physical realm but all realms of human endeavor including the political and spiritual. Indian scriptures are replete with stories of Sacrifices that lasted days and were enormously expensive. Sacrifices were done to insure harvest, bring prosperity to a kingdom and to ward off plague.

Although it is not explicitly stated the Theory of Sacrifice is still with us. In exercise we sacrifice our strength in order to gain greater strength. In investment we risk our money in order to gain more money. In vaccination we sicken the body with a weakened form of disease in order to increase its resistance.  
Each time we lift a weight we are making a sacrifice. These acts of sacrifice make us weaker not stronger. It is our hope that our sacrifice will be rewarded by increased strength. Do we know exactly how this happens? No. Do we have any control over how strong we will get? No. Do we have any control over how long it will take? No. All of these things are out of our control. All we can control is the sacrifice we are willing to make. In the Bhagavad Gita II:47 Krishna says to Arjuna. “Man has it in his power to sacrifice but the fruits of his sacrifice are not in his power.”

**Stress: Too Much or Too Little?**

All living tissues adapt to the stresses put upon them. When an astronaut spends weeks in a weightless environment she loses 15-20% of her bone mass. This is because her bones are not stressed by weight bearing exercise so her bones adapt by releasing calcium and altering their structure. If we do not stress our bones they will atrophy. If we do not stress our muscles through work and exercise they will atrophy. The tissues in our bodies need to be stressed in order to be strong. This is a law of life. Use it or lose it.

Of course it is possible to overstress the tissues of our bodies. We can wear down our strength by overexerting and not allowing adequate time to recover. We can overstress our bones and joints by straining against too much weight. We can consume too much salt and raise our blood pressure. We can consume too little salt and lose our electrolyte balance. Too little stress causes our tissues to atrophy and too much stress breaks them down. This is the play of Yin and Yang. Proper health is between these two extremes.

**Connective Tissue**

So we have come to a Theory of Sacrifice or a Theory of Exercise that asserts that the proper health of our tissues is determined by alternately stressing them and then allowing sufficient time to recover. This theory is readily accepted as regards aerobic and strength conditioning. In fact it is almost too obvious to bother elaborating. So why spend nearly a thousand words to examine it? Because Yoga extends this theory beyond muscle and bone and systematically applies it to the joints and connective tissues of the body. It is a common misconception that the joints should not be “stressed”, that they should be “protected” during exercise. In fact in the 1960s Yoga was sometimes declared as unfit for Westerners to do. In our next article we will examine some of these misconceptions.