



PREFACE

Here is Pete's second installment from PeteKoch.com. He goes into addressing weaknesses, caloric intake and how to access your exercise choices.

Check it out!

Smitty

The Diesel Crew



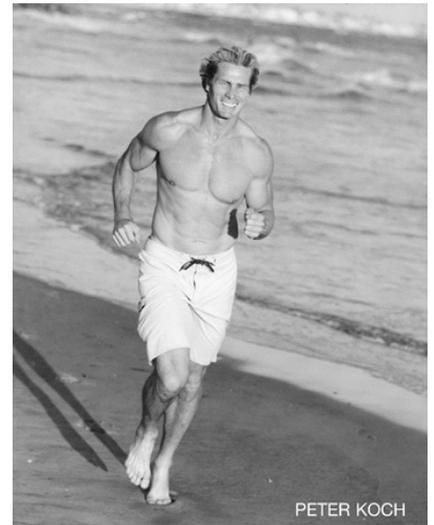
Defining and Attaining Physical Fitness: **A Scientific Perspective**

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“He who dares to teach must never cease to learn”
-Anonymous

“Those who work the hardest, who subject themselves to the strictest discipline, who give up certain pleasurable things in order to achieve a goal, are the happiest”

-Brutus Hamilton, Olympic athlete and coach



The level of physical fitness and muscular strength of our population has been spiraling downward for decades. Many individuals are confused as to which training methods are best when seeking to illicit gains of muscular strength, size (elevate metabolism), and cardiovascular condition. With this reality compromising the physical lives of millions of Americans, I will attempt to offer a rationale for exercise that is not based in gym myth or bodybuilder lore but in rigorous scientific research.

This article is directed to those of you who workout regularly (minimum of one hour per session, five days a week) and those who are not currently working out but are looking to understand what considerations must be in place to maximize your future efforts. The genesis of any meaningful fitness program lies in clarifying what being “fit” really means. Only one hundred years ago the concept of getting into shape or improving ones level of physical fitness was a ridiculous notion. Want an idea of how your waistline is supposed to look? Find an old photo of your grand parents or great grand parents. There were very few fat and de-conditioned people walking around just a couple of generations ago and family photos can offer a glimpse into our own gene pool. Bear in mind that the human body is the most amazing and resilient machine in the world and it is designed to move vigorously even forcefully, every day. Additionally it is important to understand that “fitness” is a relative physical state, as it applies to bio (life) motor (movement) abilities and cardiovascular condition.

Bio-motor abilities as described by exercise physiologist Tudor Bompa, are the following: strength, endurance, power, flexibility, agility, coordination and balance. A meaningful physical fitness program cannot exist without an accurate assessment of ones bio-motor abilities with which to base the exercise selection process. For example, one subject (a middle aged male and weekend tennis player) may be relatively strong but he is severely deficient in flexibility, agility and balance. This man should be working out in a manner that prioritizes his weaknesses such as working towards increasing his flexibility, agility and balance with a lesser focus on strength, yet very few people choose exercises with this thought process. Another subject (a woman in her thirties with excess body fat held in her thighs and buttocks with chronic low energy) offers an example of how well intentioned people misdirect their workout energies. In this very common scenario, a woman will many times participate in Yoga or Pilate’s as an attempt to loose that fat from their thighs and increase their energy level. Looking at this from a physical fitness (bio-motor and cardiovascular conditioning) standpoint offers insight into exactly how strong an exercise choice/system (or not) our subject is making. On one hand our subject will benefit from her Yoga/Pilate’s work with increased flexibility and muscular

endurance, which is good, but does it provide maximum benefit toward reaching her personal goals? Not by a long shot. This subject would derive far greater benefit if her workouts included functional (meaning subject is unsupported and self balanced) strength training to build muscle (hypertrophy) to elevate her BMR (basal metabolic rate) which is responsible for 60% of the calories you burn each day and engage in chronic cardiovascular training (a combination of low intensity distance and high intensity interval running would be optimum) to burn calories and to additionally elevate (active) metabolism which compromises about 30% of the calories used daily. The exact percentages of metabolic expenditure are unique to each individual but this estimate provided by Dave Kuehls of Runners World magazine provides a good working guideline.

There exists among health club patrons a common scenario where people derive their strength training solely from weight machines, where strength is built almost exclusively from a seated position (when was the last time you sat down to lift something up?) in one plane of motion (we always move in three) at the costly expense of numerous other bio-motor abilities. Machine training versus functional training is a massive and crucial subject I will address in a future article.

Choosing the right form of exercise to achieve specific neuromuscular adaptations (enhanced bio-motor abilities) also known as how well you move and morphological changes (alterations to lean and fat mass) also known as how good you look, with maximum safety and efficiency is in itself a subject worthy of much discussion. Also, selection of specific exercises within that category is equally crucial and complex. Physical rehabilitation specialist Paul Chek has theorized that humans are bio-mechanically designed to move in seven identifiable movement patterns termed “primal movement patterns” (muscles move in groups or intergraded patterns). The seven are identified as: squat, lunge, bend, push, pull, twist and gait (walk, run). This concept provides additional necessary information when considering whether the design of a particular workout addresses and challenges the neuromuscular system in all of its complexity to elicit a maximal result. An understanding of these movement patterns and

the corresponding muscle anatomy, provides for a greater understanding of how humans move and will provide direction towards what is involved in a truly meaningful fitness regimen.

It should now be clear that for anyone interested in implementing a safe, comprehensive and maximally beneficial physical fitness program, careful assessment, consideration and planning must be present. The purpose of this article is to provide a look at some the many variables necessary to first define and then implement a scientifically based physical fitness program. It should be noted that no one will be compliant and consistent with any exercise program if it isn't challenging, interesting and at least a little bit fun!

I hope that I have provided at least a bit of insight and assisted you on your personal quest for physical fitness, usable strength and ultimate health. If so, please forward this article to others whom you believe it may benefit. Comments are welcome and encouraged at my website PeteKoch.com.