

# The First Definition of *Exercise*

by Ken Hutchins

You have, perhaps, never heard *exercise* formally defined unless you attended my presentation at the November-1989 *Nautilus® Seminar* in Dallas, the September-1991 *Strength Fitness Systems Workshop* in Naperville, Illinois, or the October-1991 *SuperSlow Workshop* in Maitland, Florida. [Exception: It is possible that some readers may have heard me or Ellington Darden state *The Definition* from the presentation notes.] Yes, you may have read the guidelines for exercise policy statements rendered by organizations like the American College of Sports Medicine, and you might have encountered a feeble expression labeled a *definition* in an exercise physiology textbook, but none of these has ever qualified as a formal definition that complies with consistent academic conventions in physics, chemistry, math, and related classical science.

## Why Define?

Repeating what I have belabored for over ten years and in accordance with the strict grammarian, Richard Mitchell: a word that means everything means nothing. When early man uttered “ugh,” what did it mean? It could mean anything and/or everything, therefore nothing.

For a usable language, each word’s meaning must be delimited. In fact, *to define* actually means *to delimit meaning* or *to give meaning a bounds*. We define a word more, not by stating what it represents, but more by restricting what it means. *To de-fine* is to say what a word does not mean.

Modern science is distinguished by two important traits. Science requires rigidly-controlled experimental method and rigorously-exacting and consistent language to describe the procedures and outcome of the method.

The supreme example of exactness in language is found in mathematics. A mathematician defines a concept such as *point* in geometry in such a manner that leaves you no latitude for confusing it with some other entity. *Point* is defined by delimiting

meaning, by strictly excluding all other possibilities.

The Pythagoreans came to power 2500 years ago. They left a legacy of exacting mathematical language. But the Pythagoreans were not scientists. They expressed and imposed a strong disdain for experimental method. They reasoned that all that was knowable or useful was derivable from logical thought and mathematical language.

We now see the opposite situation in exercise physiology. Physiologists are aficionados of experimental method yet they possess no exacting language for *exercise*. What is more, a definition is discouraged. To restrict meaning is to discriminate *nondescript activity* from activity that is controlled so to be objectively measured and assessed. Though scientifically beneficial, such discrimination confronts personalities who have emotional attachments to the seemingly-infinite variety of indulged nondescript activities. In short, to formally define *exercise* risks alienation of almost anyone in defense of his pet activity.

It may be argued—however weakly—that experimental method eventually refines a definition of *exercise*. On the contrary, experimental method is grossly compromised in the absence of a formal definition. A formal definition is of critical importance to experimental method. Particularly when dealing with human subjects, a control group is often required. The definition of *control group* is interdependent on the *exercise* definition. To define *exercise* by what it is not, is to define all else as *non-exercise*—hence, *control group*. The converse of this is yet-more pertinent: Without a formal definition of *exercise*, you can not distinguish *control group*.

I find it paradoxical that such fanatical buffs for *controlled* studies are so reluctant to embrace definitional controls.

## Our Formative Years

Only recently did I realize the formative effect that my *Nautilus* experience imposed. It was an

experience that few people obtained and even fewer appreciated. The opportunity to work in the strict environment created by Arthur Jones was a tremendous improbability. That I survived ten years amidst turbulent forces and pressures is of yet greater improbability. Even so, a thousand like individuals might have experienced my career without profiting in one unique way. I was unknowingly and gradually forced to develop and refine a definition of exercise.

In the beginning, we—including Arthur and everyone associated with him—sought the same thing. We wanted bigger muscles as well as a safer, faster method to get them.

Arthur's elaborate mechanics fascinated us. But the mechanics were merely the first step of control—control we did not intend or at first acknowledge.

We (Arthur) first built a Pullover machine. Although it simultaneously mimicked the chin-up, the bent-arm pullover, and the bent-over row (conventional exercises), it unavoidably tracked muscular function. This represented the first level of control.

Then the Nautilus Cam was required to modulate resistance. Placing subjects in the original Pullover machine using round (no cam) drive pulleys, moderate resistance in the fully-rotated, finished position *became* excessively *heavy* in the *stretch*. Since the machine provided a flat resistance curve (no variation) it was obvious that muscular strength varied dramatically from one position to another. Application of the Nautilus Cam imposed the second level of control.

[Thus began the commercial exploitation of *variable resistance*. Variable resistance is hawked to imply a quality otherwise missing. On the contrary, most exercise suffers from excessively radical and random variation. At least this was true before the advent of SuperSlow Protocol. With respect to conformity with SuperSlow Protocol, almost all commercially-produced exercise equipment possesses incorrect resistance curves resultant from *high-tech* cams.]

Our infatuation with the elaborate mechanics in Nautilus equipment set the stage for a reappraisal of our *exercise*. We developed a disdain for the athletic and coaching community and naturally justified our position as more intellectual and sophisticated. Though correct, this imparted another distinction: We noticed that exercise was not nonsensical horseplay. It had nothing to do with athletics or sports—at least nothing special that was not just as applicable to the functional ability of the common man and woman. Exercise was serious stuff to be conducted in a controlled atmosphere. For whatever emotional or

practical and safety reasons, we disallowed frivolity in the gym. We became intolerant of irrational and traditional notions of exercise. This represented the third level of control.

Simultaneously with most of the foregoing, Arthur and others sought and found better exercise techniques. To do so required more serious and responsible use of every second of a workout. That time was most efficiently applied represented another level of control.

Eventually we found ourselves in a clinically-controlled environment training elderly women. SuperSlow developed out of the necessity to control the efficacy and safety of loading their musculatures. This yielded a yet-higher level of control.

Thus followed friction reduction, cam refinement, control of head and neck movement, strict avoidance of workout distractions, and other attentions to detail.

These controls shaped our perception of exercise. Coming from a hodgepodge mentality that *anything you like to do is exercise*, we began to make distinctions. We saw that haphazard approaches to loading muscle through sports activities was inefficient. We began to appreciate the illusion that much apparent strength improvement was actually skill acquisition. [I would never have made these distinctions without Ellington Darden's clarification of Motor Learning concepts. Without his presence and encouragement, I would have been intellectually isolated. Most of my work would have remained undeveloped and transitory notions.] We slowly came to focus our attention away from sports skills toward muscular/joint function, since the real issue in exercise is mechanical control of muscular loading.

I was then prepared to acknowledge the *Exercise vs Recreation* argument. Once I developed it to its present level, I realized that I was on the threshold of an intellectual breakthrough. I grew confident that exercise could be exactly and comprehensively defined.

To briefly summarize my formative experience: Over a 20-year evolution, my attitude transformed FROM scorn or apathy toward the possibility of a definition—since it appeared a vast, non-manipulative, subjective concept possessing little or no tangible bounds—TO a revelation that exercise does possess objective limits on which to hang useful principles and an eventual definition.

## Consideration Outline

I first stated the rudiments of the *Exercise vs Recreation* argument at a Nautilus Seminar in 1982. At the behest of Ellington Darden, I developed it to its refined degree within the following year. In so doing, I believed that this argument provided the long-sought

formal definition for *exercise*. Although *Exercise vs Recreation* was a crucial clarification toward this fulfillment, there were other required and simultaneous considerations.

In 1987, I developed the following outline, *The Simultaneous Considerations for a Definition of Exercise*. Note that several entries are set-off in italics. These are the only areas studied or emphasized by most so-called experts in exercise. Most are not aware of or particular about the remainder:

- I. Exercise vs *Recreation*
- II. Mechanical (Newtonian) Physics
  - A. Force
  - B. *Movement*
  - C. Time
  - D. Lever
  - E. Acceleration
  - F. Friction
- III. *Intensity/Inroad/Recovery*
- IV. Safety vs Danger

I explained *Exercise vs Recreation* in the Chapter 13 of *Super Slow®: The Ultimate Exercise Protocol*.

The second consideration, *Mechanical Physics*, was partly covered in *The Cam*, Chapter 14. *The Cam* is primarily concerned with lever modulation. *Acceleration* was discussed in Chapter 5. *Friction* was discussed in the Chapter 6. Nevertheless, thousands of pages are devoted to any one of these subjects in texts where their intricate subtleties are detailed.

*Intensity, Inroad, and Recovery* are overlapping biological issues. Insights thus far have been logical extensions—primarily by Arthur Jones—of classical biological principles. Further insights are promising due to the control and observation offered by MedX® testing tools.

The *Safety vs Danger* consideration is particularly concerned with and derives from the considerations of *Acceleration, Force, Inroad, and Recovery*. It at least overlaps with all the other considerations.

## The Definition

***Exercise is a process whereby the body performs work of a demanding nature, in accordance with muscle and joint function, in a clinically-controlled environment, within the constraints of safety, meaningfully loading the muscular structures to inroad their strength levels to stimulate a growth mechanism within minimum time.***

## Embellishment

Super Slow Protocol is the exercise protocol that best represents and physically expresses *The First*

*Definition of Exercise*. Super Slow offers the ultimate in control from every perspective. It offers the greatest benefits and the ultimate safety. Super Slow is exemplary for *The Definition*. In other words, Super Slow is definitive for *exercise*.

## Outrage

There are now hundreds of universities and colleges in the United States granting degrees in *exercise science*. There are approximately 70 multi-million-dollar companies selling *exercise equipment*. There are dozens of agencies offering *certification* courses in *exercise instruction*. Hundreds of millions of dollars of public and private funds are spent yearly on research regarding *exercise* as it relates to physical therapy, fitness, and general medical concerns. It is outrageous that no one in these areas has yet offered a scientific definition to state what they are talking about!

[I predict that some unappreciative individuals will complain that such detail expressed in Chapters 13, 14, and 15 of *Super Slow®: The Ultimate Exercise Protocol* is unnecessarily tedious and technical. On the contrary: The detail with which we understand and can control a cam and its lever effects to load muscle is the essence of *The Definition* and the tangible bounds of its intellectual structure.]

*Super Slow* is a registered trademark owned by Ken Hutchins.

*Nautilus* is the registered trademark of Nautilus Sports/Medical, INC.

*MedX* is the registered trademark of MedX Equipment, INC.