Ageing with Happiness

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Dedication

To Lorayne – my eternal partner.

To Barbara and Nancy, and their families – my treasures.

To Norm, Roy, and Rose, and their families – my loving lineage.

To friends and colleagues – my cultural cohorts.

To prospective readers – my inspiration.

Acknowledgement

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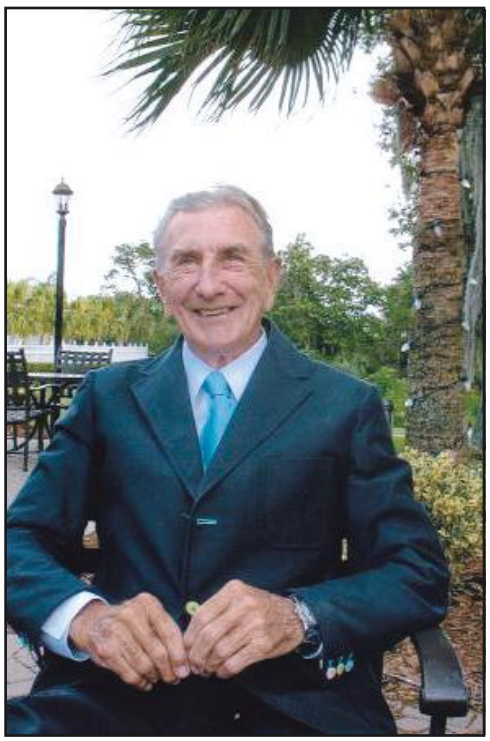

About the Author

Dr. Frank D. Rohter is a Professor Emeritus at the University of Central Florida (UCF), Orlando, Florida. He was a charter faculty member and taught at UCF from 1968 to 2006. He also taught at the University of California, Santa Barbara and Florida State University. He has two daughters (both teachers) and seven grandchildren (two of whom are teachers).

Dr. Rohter is an exercise physiologist with an expertise in the physiology of ageing. He is also an Aristotelian scholar who wrote *Happiness and Aristotle's Truisms,* 2008—a treatise aimed to regenerate the

relevancy of Aristotle's historic (365 BC) conceptualization of the term *Happiness.* Complementing his professional expertise in ageing and his academic ventures into the history of the term happiness are his legendary endurance performance accomplishments, after age 59: 350 triathlons, 11 marathons, and two Hawaiian Iron Man Triathlons.

Finally, in recognition of his academic and athletic administrative contributions to the University of Central Florida, Dr. Rohter was inducted into the *Athletic Hall of Fame*, in 2005; and in 2011, a testimonial stone, in his honor, was placed in the *Athletic Walk of Fame*.

CONTENTS

FOREWORD

Dr. Rohter's academic career is highlighted by his telling presentations and publications on the physiology of ageing; his personal communications perpetuating the relevancy of the term Happiness; his legendary triathlon-performance accomplishments; and his risk-free ageing lifestyle.

By virtue of these professional contributions, he has been able to inspire an endless number of students, colleagues, and friends, including myself, to adhere and comply to an effective exercise and nutrition intervention lifestyle—bringing about a healthy ageing process and compelling a state of personal happiness.

And now Dr. Rohter has written a new and exciting book: *Ageing with Happiness.* Herein he defines Ageing, characterizes the nature of Happiness, and explains the interdependent relationship between these two variables.

You need to venture into Dr. Rohter's relevant, revealing, and visionary book! For he has conceptualized a promising ageing-happiness, exercise intervention model giving sedentary seniors the mindset to practice an effective, ageing-accommodating lifestyle that will forestall the humbling dependency, stressful hopelessness, and discouraging suffering confronting so many in our senior populations–that will bring about a state of unhappiness.

Charles M. Micarelli
Professor and Dean Emeritus
University of Central Florida

INTRODUCTION

The title of my book: *Ageing with Happiness* suggests there is a relationship between the terms "ageing" and "happiness." But how can this be? After all, the term *ageing* rests within the physiological domain, while the term *happiness* rests within the philosophical domain. But as my book will show, there actually is a consequential relationship between these two variables. And this relationship offers a promising pathway to convince sedentary-inclined seniors to appreciate and take on a healthy-exercise lifestyle in order to enjoy a state of wellbeing throughout their senior years.

However, because *ageing* is a present-day term and *happiness* is an ancient term conceptualized by Aristotle between 364-344 B.C., the nature of these two variables will be presented separately.

Part One—Ageing

Part One of this manuscript will identify the following age-related changes taking place in the body over time: 1) loss of skeletal muscle mass and contraction strength; 2) loss of cardiovascular muscle mass and contraction strength. It will also show the consequential effects of these losses on the age-related, degenerative processes seniors experience throughout their later years. And finally, it will make clear how initiating and adhering to an effective, exercise-intervention program can prevent the premature onset of these degenerative ageing processes so seniors may enjoy good health during their lasting years.

Part Two—Happiness

Part Two of this manuscript will present the nature of the term *happiness*. It will define happiness as a state of mind—the uppermost quality of feeling good about yourself. It will show how happiness actually comes about to be your *Purpose in Life* and how the *pursuit of happiness* involves performing *virtuous* acts of conduct. Finally, Part

Two will unfold the relationship existing between the terms *Ageing* and *Happiness*. It will describe how exercise meets the criteria to be included as a Virtue and thus compels a state of happiness. It will explain how a proposed, happiness-based, exercise-intervention model is able to convince sedentary-inclined seniors to embark upon a healthful-exercise way of living.

EXPECTATIONS

This book is not a traditional novel published to entertain you. Rather, it is an informational treatise dedicated to unfolding the relationship between *Ageing* and *Happiness*. Presenting this relationship requires introducing select physiological and philosophical terminology that may be unfamiliar to the reader. So to make clear these chosen terms, I have italicized the select terminology needed to describe the ageing process and bring to light Aristotle's inclusive characterization of Happiness. Moreover, I have specifically defined, in footnotes, some of the more technical terms used in this manuscript. Furthermore, I have included a comprehensive glossary within this treatise. However, in spite of these terminological manifestations, you must proceed to read this manuscript with patient deliberation. For then, you will be able to appreciate the physiological and philosophical concepts placed before you in *Ageing with Happiness*.

Hopefully, my submissions will make plain any unfamiliar terms and help you through your reading sessions. So if you are willing to take time to encounter a challenging—but enlightening—manuscript, you can look forward to a fulfilling experience, revealing the telling relationship between *Ageing* and *Happiness*.

Part One

Ageing

CHAPTER I

Ageing

Life Expectancy

Ageing seniors are living longer! Since 1900, the average life expectancy of our senior populations has increased more than 60%. For example, life expectancy in 1900 was 47 years; in 2000, it was 77 years. Today, there is a 63% chance a person of age 65 will live to an age of 85. Because seniors are living longer, there is a need for a better understanding of the ageing process and how to prevent the premature onset of the degenerative processes associated with ageing.

Ageing Defined

Ageing is a present-day term defined as the collective physiological changes taking place in the body over time. Chapter II will present the age-related physiological changes taking place in your skeletal muscles. Chapter IV will present the age-related physiological changes taking place in your cardiovascular muscles. Chapter VI will present the age-related metabolic changes taking place in both your skeletal muscles and your cardiovascular muscles.

An Ageing Athlete

This is a story about a 57-year-old, ageing athlete and his experience with a confronting episode of age-related, physical-endurance fatigue.

It happened one day when I was climbing the stairs, in the College of Education Building at the University of Central Florida (UCF).

Upon reaching the second floor landing, I had to stop, rest, and catch my breath—I was fatigued! This was the first time in my life I experienced a physical-endurance failure. It was a confronting moment. A confronting moment? Why? Because from the time of my elementary-school days—when I participated in Chicago's playground, park district, and community center sports programs, to my high school and college days, when I participated in multiple interscholastic and intercollegiate athletic programs—I had never, ever, experienced the unexpected-fatigue episode I encountered in that unforgettable stairwell.

Throughout that day and evening, I kept asking myself: How could an exercise physiologist, who had been active all his life, allow his physical-endurance capacity to deteriorate so dramatically? After considerable deliberation, the answer became clear: During the six-years of fulfilling my administrative responsibilities as *Chair of Physical Education and Director of Athletics*, I had led a sedentary lifestyle; I had sacrificed the time needed to participate in physical-endurance training; I had brought about the premature ageing of my cardiovascular system (heart and blood vessels).

Throughout that day and evening, I kept asking myself: How could an exercise physiologist, who had been active all his life, allow his physical-endurance capacity to deteriorate so dramatically? After considerable deliberation, the answer became clear: During the six-years of fulfilling my administrative responsibilities as *Chair of Physical Education and Director of Athletics*, I had led a sedentary lifestyle; I had sacrificed the time needed to participate in physical-endurance training; I had brought about the premature ageing of my cardiovascular system (heart and blood vessels).

That night, I deliberated on my age-related endurance decline and made a decision: I needed to change my lifestyle. When I arose the next morning, I put on a pair of running shoes and walked around the block. It was only a quarter-of-a-mile, but it felt good!

The next morning, my neighbor, Dr. Charles Micarelli, joined me for my quarter-of-a-mile, morning walk. After a couple of weeks, we started to jog; then we decided to increase our training distances and soon we were running a mile.

Not long after these run-training accomplishments, a university colleague, Gerry Gergley, challenged us to enter a two-mile road race. Gerry was younger and had some running experience; but Charlie and I had never competed in road race. Moreover, our training distance was limited to a mile. Gerry's challenges continued until he finally convinced us to register for the scheduled two-mile road race.

The race was on a Saturday morning. When we arrived at the race site, we saw nearly 1300 runners—men, women, and children of different age groups, ranging from 12 to 80. They were stretching, warming-up, and pinning-on their race numbers. It was exciting!

When we lined up for the start of the race, we were standing next to an elderly lady, about age 75. Charlie looked her over and said, "That's one runner we don't have to worry about." When the starter fired his gun, the elderly lady "smoked-out." That elderly lady was a seasoned runner who took first place in her age group.

I had warned Charlie not to go-out too fast. But Charlie did not listen and took-off after the older lady. In contrast, I ran at my practiced-training pace, to make sure I would be able to complete the two-mile course.

My pacing strategy was well founded. As I arrived at the half-mile mark in the race—there was Charlie, sitting on the curb, completely exhausted. I stopped long enough to help him and convinced him to go on. We continued running at our practiced training pace. We were moving right along and, surprisingly, started to pass some of the older-slower runners. When we reached the one-and-a-half-mile mark, we were confident we could finish the race.

Then an amazing thing happened. We were about a hundred yards from the finish line, when one of my graduate students yelled: "Go for

it Dr. Rohter!" I felt an adrenaline rush, increased my stride, pumped my arms, maximized my speed, and "took-off." The crowd saw my acceleration. They cheered me on! As I passed over the finish line, I raised my arms in victory and cried out: *"La Vita Nuova"*—a term proclaimed by the 13th century-Italian poet Dante, when he first sees Beatrice, his true love. When translated, *La Vita Nuova* means *The New Life*—indeed, I had found a new life!

After the race, I reflected on my race time. It was not very impressive. Actually, it was slow: 35 minutes, 31 seconds—breaking down to a little better than an 18 minutes-per-mile pace. Obviously, I did not do very well in my age group, but that did not matter. What really mattered was finishing a two-mile road race at the age of 57.

As I reflected on my breakthrough, running performance accomplishment, I realized how I had changed from a sedentary to an exercise-lifestyle; how I would now be able to climb a flight of stairs without fatigue; how I had found an exercise program that would help prevent the premature ageing of my cardiovascular-endurance system.

Completing that two-mile road race reinforced my *will* to continue my run-training program, progressively increase my run distances and speed, and enter more road races. I had found Dante's *La Vita Nuova*—I had indeed found *The New Life*.

Chapter Summary

The projected life expectancy of senior populations was presented. In addition, the term ageing was defined as a present-day term involving the collective-physiological changes taking place in the body, over time.

Finally, a story was told about one of these age-related, physiological changes occurring in an ageing athlete.

CHAPTER II

Age-Related Changes In Skeletal Muscle

One of the most dramatic, age-related changes taking place in the human body is the loss of skeletal-muscle mass* and contraction strength† occurring in the body's 626 different muscles, Figure 2-1. These 626 different skeletal muscles include: the large muscle groups of the arms and legs that move your body; the large muscle groups of your upper body (chest, abdominal, and back muscles) that support your spine and help move your upper body parts; and the small muscles in your hands that facilitate *fine motor movements*.‡ And any loss in muscle mass and contraction strength of these specific muscles will reduce your ability to move or lift your body efficiently, decrease your body balance, weaken your bone strength, and result in the premature onset of the generative processes that bring about a state of unhealthy ageing.

These age-related losses are shown in Figure 2-2. By age 70, you may lose as much as 50% of your muscle mass and strength.

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* The muscle mass of an individual muscle may be defined as the total number of muscle fibers in that muscle and the collective, cross-sectional diameters of its muscle fibers.

† The contraction strength of an individual muscle may be defined as the maximum force that muscle is able to generate.

‡ Fine motor movements involve your finger dexterity and your ability to write, grip, and perform precise neuro-muscular tasks.

Skeletal

Body's 626 Muscle Groups

Anterior View *Posterior View*

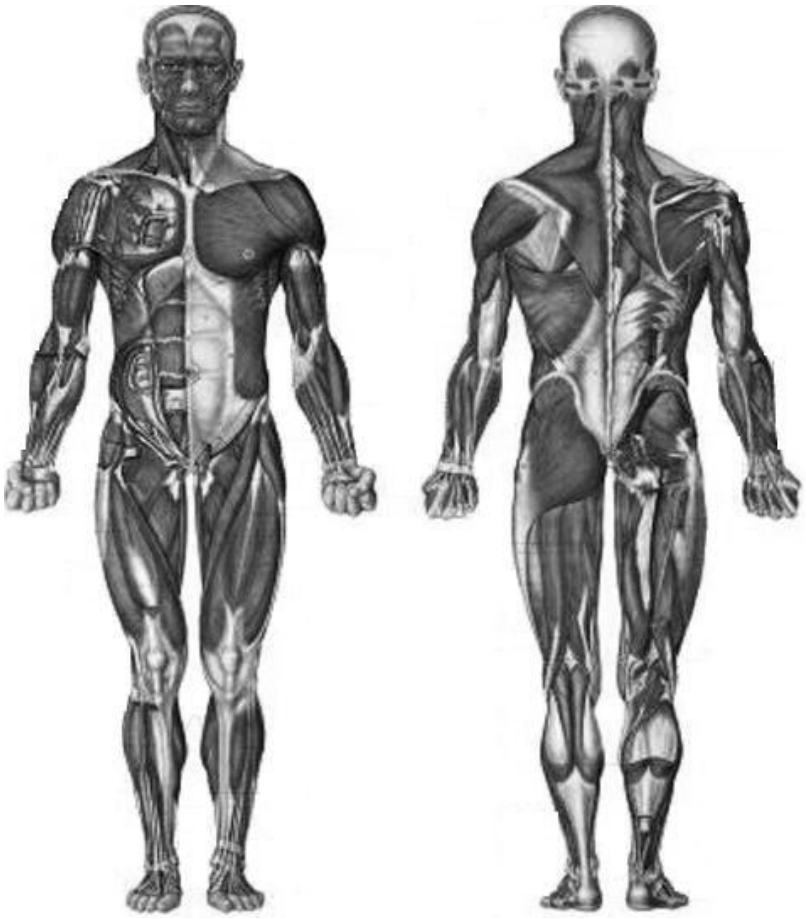

Figure 2-1
This rendering shows the anterior and posterior views of the body's 626 different skeletal muscle groups.

These age-related losses are shown in Figure 2-2. By age 70, you may lose as much as 50% of your muscle mass and strength.

Age-Related Losses in Skeletal Muscle Mass and Contraction Strengths

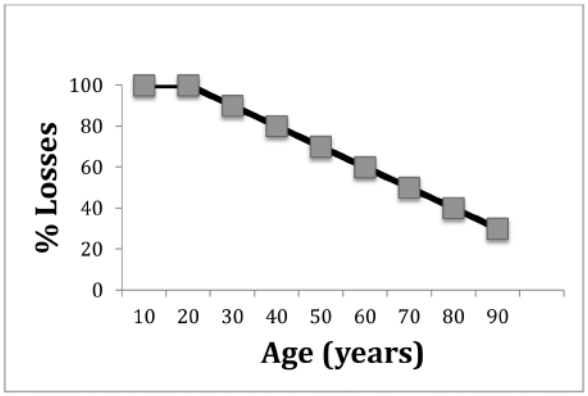

Figure 2-2
This graph shows how skeletal-muscle mass and contraction strength decrease with age. (Loss Rate = 1.0%/year with a 50% loss by age 70)

Body Balance

The reported age-related 1.0% per year loss in skeletal-muscle *mass* as shown in Figure 2-2, results in a reduction of the number of muscle fibers within the respective muscles and produces a corresponding loss in sensory nerves and motor end-plates regulating body balance, Figure 2-3. These losses reduce your body-balance ability and thereby increase your susceptibility to falls and fractures.

Bone Density

The reported age-related 1.0% per year loss in skeletal-muscle *contraction strength*, as shown in Figure 2-2, reduces the pulling force of skeletal muscles at their respective skeletal-muscle-tendon connections, Figure 2-4. Any such curtailment of the pulling force of a

muscle at the muscle-bone-tendon junction reduces the stress on the bone needed to nurture normal bone growth. This curtailment causes the bone to demineralize. This demineralization results in a reduction in bone density, a condition referred to as osteoporosis.

Age related osteoporosis, especially in women, occurs about age 50. Osteoporosis causes the following complications: an increase in postural deformities of the spinal column, an increase in vulnerability to fractures, and an increase in the time needed for prevailing fractures to heal.

Skeletal Muscle Fibers and Motor End-Plates

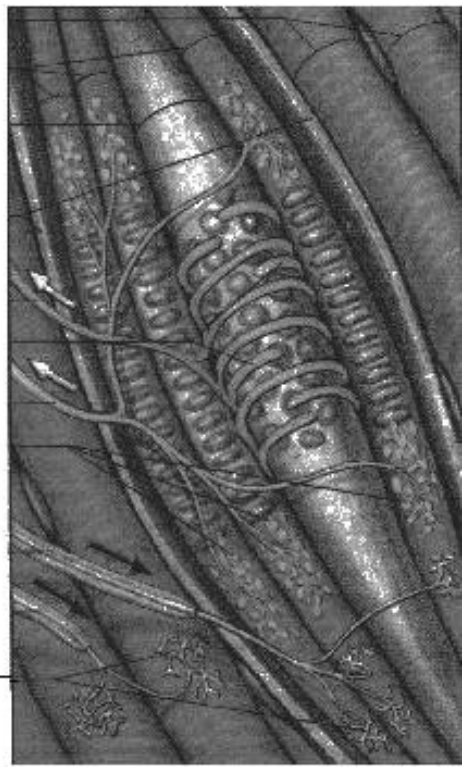

Figure 2-3
This rendering shows the sensory nerves and motor end-plates that regulate body balance.

Skeletal Muscle-Tendon Bone Insertion

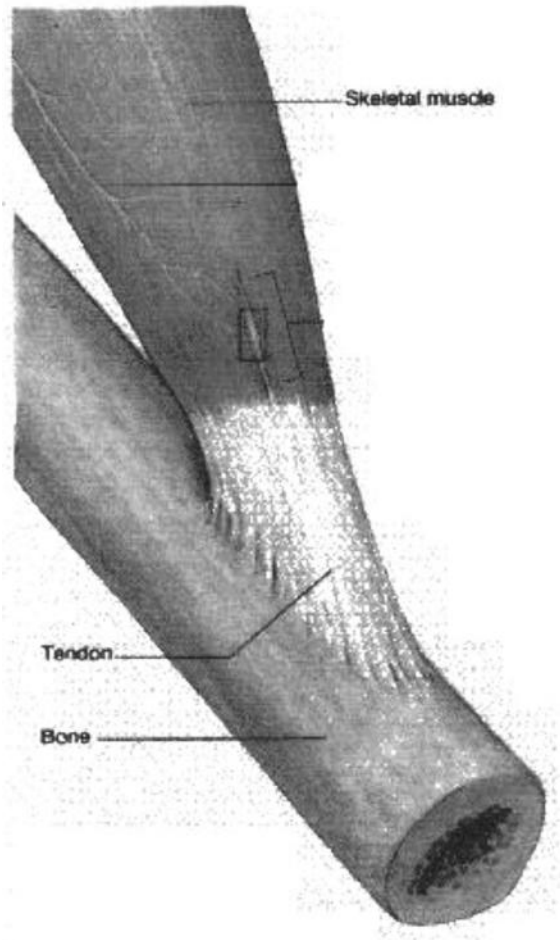

Figure 2-4
This rendering shows the tendon insertion of the skeletal muscle at a typical muscle-tendon junction.

Accumulative Effects of Losses in Skeletal Muscle Mass, Contraction Strength, Body Balance, and Bone Density

The accumulative effects of age-related losses in skeletal muscle mass and contraction strength, body balance, and bone density have a specific effect on your ability to perform life's daily activities:

- Your walking-gait becomes uncoordinated, you drag your feet, and you become susceptible to tripping.
- You tend to be unsteady and insecure climbing and descending stairs.
- Rising from a chair, tub, bed, or a lavatory seat becomes demanding.
- You have difficulty dressing, bathing, and body grooming.
- Your hands tremble when you eat or drink.
- It becomes difficult to pursue recreational physical activities and formal exercise routines.

Moreover, the accumulative effects of the age-related losses in muscle mass, contraction strength, body balance, and bone density leave you susceptible to one or more of the following statistical predictions:

- 80% of Americans suffer from lower-back pain.
- Over two million older adults suffer from complications resulting from serious falls each year.
- 20% of Americans die from hip-fracture complications each year.

And, as your age-related losses in muscle mass and strength, body balance, and bone density increase even further—you may have to use a walker-assistance unit to accommodate your walking needs, or an electric-shopping cart when you go to the grocery or department store. You are now in a state of dependency and have reached the age-projected stage of discontented living.

What is the cause of the age-related losses in muscle contraction strength and the resulting compromises you may experience as you attempt to perform life's daily activities? The answer to this compelling question is muscle atrophy (wasting away of muscle tissue).

Muscle Atrophy

Muscle Atrophy involves the wasting away of muscle tissue, the loss of the number of muscle fibers in an individual muscle, and the reduction in contraction strength in that muscle. Muscle atrophy is caused by the *disuse*, over time, in any one of the body's 626 respective muscle groups. This *atrophy-disuse* reaction may be attributed to sedentary lifestyles and failure to place a progressive-exercise-resistance stress on the body's skeletal musculature. To help prevent age-related muscle atrophy, sedentary-inclined seniors need to adhere to an effective *Resistance Training Program*.

Chapter Summary

The effects of the age-related atrophy (wasting-away) of muscle-fiber tissue in the body's 626 different muscle-groups were presented. The accumulated effects of this muscle atrophy include losses in muscle mass and contraction strength, body balance, bone density, and the ability to perform life's daily activities.

The cause for age-related muscle atrophy was identified as extended muscle disuse, caused by sedentary lifestyles. A resistance-training program was identified as an effective way to prevent the premature onset of age-related muscle atrophy, and its consequential disabling effects on sedentary seniors. An effective resistance-training program will be presented in the next chapter.

CHAPTER III

Resistance Training Characteristics

Resistance Training is a noteworthy form of exercise evidencing the potential to maintain the physiological soundness of the body's 626 respective skeletal muscle groups, and prevent the premature onset of the projected losses in skeletal muscle mass and contraction strength associated with the ageing process. Moreover, resistance training has been shown to regenerate respective age-related, skeletal-muscle-tissue atrophy. Resistance training accomplishes these muscle tissue enhancements by applying progressive, weight-resistance overloads to select skeletal muscle groups.

Please note: Although cardiovascular training contributes many crucial physiological stresses that enhance endurance performance, it is not a viable alternative to Resistance Training. This is because, during cardiovascular exercise, the body's weight remains relatively constant and, therefore, cannot provide the progressive, weight-bearing overload needed to stimulate skeletal-muscle-tissue growth.

Resistance Training Modalities

Resistance training is also known as strength training or weight training. Resistance-training overloading may come from a variety of modalities: weight machines, such as Nautilus equipment; free weights, such as barbells; and home based, anti-gravity body exercises, such as sit-ups, push-ups, and leg-squats.

The home, anti-gravity model is a good modality to start with

because the exercise routines, therein, are not over-fatiguing; they are adaptable to all ages, regardless of sedentary backgrounds; and they are easy to schedule because they are home-based.

The Record Mini Gym is another home resistance training model. It consists of two straps, suspended from an above support. It includes two handles and two body-part slings. Progressive resistance, static and dynamic exercise regimes can be performed to strengthen your upper and lower body and core muscles. Phone (609) 683-1110 Email: Info@redcord.us

That resistance training can increase skeletal muscle contraction strength is made clear by graph shown in Figure 3-1. Here you see a two-fold increase in the forearm flexion and extension muscles' contraction strength following a 12-week resistance training program.

Contraction Strength Increases

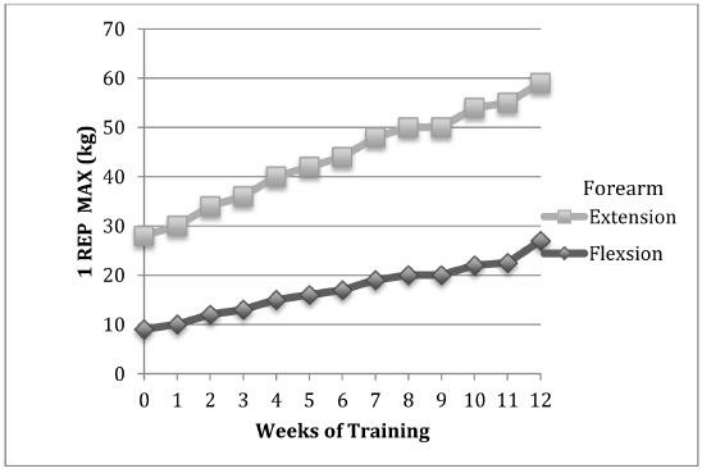

Figure 3-1
This graph shows the effects of a resistance training program on forearm flexion and extension muscles' contraction strengths. (Modified from McArdle & Katch and Katch, 2006)

Below you will find a story of how a self-motivated, sedentary individual was able to use a home, anti-gravity, Resistance Training model to increase his forearm, bicep, and tricep muscles' contraction strength.

A Push-up Story

Dr. Steve Levenshon was a professor of philosophy at the University of Central Florida. We first met when we served on a University committee, and grew to become good friends. Steve and I enjoyed meeting for lunch and discussing such topics as the philosophical principles of ethical conduct. However, we never seemed to talk about my area of expertise, exercise physiology. I assumed, since his lifestyle was extremely sedentary, he had no interest in physical activity. So as the years passed by, I never brought up the subject of exercise.

However, one day, during a luncheon conversation, he surprised me. He said, "Frank, I am only 65, and I am having difficulty lifting myself out of the bathtub." He went on to explain: he was living with a young lady—Miss Sharon—who was in the army, a member of the SWAT Team, and in tremendous physical condition. He told me how he savored the ritual of the communal whirlpool baths he shared with Miss Sharon. And, it seems these scheduled spa-baths were very romantic, as they included flickering candles, aromatic incense, and sensuous music.

Finally, Steve explained, when they finish one of these captivating hydro-experiences, Miss Sharon would pull herself up from their deep-sunken tub and proceed to towel herself dry. Poor Steve confessed, he was embarrassed because he didn't have the arm strength to lift his body up from the tub, and had to wait until Miss Sharon was out of sight before he rolled over to his knees and was able to crawl out.

So when he said: "Frank—what am I going to do?" the answer was clear.

I said, "Come down to the floor Steve, I am going to show you

how to do a push-up." Steve was a quick read, and after a couple of tries, was able to perform the maneuver in good form. Recognizing any change in lifestyle must "come-from-within," I left Steve with this parting comment, "Steve, I have given you the solution to your problem, now it is up to you!"

Well as things go, I hadn't seen Steve for a period of several months when I happened upon him and Miss Sharon having lunch in a local bistro. Steve boasted, "Frank, I can do 100 push-ups."

I replied, "No way." Then he proceeded to prove his claim—right on the floor of this crowded restaurant, as the other diners watched in amazement. By the time the manager came over and politely requested Steve to end his endurance exhibition, Steve had performed 105 push-ups.

Steve's departing comment was, "Frank, thanks for your advice and, incidentally, Miss Sharon and I are still enjoying our enduring bathing ceremonials. And remember, I owe you one for changing my sedentary lifestyle."

Chapter Summary

Resistance training has been shown to be a noteworthy form of exercise, demonstrating the potential to prevent the premature onset of the age-related, physiological losses in skeletal muscle contraction strength. Moreover, resistance training has also been shown to regenerate skeletal muscle tissue atrophy.

And, it was noted that resistance training is more effective than cardiovascular training in maintaining skeletal muscle tissue soundness, because it provides the specific physiological overload needed to prevent skeletal-muscle-fiber atrophy.

Finally, a story was presented showing how initiating a resistance-training program, based on a simple exercise maneuver such as a push-up, can regenerate arm-muscle contraction strength and fulfill a socio-romantic need as well as a physiological need.

CHAPTER IV

Age-Related Changes in Cardiovascular Muscles

Introduction

Chapter II identified the projected, age-related losses in skeletal muscle mass and contraction strength, and presented the effects of these losses on skeletal-muscle functions and neuromuscular performances.

Chapter IV will identify the projected, age-related losses in cardiovascular-muscle mass and contraction strength and present the effects of these losses on cardiovascular functions and performances.

Cardiovascular Muscles

Cardiovascular muscles consist of two different kinds of muscle tissue: *Cardiac* (heart muscle), Figure 4-1; and *smooth-muscle* (muscle tissue arranged in circular layers around the inner walls of blood vessels), Figure 4-2.

Heart Muscle

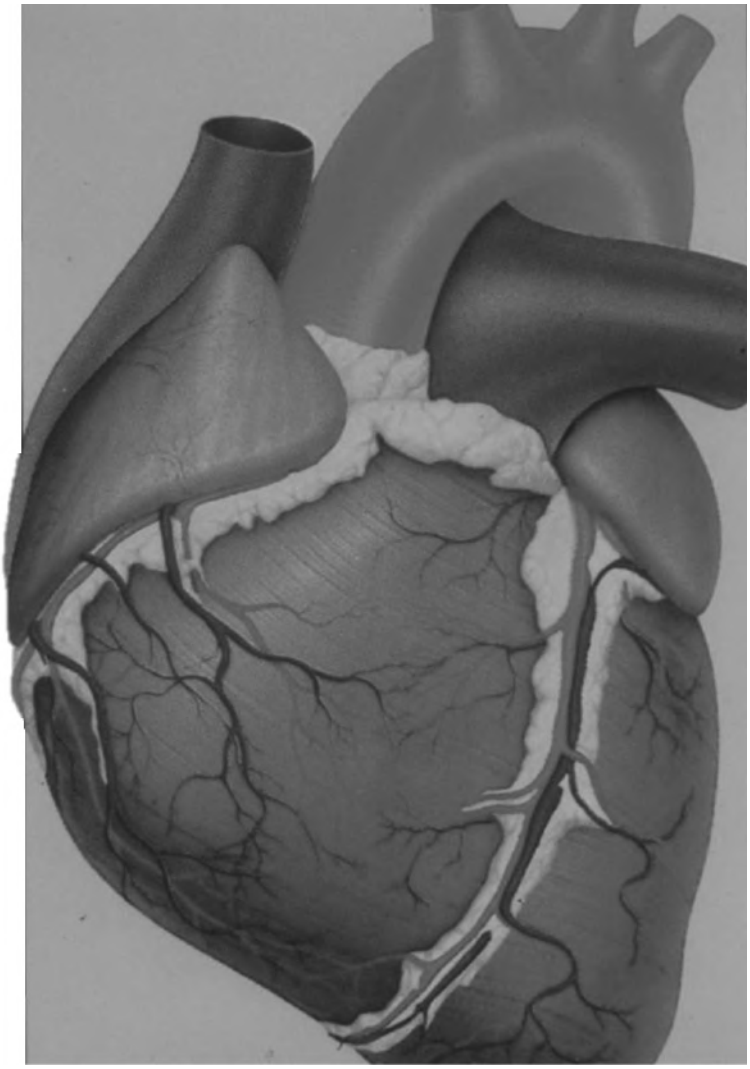

Figure 4-1

This rendering shows the cardiac muscle tissue of the heart.

Smooth Muscles of Arteries and Veins

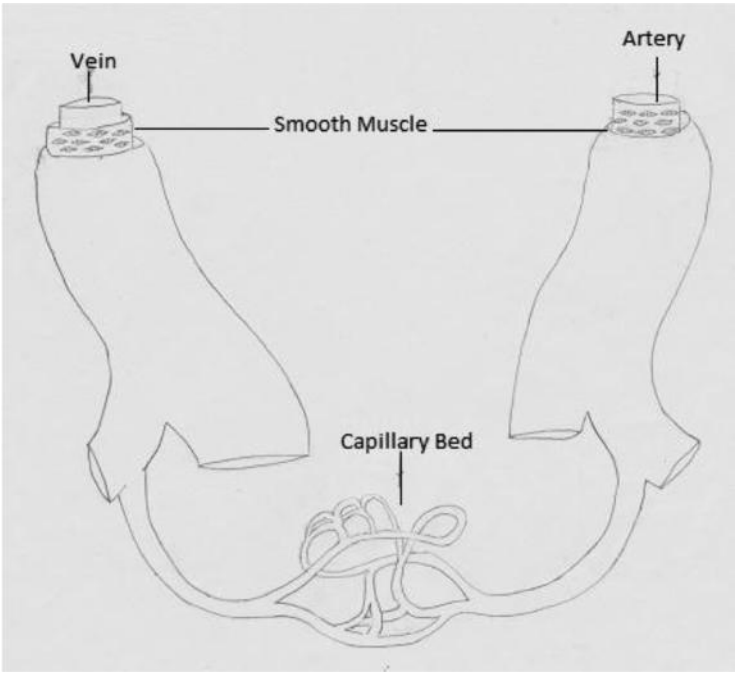

Figure 4-2

This rendering shows the smooth muscle of the cardiovascular system arranged in circular layers around the inner walls of blood vessels.

Like skeletal muscle, cardiovascular muscle also loses muscle mass and contraction strength at a rate of 1% per year, Figure 4-3. These losses reduce the functional capacity of the heart and the blood vessels.

Age-Related Losses in Cardiovascular Muscle Mass and Contraction Strengths

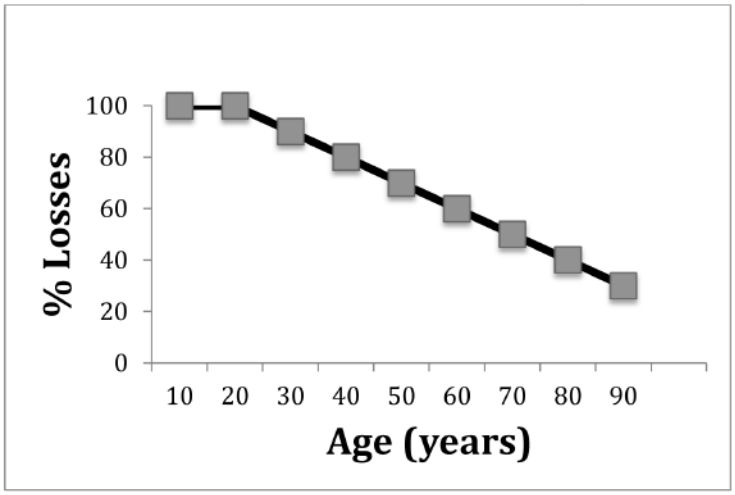

Figure 4-3
This graph shows how cardiovascular, muscle mass and contraction strength decrease with age. (Loss Rate = 1.0%/year with a 50% loss by age 70)

For example, any loss in heart muscle contraction strength reduces the *volume* of blood pumped out of the heart during each contraction cycle. And any loss in smooth-muscle contraction strength decreases the ability of the blood vessels to transport adequate blood volumes into and out of active muscle cells. This minimizes the amount of blood oxygen and glucose (essential, energy-producing nutrients) transported to the heart and skeletal muscle cells—and allows metabolic fatigue products (CO_2, lactic acid, and heat) to build up in these muscles and bring about the premature onset of performance fatigue.

In summary, the age-related cardiovascular muscle losses shown in Figure 4-3 result in a progressive decrease in the maximum transport capacity of your heart and blood vessels, and limit your functional ability to perform your daily activities. So in your later years, you become out of breath (fatigued) when you climb a flight of stairs,

walk around the block, or attempt to perform other oxygen demanding activities. This cardiovascular-functional decline discourages ageing seniors from enjoying a healthful exercise lifestyle.

The cause for the above-described losses in cardiovascular muscle contraction strength is the muscle-fiber *atrophy* resulting from the "disuse" of these muscles associated with sedentary lifestyles. For you see, cardiovascular muscles, like skeletal muscles, need to experience a daily-exercise stress in order to prevent the premature onset of cardiovascular muscle-tissue atrophy and the associated decline in maximum-oxygen capacity needed for physical activity performances.

To prevent age-related, cardiovascular-muscle atrophy and the associated decline in maximum-oxygen capacity, sedentary-inclined seniors need to initiate and adhere to an exercise lifestyle that includes an effective cardiovascular training program. This program should provide the work out intensity and duration needed to prevent the untimely loss of cardiovascular muscle tissue and maintain the muscle contraction strength of the heart and blood vessels—making it possible to perform your daily activities without fatiguing, throughout your senior years.

The age-related benefits of exercise presented below will help encourage you to initiate and adhere to a formal healthy exercise lifestyle.

Age-Related Physiological Benefits of Exercise

- Maintains and regenerates skeletal muscle mass and contraction strength and helps prevent premature losses in body balance, bone density, and the inability to perform your daily-living activities.
- Maintains and regenerates cardiovascular muscle contraction strength and helps prevent premature losses in blood volume

output of the heart, blood flow to active muscle tissue, maximum attainable heart rate, and aerobic endurance capacity.

- Maintains resting calorie utilization in postural muscles and helps prevent the premature onset of obesity(see Chapter VI)
- Helps reduce age-related increases in LDL—your bad cholesterol fraction.
- Helps prevent the age-related losses of HDL—your good cholesterol fraction.
- Helps prevent the premature onset of high blood pressure, excess body fat, diabetes, and other select degenerative diseases.
- Helps in maintaining a virtuous-exercise lifestyle compelling a state of happiness throughout your later years.

Chapter Summary

The projected 1.0% per year loss of cardiac and smooth muscle mass and contraction strength was shown to cause a reduction in the volume of blood pumped out of the heart, and the volume of blood flow to and from active smooth muscle tissue. And it was made clear that these reductions cause a decrease in the maximum-performance capacity of the cardiovascular muscles, produce fatigue, and limit the performance of your daily cardiovascular activities.

CHAPTER V

Cardiovascular Training Strategies

Introduction

The cardiovascular training strategies presented herein apply to practiced modes of cardiovascular-endurance activities such as walking, jogging, swimming, cycling, etc. However, since walking is the most practical of these activities, I will use this form of exercise as a model in presenting the select cardiovascular strategies you will find helpful in maximizing your cardiovascular-endurance-performance capacity.

Strategy #1

Walking is a better activity choice than jogging. This is because the gravitational impact on the knee joint is significantly less than it is during jogging, which means you will have less chance of experiencing the endless number of knee-injuries occurring, over the years, in joggers.

Strategy #2

If you walk a mile at three mph (20 min/mile), you will use up 80.0 Calories. If you jog a mile at four mph (15 min/mile), you will use-up 77.5 Calories. The reason you used up more Calories when you walked is because you walked five more minutes than you jogged. So if you are willing to spend an extra five minutes walking a mile, you can reduce your potential for knee-joint injuries without sacrificing the number of

Calories used up during your walk-training trials.

Strategy #3

Identifying the optimal walking-pace best suited for your walk-training trials is extremely important. If you walk too fast, fatigue will set in and you will be physiologically unable to complete your projected-training distance. And if you walk too slowly, you will not provide the optimal-training challenge to your cardiovascular muscles.

Your walk-pace is determined by your cardiovascular-endurance capacity and depends on your chronological age and the history of your activity lifestyle. If you have been physically active over the years, you will have less age-related, cardiovascular-muscle atrophy as well as a faster walk-pace capacity compared to someone who has been sedentary inclined.

You can find your ideal walk-pace by trial and error. For example, if you can walk a mile in 20 minutes (3.0 mph) without feeling the need to slow down because of the onset of fatigue, you know a 20/mile, walk-pace is within your physiological endurance capacity. If you try to walk a mile in 17'30" (3.5 MPH) and cannot complete your mile-walk trial because you experience fatigue, you know a 1730/mile walk-pace is not within your physiological endurance capacity. This would mean your optimal walk-pace should lie between 20/mile and 17'30"/mile.

So your training strategy would be to walk at a 20/mile pace for most of your walk-training mile, and when you reach the last one-hundred yards, gradually increase your pace and see if you can finish in less than 20 minutes.

Now if you follow this same procedure on your subsequent training walks, you will find, by progressively challenging your cardiovascular system during the last one-hundred yards of your walk-training mile, you will gradually increase your endurance capacity and slowly be able to increase your walk-pace throughout the entire mile. If you practice

this strategy on each of your walk-training trials, you should, eventually, be able to complete a mile in 17'30".

At this point in your training program, you may decide to gradually increase your distance. However, as you increase the distance you walk, you must try to maintain your same achieved walk pace (17'30"/mile). Now you will have two training goals: walk-pace and walk-distance.

Strategy #4

Rated Perceived Exertion (RPE) is a scale enabling you to determine your level of cardiovascular exertion (walk pace). The RPE scale ranges from 1-10. At level five, you may feel your pace is relative easy; as you reach a level of seven, you may feel you are nearing your maximum level of performance; as you reach a level of nine, you may start to breathe laboriously, suggesting you are about to reach a level of exhaustion indicating your walk-pace is beyond your physiological limit.

The RPE scale, as a measure of exertion, is more effective than trying to measure your pulse rate, because your pulse rate is so hard to find and is influenced by many extraneous factors. So with a little practice, after you have obtained your "second wind," you will be able to use the RPE scale to determine your optimal walk pace.

Strategy #5

Understanding the principles of the "*Capillary Kinking Phenomenon*" will help you reach your maximum walk-pace potential. Below you will find a detailed presentation explaining the principles of this extremely relevant phenomenon.

When the skeletal muscles in your legs contract during walking, they "kink" the surrounding-microscopic capillaries and actually stop the blood flow in these tiny-channeled blood vessels, Figure 5-1. This crimping maneuver prevents the blood flow from reaching the adjacent muscle fibers, depriving them of their normal blood flow. Therefore,

during the time your muscle fibers are contracted, they do not receive the oxygen and glucose necessary to continue their contractions. Moreover, this crimping maneuver causes lactic acid, CO_2, and heat to accumulate within the muscle fibers, producing pain. And when the pain becomes intolerable, you have to terminate your walking-muscle contractions because you have reached a state of fatigue.

Capillary "Kinking" Phenomenon

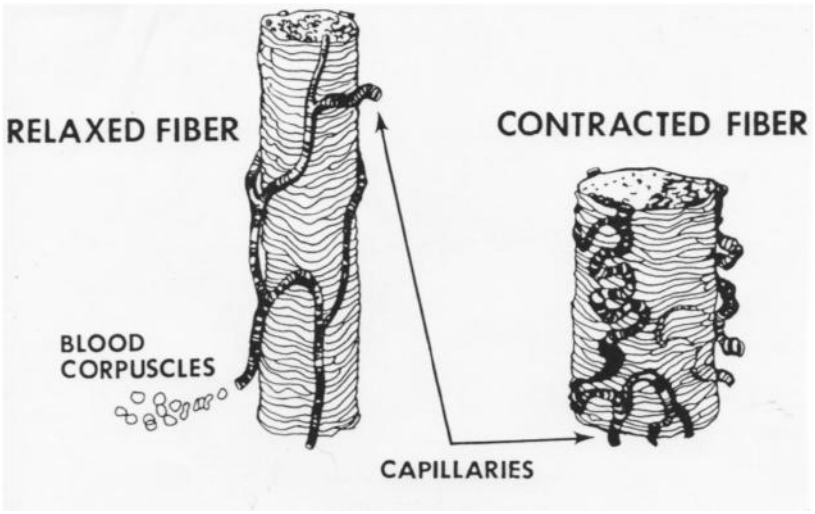

Figure 5-1

This rendering shows the relaxed fiber and the "unkinked" capillary on the left, and the contracted fiber and the "kinked" capillary on the right.

Figure 5-2 shows the "*Capillary Kinking Phenomenon*" during walking, which involves an alternating-rhythmical contraction and relaxation of the muscles in your legs.

Capillary "Kinking" During Walking

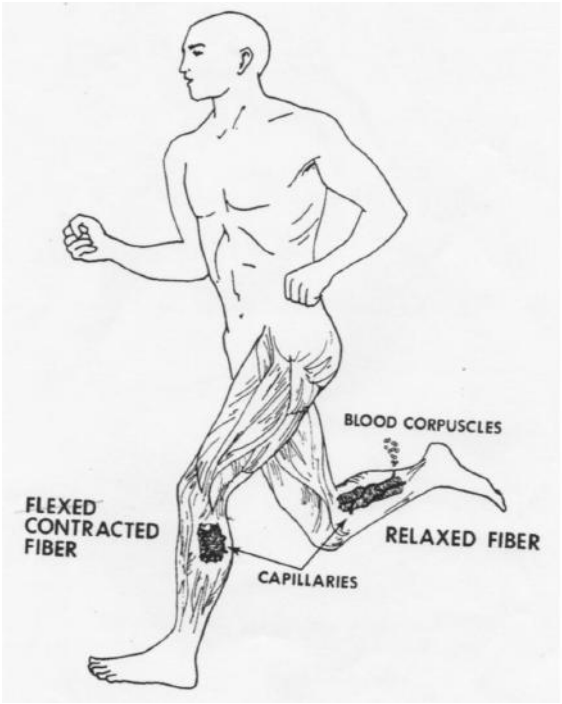

Figure 5-2

This rendering shows contracted fiber and the "kinked" capillary in the left support leg, and the relaxed fiber and the "unkinked" capillary in the right relaxed leg.

As the extended left leg strikes the ground, the muscles in that leg contract, "kink" the capillaries surrounding the adjacent muscle fibers, and occlude the blood flow in that respective muscle-fiber.

Contrarily, in the flexed leg, wherein the relaxed musculature does not cause a "kinking" of the capillaries, the blood vessels remain open, enabling the blood to flow freely, in and out of the relaxed muscle fibers—thus making possible the transport of the oxygen and glucose needed to provide the energy for contraction and the removal of the fatigue products such as lactic acid, CO_2, and heat.

Now it becomes clear, the faster you walk, the shorter is the time your relaxed leg is able to transport the energy-producing nutrients

needed for the continuation of walking-muscle contractions and the washing out of their fatigue products—hence the sooner you fatigue.

This is referred to as an *anaerobic* walking pace (without oxygen). That is to say, you are walking so fast you are not able to supply the oxygen needed to prevent performance fatigue. In this regard, your ideal training walk-pace would be to walk at an *aerobic pace* (with oxygen). In other words, walk slow enough to allow time for the blood flow in the muscles of your relaxed leg to transfer enough nutrients and wash away enough fatigue products to prevent the onset of performance-limiting fatigue. This walk-pace may be defined as "indefatigable." This is how you are able to walk extremely long distances such as a marathon (26.2 miles) without experiencing terminating, cardiovascular fatigue.

Strategy #6

"Second Wind" is another physiological process relevant to your walking-pace. "Second wind" involves the physiological adjustments your body makes during the first 15-20 minutes of your walking-trial. These adjustments include changes in muscle temperature, changes in muscle blood flow, and the onset of sweating.

Muscle Temperature Changes

At rest, your muscle temperature is the same as your body temperature: 98.6°F. Since heat is a by-product of muscle contractions, your muscle temperature increases when you start to exercise. After 15-20 minutes of exercise, your body temperature increases to about 102°F and warms up the muscle fibers to an optimal level for muscle contractions.

Blood Flow Redistribution

After about 15-20 minutes of exercise, when your body reaches its warmed-up temperature (about 102°F) you will start to sweat

(sweat cells in the skin give off beads of water and evaporate). This evaporation process cools the body and reduces the need for blood flow to the skin. So the skin is then able to redistribute some of its blood flow to your active muscle tissue, thus enhancing your muscle blood flow and providing extra glucose and oxygen and washing out accumulating metabolic fatigue products.

In summary: "second wind" is the effects of warming-up your active muscles, the onset of sweating, and redistribution of blood flow to your active-muscle fibers. The combined effects of these three variables produce a feeling of maximum-walking efficiency.

Strategy #7

"Third Wind" is the physiological process occurring when endorphins (opioid-like compounds) are secreted by the brain and pituitary glands. Endorphins have been reported to produce the so-called "exercise high," a state described as the euphoria that sets in later on in your walk-trial and gives you an increased tolerance to the onset of pain.

Strategy #8

Walking-trials in hot and humid environments result in higher body temperatures than take place in cooler environments, thus accelerating the fatigue process. Therefore in hot and humid environments, you must slow down your walk-pace to prevent the excessively high body temperatures bringing about, not only the premature onset of fatigue, but also the debilitating and dangerous effects of heat cramps, heat exhaustion and heat stroke. Moreover, you need to hydrate (drink water before, during, and after your walk-trial). However, if it is an extremely long walk-trial (more than one hour), you may have to ingest an electrolyte drink containing small amounts of sodium and potassium.

Finally, you need to wear loose-fitting, thin-cotton clothing to help prevent the buildup of body heat.

Strategy #9

Diaphragmatic breathing involves a strong and deep contraction of the diaphragm and the rib-cage muscles during inspiration, and the relaxation of these muscles during expiration. These rhythmic contractions act as a muscle pump, bringing more venous blood to the heart, so that more blood can be pumped out of the heart. This pumping process increases blood flow and the transport of oxygen and glucose to your exercising muscles, delays the onset of fatigue, and enhances your walk-performance trial times.

Strategy #10

Hypoglycemia is the fatigued feeling caused by low blood sugar. Figure 5-3, reveals the blood sugar levels following a simple sugar and a complex carbohydrate meal.

Hypoglycemia Curve

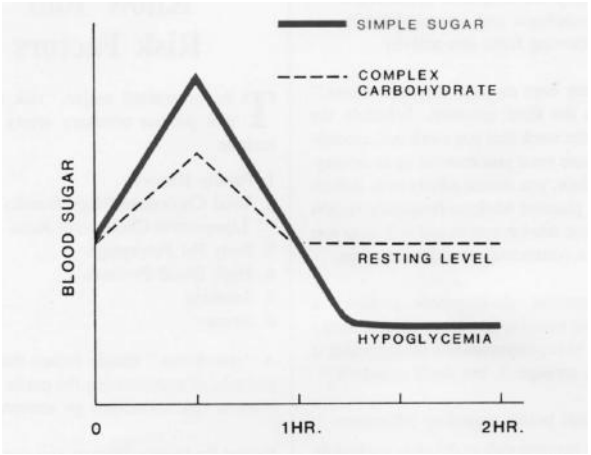

Figure 5-3
This graph shows a rendering of the blood sugar curves after a simple-sugar (solid line) and complex-carbohydrate (dashed line) meal.

The dotted line shows the blood sugar reaching a high, one-half hour after digesting a complex-carbohydrate meal, and returning to resting levels, after one hour.

The solid line shows the blood sugar reaching an even higher level after consuming a simple-sugar meal, and returning to a below resting level after one hour (hypoglycemia).

This hypoglycemia was caused by the dramatic rise in blood sugar after consuming a simple-sugar meal. This triggered a rapid increase in released insulin which produces a rapid surge of blood-sugar transport into your muscle cells. This reaction reduces blood-sugar-level transport to the brain cells causing the onset of mental fatigue and the urge to eat a candy bar or drink a coke in order to relieve your tired feeling.

In conclusion, it is better to eat a complex-carbohydrate meal (grains, and solid forms of fruits and vegetables) before and after exercising, than a meal with simple sugars (table sugar, sucrose, high fructose corn syrup, evaporated cane syrup, maple syrup, fruit juices, honey…)

Strategy #11

You need to maintain a high complex-carbohydrate diet to make sure your exercise regimes and daily physical activities do not deplete your supply of nutrient energies. This is because your body can only store enough carbohydrates to exercise for a period of two hours.

In regard to the time you eat relative to your exercise schedule, you need to make sure your pre-exercise meal is eaten at least two hours before exercising, so you do not have to send unnecessary blood to the digestive organs when it is needed by your active muscle tissue. And you need to eat a high-complex-carbohydrate diet soon after your exercise performance so you can replenish any depleted glycogen stores.

Strategy #12

Walking long slow distances *aerobically* (with oxygen) burns more fat than carbohydrates. Walking at fast speeds, *anaerobically* (without oxygen), burns more carbohydrates than fat. Therefore, walking long slow distances is a better way to use up excess body fat and, since the average person may have as much as 23 pounds of stored excess body fat, walking long-slow distances would be a more effective approach to weight management.

Training Strategies: Testimonial

Each of the twelve cardiovascular training strategies presented above enabled me to complete the following cardiovascular-endurance event.

An Endurance Performance

In 1982, I entered the Hawaiian International Ironman Triathlon (2.4 mile swim, 112 mile bike, and a 26.2 mile run). The open water swim in the Pacific Ocean was trying. The water temperature was 68ºF. It was so cold, I developed hypothermia. After three hours in the water, I finally made it to shore, completely disoriented. As I was helped out of the water, the swim-event physician observed my condition and informed me I was medically disqualified.

Discouraged I sat in a transition bay, bathing in the warm rays of the sun. After a few minutes, my hypothermia seemed to subside, so I asked the physician to reexamine me. He checked my condition and said if I could find my bike, mount it, and start pedaling in full control, he would let me go on. I found my bike, put on my helmet, swung my leg over the seat, secured my cleats in the pedal brackets, and started to cycle unsteadily. The spectators saw my situation and cheered me on. My adrenaline glands responded, I gained control of the bike, the doctor waved me on. I was off for the 112-mile cycle leg. Biking was my strongest event and soon I was spinning with confidence. As I contemplated my cycle strategies, I

remembered the swim official had notified me four triathletes in my age group were unable to complete the 2.4 mile swim. I knew there were ten entries in my age group. That left six competitors vying for the plaques awarded for the first five finishers, leaving me with just one triathlete to beat to receive one of those coveted awards.

As I pedaled my bike, I tried to identify the unknown sixth man. I looked for him for the 56 miles out to the cycle turn around, but to no avail. On the way back, about thirty miles into the cycle return route, I stopped at an aid station to rehydrate. And there he was: a little Japanese man. I thought he must be the sixth man and tried to confirm my suspicions. But he did not speak English. Convinced I was right, I stayed on his rear wheel, all the way to the cycle-run-transition area.

In the transition room, some sixty triathletes were trying to decide if they were going to attempt the marathon-run leg. Most were sitting trying to resolve their fatigue, muscle-joint pain, and mental anguish. The little Japanese man was doing the same. I told myself: "If he does not want it, I am ready to try." I had to walk up the hill at the start of the run however after reaching level ground, my running muscles started to receive blood flow being redistributed from my cycle muscles. Soon I reached my "second wind" and started running. I ran for sixteen miles before leg pain set in. At the seventeen-mile aid station, I reached for a cup of water, and coming up behind me was the little Japanese man. I was moving rather slowly and expected my opponent to pass. But as I entered the eighteen-mile-water aid station, he was still behind me.

It was now nearly midnight. I had been performing for about sixteen and a half hours. My leg muscles were cramped, my stomach was distressed, my involuntary nervous system broke down, and I become incontinent. As I contemplated my physiological state, I realized the little Japanese man did not have the will to pass me; and if I could generate a strengthening mental set, I could prevail. To

generate this mental state, I reflected on December 7th, 1942, the day the Japanese bombed Pearl Harbor. I visualized the little Japanese man as the enemy and revisited the bitter details of World War II. The more I fantasized, the more adrenaline I secreted, the more I was able to evoke periodic bouts of sprint-runs.

I kept picturing the innocent little Japanese man as the enemy in order to release the "fight or flight" hormones that would enable me to continue the sprint intervals for the next seven miles. To accomplish this end, I sprinted an interval of a hundred yards, and shouted: "That's for Pearl Harbor." A short time later, I sprinted another hundred yards, and shouted: "That's for Iwo Jima." I continued this interval-performance strategy and each time I sprinted a one-hundred yard interval, I would revisit one of the WWII battlefronts and shouted: "That's for Wake Island," "That's for Corregidor," "That's for the Battle of Midway," etc. However, eventually, my physiological fatigue overpowered my psychological will, and I could no longer continue these interval sprints and had to limit my performance to a slow walk.

Tanya, the wife of Mort Rosenblum, a colleague who accompanied me to Hawaii, walked with me for the last mile of the run. As we turned the corner, which was only a quarter of a mile from the finish line, she told me a young couple was going to pass by. I said, "Don't worry about them, but if you see a little a Japanese man coming up on me let me know, because I can still turn on a sprint for the last quarter mile."

I finished the 1982 Hawaiian Ironman in 18:07'45". But, because it was so dark, and because I was in such a delusionary state during the last six miles of the running leg of the triathlon, I was never positive I had actually bested the little Japanese man. So, the next night, at the Ironman banquet, I waited anxiously as they announced the age group winners. When I was recognized as the 5th place finisher in my age group, I felt good about my persevering-

cardiovascular accomplishment.

Afterwards, the little Japanese man, whom I had so psychologically abused throughout the last six miles of the triathlon run leg, came over to my table, gave me a Japanese-flag headband, took my picture, and put his arms around me in friendship. I was ashamed, because I had vented my emotions on this kind, gentle man.

I have tried to rationalize the mental strategies I employed to endure my pain and finish this noble triathlon, but I have serious reservations about the ethics behind those strategies. If I used my WWII reflections to take home a 5th place finisher plaque, then my action implied I was *vain*, and vanity is a major Aristotelian Vice. But if I used the nostalgic reflections to give me the physiological and psychological strength I needed to endure the last miles of that grueling event, my strategies were virtuous and I performed with moral integrity. I sincerely hope I used my endowed Free Will wisely and my conduct, under the circumstances, was honorable and not an act of vanity.

"Ironman"

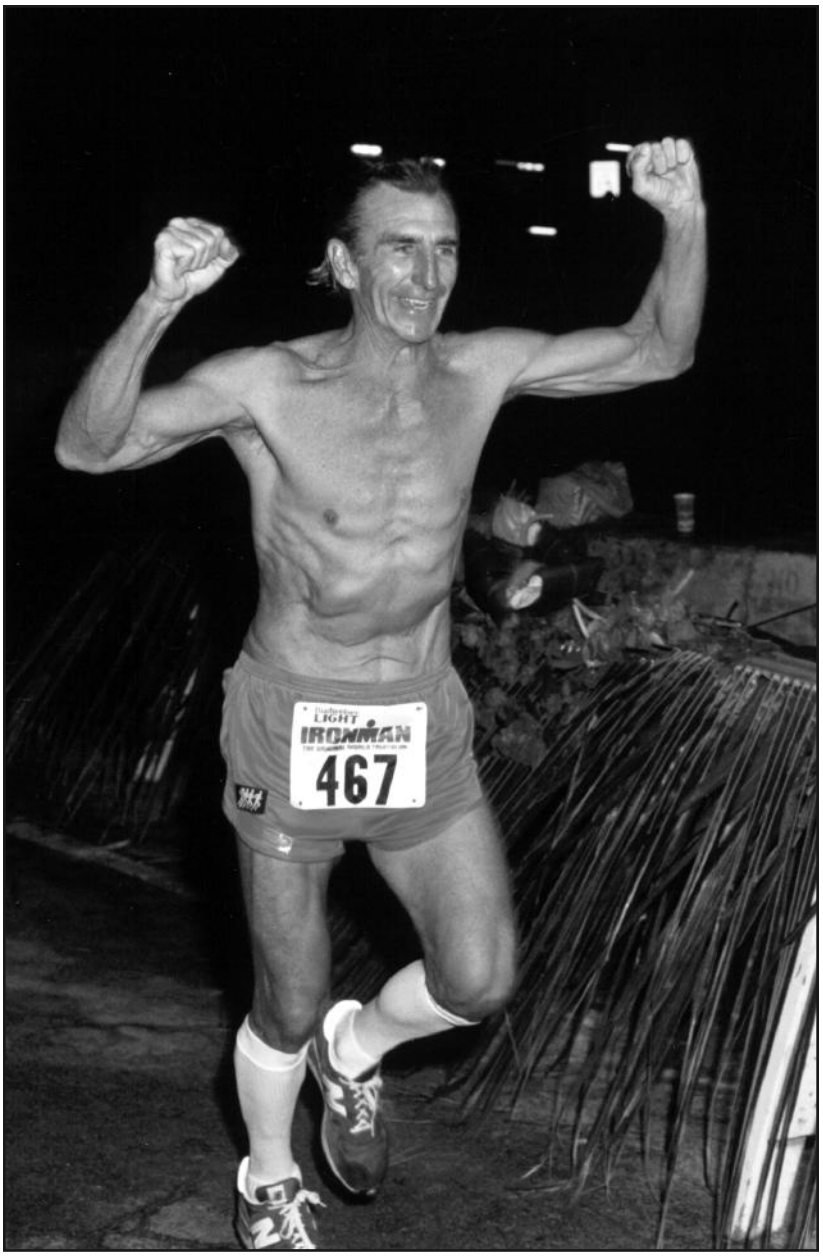

Figure 5-4
This is a picture of the 1982 Hawaii Iron Man Triathlon finish.
Time – 18:07'45"

Chapter Summary

A select series of cardiovascular-training strategies was presented to guide you through an optimal aerobic, walk-training program—directed to increase the contraction strength of your cardiovascular muscles, increase your cardiovascular endurance capacity, and help manage your body fat (the third most powerful predictor of coronary artery disease), throughout your ageing process.

Finally, a story was told regarding the employment of each of the twelve cardiovascular training strategies presented in this chapter.

CHAPTER VI

Ageing and Resting Caloric Expenditures

Introduction

Resting caloric expenditures may be defined as the number of Calories used up by the body while it is not being exercised. For example, select postural muscles of the body's 626 skeletal muscle groups, as were mentioned in (Figure 2-1), continue to contract when the body is not being exercised, because these postural muscles have to remain partially contracted in order to sustain the body's postures during standing, sitting, or lying.

Moreover, cardiovascular muscles (heart musculature [Figure 4-1] and smooth-muscle layers encircling the inner lining of the arteries and veins [Figure 4-2]) also continue to use up Calories while the body is not being exercised. The rhythmical contractions of these muscles are needed, even when the body is not being exercised, to produce the blood flow required to transport the essential nutrients (oxygen and glucose) to the body's biological cells in order to keep them alive.

The average number of Calories used up by these postural and cardiovascular muscles when the body is not being exercised has been calculated to be about 616 Calories per day.

At this point, it is important to recognize there exists a proportional relationship between muscle mass (size) and the number of Calories used up by a respective muscle. Therefore, any age-related decrease in skeletal or cardiovascular muscle mass results

in an accompanying decrease in the total number of Calories used up by those respective muscles.

And this is exactly what happens throughout the ageing process. When there is a 1.0%/year age-related decrease in skeletal and cardiovascular muscle mass (Figure 2-2 and Figure 4-3) there is an accompanying 1.0% decrease in the number of calories used up by these muscle groups.

Therefore, it follows that the reported 616 Calories per day used up by the postural and cardiovascular muscles while the body is not being exercised, must also experience a 1.0% decrease throughout the ageing process.

Consequently, by the end of one year, the total decrease in Calories used up by the postural and cardiovascular muscles when the body is not being exercised, would calculate out to be 2,283 Calories per year:

616 Calories/day x 365 days = 224,840 Calories per year
224,840 Calories per year x 1.0% =
2,248 Calories per year

Now, since 3,500 Calories = 1.0 lb, a 2,248 Calorie decrease in Calories used up by the postural and cardiovascular muscles, throughout the year, would result in a body-weight increase of 0.65 lbs.

2,248 Calories ÷ 3,500 = 0.65 lb. per year
And after 10 years, the body's weight gain would be 6.5 lbs.
0.65 x 10 = 6.5 lbs. per 10 years

And after 50 years (from ages 20-70), there would be a 32.5 lb. increase in body-weight.

6.5 x 5 = 32.5 lbs. per 50 years

These calculations, of course, are based on the assumption that your dietary Calorie count would remain the same throughout the ageing process (ages 20-70 years). Notwithstanding, any increase in dietary Calories would of course result in an even greater increase in body weight over the years.

In conclusion, the projected age-related 616 Calorie per day decrease in Calories used up by the postural and cardiovascular muscles, while the body is not being exercise, assuming dietary Calories remained the same, would mean fewer Calories are being used up by the body each year. Over the years, this would result in an accumulated weight gain of 32.5 lbs. by age 70. And this weight gain becomes a powerful and independent risk factor for the onset of coronary artery disease, high-blood pressure, diabetes, and other related degenerative diseases.

Finally, it is important to recall that age-related decreases in skeletal and cardiovascular muscle mass (Chapters II and IV) are caused by the age-related atrophy (wasting away) of the muscle fibers in these respective muscle groups. This atrophy is caused by the disuse of these muscles, which results from a sedentary life. However, as presented previously, initiating and adhering to an exercise lifestyle will prevent the premature onset of the age-related losses in muscle mass consequential to sedentary lifestyles, and help prevent the premature onset of the age-related weight gain sedentary seniors experience throughout their later years.

A Metabolic Problem Resolved

A middle-aged, Orlando, Florida housewife went to her family doctor and told him, "My husband is stressing me out. He is hypercritical about me being overweight. And we argue about this issue, all the time."

The doctor replied, "Your metabolism has slowed down because of your age. So when you leave my office, I want you to start walking

and call me in a couple of weeks."

Two weeks later, she called the doctor and said, "I lost 20 lbs, and my stress is all gone." Whereupon the doctor asked, "And how are you getting along with your husband?" The lady replied, "I don't know, I am in Miami."

Chapter Summary

The effect of ageing on the number of Calories used up when the body is not being exercised was presented. The age-related decrease in Calories used-up by the skeletal and cardiovascular muscles at rest was calculated to be 6.2 Calories per day, resulting in a weight gain of 0.65 lbs. per year or an accumulated weight gain of 32.5 lbs. by age 70.

The cause for this age-related decrease in expended Calories may be attributed to disuse of the skeletal and cardiovascular muscles throughout the ageing process.

Finally, a story was told about a lady who resolved her age-related metabolic problem.

CHAPTER VII

Nutrition and Ageing

Introduction

Selecting a healthy-nutritional diet is based upon the following variables: *Cholesterol, Fat, Calories, Sodium, Glycemic Index (GI), Proteins, Fiber, Complex Carbohydrates*. The nature of these variables will now be presented.

Cholesterol

Cholesterol is the second most powerful predictor of Coronary Artery Disease (CAD), and CAD is America's #1 killer—more people die from CAD than any other disease.

Blood chemistry values for cholesterol are reported in two major fractions: Low Density Lipo Proteins (LDL) and High Density Lipo Proteins (HDL). LDL is your "bad" cholesterol fraction; because it remains in the body, sticks to the coronary arteries, clogs arterial blood flow, and causes a heart attack. HDL is your "good" cholesterol fraction; because it transports cholesterol out of the body and, consequentially, inhibits the buildup of LDL cholesterol that tends to accumulate in the coronary arteries.

Because of the risk associated with LDL, you need to avoid foods that contain high levels of this cholesterol fraction. Moreover, you need to avoid food containing high levels of saturated fat and Trans fat, because these foods encourage the build-up of LDL. However, foods containing monosaturated fats, for example avocados, are acceptable

because they elevate HDL, your "good" cholesterol fraction.

Incidentally, exercise will lower your LDL "bad" cholesterol and raise your HDL "good" cholesterol.

Fat

Dietary fats increase your body fat (the third most powerful predictor of CAD), help increase your LDL, and are associated with several other age-related degenerative diseases such as diabetes, high blood pressure (hypertension), and select cancers.

Calories

High-Calorie foods make it easier to consume more Calories than the number of Calories used up by the body. Therefore, selecting lower Calorie foods helps control the balance between the Calories you consume and the Calories your body uses up, and helps prevent gaining excess body fat. Moreover, high Calorie foods may also be high in the saturated and trans fat foods associated with CAD and other degenerative diseases.

Sodium

Sodium is associated with high blood pressure (hypertension). High blood pressure leads to diseases of the heart. Once you develop high blood pressure, you have to take a blood pressure lowering drug. Therefore, if you can prevent the premature onset of high blood pressure by exercising and avoiding the excess consumption of sodium you can avoid experiencing the side-effects such as fatigue and dizziness associated with blood pressure lowering drugs.

Glycemic Index

Glycemic Index (GI) is important in identifying how quickly foods break down during digestion. Here is how the GI is determined: A standard amount of glucose is dissolved in water and used as a refer-

ence food. The solution is consumed and the level of the blood-glucose response is recorded. This value is set as a reference score of 100%.

The absorption of other foods is measured in the same way and compared to glucose. For example, a normal serving of Cocoa Puffs (breakfast cereal) produces a GI value of 77. That is to say, the absorption response of Cocoa Puffs is 77% of that of glucose.

GI values greater than 50 such as refined white breads, cakes, cookies, white potatoes, white pastas, fruit juices, and sugared drinks are considered a "high" GI food because they are rapidly absorbed into the blood and cause the hypoglycemic-fatigue response, as seen in Figure 5-3.

Complex carbohydrates, such as fruits, vegetables, grains, and legumes, have a low GI (below 50) and are digested slowly. They do not produce a hypoglycemic-fatigue reaction like simple carbohydrates. Complex carbohydrates are broken down and stored in the liver and muscle tissue. They are high-energy food sources supplying the body's normal metabolic needs. In this regard, it should be noted you only have two hours of stored glucose in the body and fast bursts of physical activity (anaerobic, without oxygen) quickly deplete your muscle and liver glycogen stores. To replenish these stores, you must eat a high-complex-carbohydrate meal immediately after your period of exercise. Moreover, because of the long period from the time you ate dinner the night before, you need to eat a high-complex-carbohydrate meal for breakfast and lunch if you expect to maintain a constant energy source throughout your day.

Protein

High protein foods, such as chicken, turkey, eggs, nuts, cereals, are relatively low in saturated fat and are important in maintaining muscle mass and contraction strength and preventing the premature onset of age-related losses in muscle tissue. The RDA for dietary protein is 50-60 g. However, recent studies have reported 70 g of

protein per day resulted in enhanced increases in muscle mass and contraction strength.

Fiber

High-fiber foods, such as fruits, vegetables, cereals, lentils, are important to the healthy gastro-intestinal transport of digested foods. Fiber may be insoluble or soluble. Insoluble fiber acts as bulk and helps in the transport of digested foods. Soluble fiber is absorbed into the blood stream and helps raise HDL, your "good" cholesterol fraction. The RDA for fiber is 25 g.

Omega-3 and -6

Omega-3 foods, such as salmon, herring, sardines, omega-3 tablets, are high in Omega-3. They decrease inflammation, blood clotting, and heart disease and increase HDL your good cholesterol fraction. Omega-6 foods such as soy bean based foods, salad dressings, mayonnaise, peanut based foods, nuts, granola, wheat germ, chips, farm-raised fish, hot dogs (vegetarian, turkey, chicken, beef), quinoa, margarine spreads, pork back-ribs, sausage, beef substitutes and chia seeds should be avoided. Note: American diets are much higher in Omega-6s as compared to Japanese or Swedish diets.

To help you select a healthy diet based on the above variables you will find helpful the following lists: preferred foods and foods to avoid.

Preferred Foods

- Oatmeal (Quaker Oats-Old Fashioned)
- Oat grain (Cold Cereal)
- Whole grains: Bread, Crackers, Pasta, Pancakes.
- Fleischman's: Butter spread with Olive Oil
- Egg Whites
- Salmon (fresh, frozen, just not farmed)

- Tuna Fish Salad
- Raspberries, Blueberries, Blackberries, Pineapple (fresh)
- Tomatoes, avocados, yams, squash, carrots, peppers, eggplants, onions, garlic, greens (fresh), and other colored vegetables
- Beans, peas, lentils
- Fresh dried parsley
- Sodium-free salt
- Salad dressings: Olive oil and Red raspberry vinegar, vegenaise
- Chicken, Turkey (avoid skin)
- Soy butter (Soy wonder)
- Sugar-free jelly with fiber (Polaner)
- Low-fat cottage cheese (Lactaid)
- Green tea, White tea
- Decaf-coffee
- Red Wine (1 glass)
- St Pauli Girl Beer (Non-alcoholic)
- Snack foods: Microwave Popcorn (Smart Blend)
- Water

Foods to Avoid

1 Saturated-fat foods

2 Trans-fat foods

3 Hydrogenated-fat foods

4 High-sodium foods:
all canned and packaged foods—soups, vegetables, condiments, cereals, crackers, chips, sauces, frozen food, red meats, lunch meats, cheeses, smoked products, dressings, ethnic foods, nuts, etc. (read labels)

5 Sugared foods:
soups, snacks, colas, fruit punches, fruit juices, cereals, packaged bakery goods, pastries, candies etc. (read labels)

6 High-fat foods:
red meats, cheeses, dairy products, salad dressings, cream, red meat gravies, crackers, chips, frozen dinners etc. (read labels)

7 Foods with monosodium glutamate (msg)

8 Smoked and barbecued foods (cancer related)

9 Fast Service Chain Foods:
high in calories, saturated fat, cholesterol, and sodium

10 High Glycemic Index foods (greater than 50)

11 Caffeine Drinks:
colas, coffee, or energy drinks

12 Sugar Substitutes (long term effects unknown)

13 Sardines, pickled herring, and lox are high in Omega-3 but also high in sodium

14 Nuts are high in protein, but also high in fat and omega-6

15 Shellfish:
high in cholesterol but have a low Omega-6/Omega-3 ratio

16 Farm-raised fish:
may be high in mercury and saturated fats

17 Most salad dressings are high in fat and sodium.

Below you will find select reported nutritional studies, related to the dietary strategies put forth in this chapter.

Breakfast Studies

- In one study, people who ate whole-grain cereal every day were 28% less likely to suffer heart attacks.
- Recent research shows eating breakfast helps prevent obesity in children and maintain weight loss in adults by helping you feel fuller the rest of the day.
- In a 2010 study, men who ate an egg in the morning reported less hunger over the next 3 hours and consumed fewer Calories during the next 24 hours than men who were given a bagel.

- Children who eat breakfast perform at nearly a grade level higher than those who do not. These recent studies, also show having a morning meal sharpens memory for all ages.
- Several studies have reported eating in the morning helps regulate blood sugar, prevent mental fatigue, and reduce the risk of type 2 diabetes.

Breakfast of Champions

The breakfast of Michael Phelps—an Olympic Champion who has won 8 gold medals—consists of three fried egg sandwiches, loaded with cheese, lettuce, tomatoes, fried onions and mayonnaise; two cups of coffee; one five-egg omelet, one bowl of grits; three slices of French toast topped with sugar; and three chocolate-chip pancakes. Michael's breakfast provided the energy he needed to train for his Olympic swim records.

Reportedly, Michael is on a 12,000 Calorie diet. He needs this many Calories, because of the high number of Calories he uses up during his two-a-day, high intensity, swim workouts and the number of Calories he uses up during his post-exercise period (the body's resting metabolism remains elevated for 7-10 hours after exercise, depending on the intensity of the exercise.)

Thus, it seems the more you exercise skeletal and cardiovascular muscles, the more healthy foods you need to eat. This is good, because the more you exercise the greater the cardiovascular development and the less concern you have for dieting.

Chapter Summary

A healthy diet, based on select variables: Cholesterol, Fat, Calories, Sodium, Glycemic Index (GI), Proteins, Fiber, and Complex Carbohydrates were presented, and eating strategies and foods to avoid were identified. Preferred foods were shown, indicating select healthy food choices fulfilling Recommended Daily Allowances (RDAs.)

Select studies were reported showing the advantages of eating a healthy breakfast and a story was told about a 12,000 Calorie diet.

PART ONE

Summary

Part One of this manuscript revealed the life expectancy for ageing seniors has been extended to age 77 with a 63% chance to live to 85. The fact that seniors are living longer makes clear the need to recognize: 1) the consequences of the age-related, 1.0% per year loss in skeletal and cardiovascular muscle mass and contraction strength predicted for sedentary seniors; 2) the early onset of these losses may be prevented by appropriate resistance and cardiovascular training intervention modes; and 3) practicing a healthy exercise and nutrition lifestyle is a virtue that promises to prevent the premature onset of these degenerative processes and the consequential debilitating effects therein.

Part Two

Happiness

Part Two: Prelude

Prelude

Part two of this treatise will present Happiness, the second term in the title: *Ageing with Happiness:*

- It will trace the origin of the term Happiness and bring to light the relevancy of this noble wordage.
- It will outline how a proposed Virtue-Happiness intervention model can inspire sedentary-inclined seniors to exercise.
- It will show how Happiness meets the criteria to be accepted as *Humankind's Purpose in Life.*
- It will describe Aristotle's cataloging of *Golden Mean Virtues* and show how practicing these virtues brings about a state of Happiness.

Finally, it will fulfill the mission of this treatise:

> To convince you the purpose of *Ageing-Happiness* exercise intervention model presented herein offers an inspirational force more powerful than any other exercise intervention model that has ever tried to change the lifestyle of sedentary seniors. This Ageing-Happiness exercise intervention model promises a state of happiness to allure you into appreciating and practicing a healthy exercise lifestyle that will prevent the premature onset of the degenerative ageing processes and consummate a state of happiness throughout your senior years.

CHAPTER VIII

Happiness

Introduction

My introduction to the term *Happiness* can be traced to an elective-philosophy class I took at DePaul University in 1950. The name of the course was "Introduction to Aristotle" and the text was *Nichomachean Ethics*. In regards to this course enrollment, it should be noted: I had never taken a course in philosophy; I was naïve concerning the significance of *Aristotle*; I was clueless as to the nature and the substance of the term *Happiness*; the only reason I chose that course was because it fit my schedule.

Since this was a course of convenience, obviously, I was not in a state of learning readiness when I attended the first class session. However, I was soon taken with the professor, as he nimbly unveiled the essence and order of the term *Happiness* and inspired me to read Aristotle's: *Nicomachean Ethics*.

That class, that book, that professor have had a dramatic impact on my personal life and professional career, especially that book. It is amazing how many times I have revisited Aristotle's: *Nicomachean Ethics*. As testimony to these endless visits, you have only to view the weary condition of this 50-year-old publication, Figure 8-1. The scotch tape, barely holding the book together, has deteriorated. The back cover and some of the pages have disappeared. And the small stick-sheets inserted to mark select pages have turned yellow. Yes, revisiting Aristotle's: *Nicomachean Ethics* over these many

years has greatly fatigued this cherished manuscript. But it has, and still does, serve me well. For it has enabled me to understand and appreciate the inwardness and disposition of the term *Happiness*.

Based on my early introduction to Happiness and subsequent years of research on this term, I offer the following characterization of the term Happiness so you may better understand and appreciate the relevancy and far-reaching embodiment of this noble term.

Nicomachean Ethics

Figure 8-1
Photograph of the author's copy of Aristotle's enduring: *Nicomachean Ethics*.

Characteristics of Happiness

History

The term *Happiness* was conceptualized by Aristotle some 2500 years ago. Aristotle describes Happiness in ethical terms: as the highest good for all Humankind, as the ultimate purpose in life, and as the basic motive for everything you do.

Definition

Happiness is a state of mind. It is a mindful state of excellence. It is the uppermost quality of feeling good about yourself. It is the consciousness about feeling fulfilled.

As an "End"

Happiness is an "end in itself." It is desired for its own sake. It is the basic motive for everything you do in life. It is the chief end of all human action.

Never Underestimate Happiness

The term Happiness must never be taken lightly. It is far more than the colloquial expressions: Happy Birthday, Happy Holiday, Happy-Go-Lucky… Happiness is a telling term far beyond these everyday expressions.

Happiness vs. Pleasure

Happiness differs from *pleasure*. Happiness is an "end." Pleasure is a means to an end. For example, you receive pleasure from eating tasty foods, but that is not an end. The end is the happiness you experience from eating tasty-healthy foods and fulfilling your nutritional needs. A person who gives his life over to eating only for pleasure is beastly and has done nothing to distinguish himself from animals; he is a "pleasure-seeker." Happiness is a higher good than that!

Divine Decree

Happiness is not in conflict with Divine Decree or any denominational covenant. Divine Decree, actually, supports the ethical values compelling a state of happiness.

Happiness Not Endowed

Happiness is not in-born. It must be *acquired*. You acquire Happiness by practicing virtuous acts of conduct.

An Inalienable Right

No one can deny your right to pursue and experience a state of happiness. Happiness is a universal good and an inalienable right of all humans.

Happiness: Humankind's Purpose in Life

As you will see in Chapter X, Aristotle presents a difficult-to-challenge argument concluding happiness is humankind's purpose in life.

A Pair of Shoes

After I won the 1935, Milwaukee City age-group marble championship, a local shoe store offered me a free pair of its new line of rawhide-casual shoes, Figure 8-2. They wanted a promotional picture of me wearing those featured shoes to display in their store window.

When I spoke to my mother, she told me to accept the offer and to take my brother, Norman, to the photo-shoot. "After they shoot the picture, tell them your brother needs shoes more than you do," she advised me. "They will be so impressed with your generosity, they will give you both a free pair."

When the photo-shoot was finished, I told the store manager to

give my brother the pair of shoes because he needed them more than I did. The manager arranged for my brother to receive a pair of those handsome-rawhide shoes and returned to his office.

I stayed around waiting for the manager to come out and give me my own pair of those eye-filling shoes. After a while, I realized he was not about to return. So, I told my brother, "Let's go home, Norm, and show Mom your new shoes."

When Mom saw the new shoes, she gave my brother a big hug. And with a Mona Lisa-like smile, she looked over to me and whispered, "Thank you, son. You make me so very proud."

My brother was thrilled with his new shoes, and my mother was proud which made me very happy. Many years later, when I was introduced to Aristotelian ethics, I realized how much happiness I had received by sharing my shoes with my younger brother.

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Marble Champion

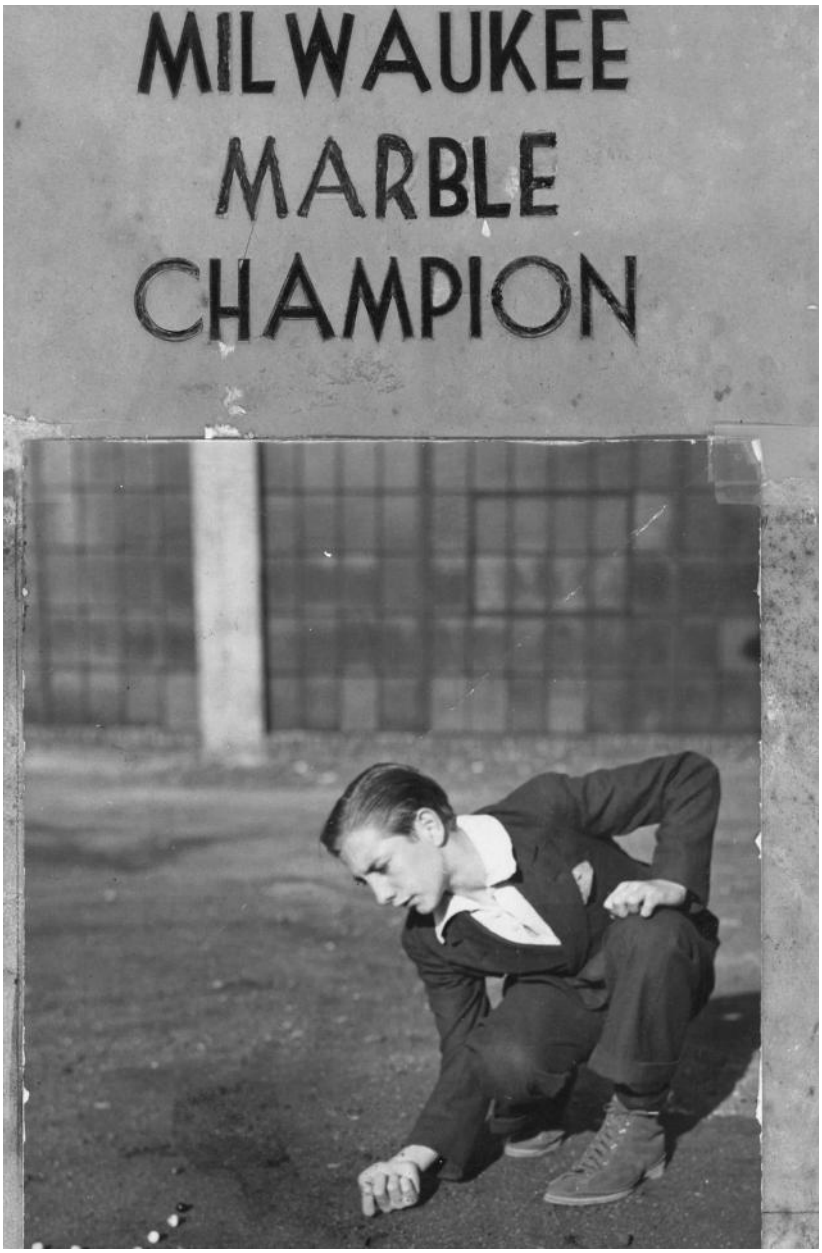

Figure 8-2
Photograph of the 1935 Milwaukee, age-group, marble championship.

Chapter Summary

My introduction to the term Happiness was traced to an undergraduate-elective course I enrolled in at DePaul University entitled: "*Introduction to Aristotle.*" The text for that course was *Nichomachean Ethics*. That course and that text were an awakening – for they enabled me to understand the inwardness, disposition, and dynamics of Happiness and the profound effects this term has on your life.

A characterization of the term Happiness was presented and the term Happiness was defined as a state of mindful excellence, an uppermost quality of feeling good about yourself. Finally, a story was told about a pair of shoes and happiness.

CHAPTER IX

Ageing-Happiness, Exercise Intervention Model Proposal

Introduction

The proposed *Ageing-Happiness* exercise intervention model promises to change the indifferent attitude sedentary populations have towards exercise. This negative attitude is made clear by the excuses they give when it comes to initiating an effective exercise-intervention experience:

- No Time
- Too Tired
- Too Old
- Discomfort
- Not Ready

Perhaps, the indifferent attitudes prevailing in sedentary populations may be summarized by the confronting line from Dr. Robert Hutchins, while he was president of the University of Chicago: "Whenever I think about exercising, I lie down and take a nap."

With these besetting attitudes, it is easy to understand why the endless number of attempts to induce sedentary population to exercise have failed.

In this light, it seems there is a relevant need to identify an effective motivational, exercise-intervention model with the potential to convince sedentary populations to adhere to an exercise

lifestyle bringing about a healthy-ageing process. The philosophical model about to be proposed is a promising intervention prototype evidencing the ability to accomplish this lofty end.

Proposed Ageing-Happiness, Exercise Intervention Model

Premise

The premise of the proposed *Ageing–Happiness* exercise intervention model is based on the processes of Ageing as presented in Part One, and the characterization of *Happiness* as presented in Part Two.

However, it is also based on two disclosures: #1) Aristotle's proclamation, *performing a virtuous act compels a state of happiness*; #2) the acknowledgment that *exercise meets the criteria to be considered a Virtue.*

Validation: Disclosure #1

In regard to disclosure #1, Aristotle defines Virtue as the practice of performing a good, worthy, beneficial act, such as acts of *kindness, courage, respectfulness*.

The following examples are offered to validate Aristotle's proclamation, performing virtuous acts compels a state of happiness:

- If you perform a virtuous act of *kindness* towards a family member, you will strengthen your family-support system and bring forth a state of personal happiness.
- If you perform a virtuous act of *courage* by defending an unfair judgment against a friend, you will feel good about your loyalty and experience a state of personal happiness.
- If you are *respectful* to a colleague, you will make that person feel good, leading to a state of personal happiness.

In view of the examples presented above, showing how performing a virtuous act brings about a state of happiness, it would appear Disclosure #1, Aristotle's proclamation: *performing a virtuous act compels a state of happiness*, has been validated.

Validation: Disclosure #2

It would appear Disclosure #2 has also been validated, because, as presented in Part One of this manuscript, exercise was reported to be able to prevent the premature onset of the age-related, degenerative-disease processes predicted for sedentary seniors. Therefore, exercise may be considered a *Virtue*; because it is a good, worthy, and beneficial act, just like the *Virtues* of *kindness, courage, and respectfulness*.

In light of the above presentation, showing the beneficial effects of exercise, it would appear Disclosure #2—*exercise meets the criteria to be considered a Virtue* and has also been validated.

Acceptance Questionnaire

Since the premise upon which the proposed, *Ageing-Happiness* exercise intervention model has now been made clear, it is time to present an *Acceptance Questionnaire,* directed to appreciating and complying with the motivational effects of this promising exercise intervention model.

Ageing-Happiness
Exercise Intervention Model
Acceptance Questionnaire

Question #1

Ask yourself, do you accept the fact that your life expectancy has reached 85 years, extending the period you have to experience the ageing processes accumulating throughout your senior years.

Question #2

Do you accept the fact that leading a sedentary-inclined lifestyle: 1) elevates your cholesterol and percent body fat (the second and third most powerful predictors of CAD) and brings about the premature onset of high-blood pressure, obesity, diabetes; 2) decreases your skeletal and cardiovascular muscle mass and contraction strength, and limits your ability to perform your daily living activities.

Question #3

Do you accept the fact that the proposed *Ageing-Happiness* Exercise Intervention Model offers an inspiring allurement that no other exercise intervention program has considered, namely, the promise of a state of happiness if you practice a healthy exercise lifestyle. And that since happiness is an "end in itself," there can be no greater motivational force to encourage you to initiate and adhere to a healthy exercise lifestyle throughout your ageing years.

Acceptance Questionnaire: Conclusion

If the answer to each of these questions is "yes," you have just accepted the premise upon which the *Ageing-Happiness* model is based. You have acknowledged exercise is a *virtue* (a good, worthy, and beneficial act), and you have recognized Aristotle's proclamation that performing a virtuous act, such as exercise, compels a state of happiness.

In effect, you have accepted the proposed *Ageing-Happiness* exercise intervention model and should be convinced it is in your best interest to habituate a healthy-exercise lifestyle so you may compel a state of happiness throughout your senior years.

Final Question and Sentiment

Now you have to answer one final question: Do you have the *wisdom* and pluckiness to practice a healthy exercise lifestyle

throughout your senior years? If the answer to this leading question is "yes," I am confident you are in a "state of readiness" to start a select exercise-activity this weekend.

This activity could be walking, resistance training, cycling, swimming, or any other physical activity you are comfortable with. However, your chosen exercise activity should be one that is realistic to achieve. It should not be too long nor time consuming. It should not be fatiguing. It should be an enjoyable exercise experience, such as a walk around the block, or down a trail, or through a park. It should be a relaxing experience, wherein you have some private time to reflect on your new exercise exploration.

After you have finished your first day's exercise journey, you should recognize that you have initiated a process referred to as *exercise habituation**. Exercise habituation is a telling term that involves the neural patterning taking place in your *intellect*†. Below you will find a presentation making clear the neurological nature of the exercise habituation process.

Neurology of Exercise Habituation

The neurology of exercise habituation involves a patterning of the nerves situated in your intellect, a network of neural pathways located in the brain. Although no objective scientific evidence has been put forth identifying the specific anatomical location of the intellect, it can be assumed that one does exist. This is because of the self-evident fact: humankind is able to *think!*

As an integral part of the brain, the intellect consists of billions of

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* To practice an exercise lifestyle until it becomes a permanent part of your character.

† That part of the brain producing the ability to "think."

brain cells. As the brain develops, like a sapling that sprouts the branches of a tree, these brain cells create neural connections with one-another and form branches within the intellectual center of the brain.

And this is what happens when you initiate an act of exercise, the brain cells in the intellect sprout newly formed neurological branches. As your acts of exercise are repeated, these branches form independent, exercise-directed neural pathways. And if these acts of exercise are practiced over and over, they become an established neurological pattern and a permanent part of your personality and character. Now you have "habituated" a permanent exercise lifestyle!

You need to be reminded, however, that if you do not practice acts of exercise, the brain cells of the intellect do not form the neural pathways associated with exercise habituation and exercise does not become a part of your personality and character. Thus, you will have "habituated" a permanent sedentary lifestyle.

And this is exactly what happens with sedentary-inclined seniors. Early on, they secure a sedentary type job, experience an after-work fatigue, look forward to enjoying a vicarious experience watching television, have no time nor interest in any form of exercise. Therefore, they do not form the exercise-neural patterning necessary to habituate an exercise lifestyle. Rather they habituate a sedentary lifestyle.

To reverse this problematic lifestyle and habituate a healthy exercise lifestyle, you need to appreciate the uniqueness of the proposed Ageing-Happiness exercise model:

Ageing-Happiness Model

Uniqueness

The Ageing-Happiness model offers a motivational force different from any other approach that has tried to change the sedentary habits of senior populations. The Ageing-Happiness model promises a State of Happiness as a motivational force to practice a healthy exercise

lifestyle. And since happiness is an "end in itself," there can be no greater motivational force capable of seducing sedentary inclined seniors to habituate a healthy exercise lifestyle. If you try the Ageing-Happiness exercise intervention model, you will find this to be true, because you will be inspired by the promise of consummating* a state of happiness if you practice an active lifestyle throughout your senior years.

If the above presentation regarding the potential of the proposed Ageing-Happiness exercise intervention model has been convincing, you are ready to start your "new life" (*La Vita Nuova*) this weekend. I am convinced you are ready!

Confident that taking this first step will bring about a State of Happiness throughout your senior years, I do not even need to offer a money-back guarantee. So just do it! Remember: "The journey of a thousand miles starts with the first step."

The *Habituation Metaphor*, presented next, shows how the proposed *Ageing–Happiness* exercise intervention model can energize the habit of exercise and make it a futuristic-cultural norm.

Habituation Metaphor

This habituation metaphor involves the "Hundredth Monkey Phenomenon." This phenomenon evolved from a study started in 1952. It was conducted on the island of Koshima, wherein a Dr. J.B. Rine and an anthropological team from Duke University studied the Japanese monkey, Macaca Fuscatta. Part of their experiments involved observing the monkey's eating behavior. The monkeys liked raw sweet potatoes, but found the dirt they had been grown in somewhat distasteful. Nevertheless, they continued to eat the dirty potatoes. Then, one day, an 18-month-old female, named Imo, found a sweet potato that had happened to roll down into a nearby stream. When

* To consummate means to reach your highest level of perfection, regarding your state of happiness.

she retrieved the sweet potato, she found it tasted better, because the dirt had been washed away. She realized that she could remove the dirt by washing her sweet potatoes in the nearby stream, and thereby better enjoy her sweet potato meals. Anxious to share her new experience with others, she first imparted this practice to her playmates, and then to her mother and father. Subsequently, her playmates shared their potato-cleaning experiences with their parents, the next tier in the tribe of Koshima monkeys to habituate this practice. Thus, this cultural innovation was gradually passed along via the various social tiers of the Koshima monkey society. This went on slowly for several years, because only the change-receptive monkeys learned to enjoy the benefits of this lifestyle adjustment. Those monkeys who were reluctant to change kept eating the dirty sweet potatoes. Then, one day in 1958, when the "hundredth monkey" learned to wash his potatoes, an amazing phenomenon took place: every monkey in the tribe started to wash his or her sweet potatoes. Somehow, the accumulated energy supplied by the "hundredth monkey" created a cultural breakthrough phenomenon, and washing their sweet potatoes became a "cultural norm." That is to say, all Koshima monkeys habituated the practice of taking their dirty sweet potatoes to the stream and washing them so they could better enjoy a more tasteful meal.

The saga of "Hundredth Monkey Phenomenon," chronicled in 1980, manifests a metaphorical model showing how the proposed Ageing-Happiness exercise intervention model can be used to change the behavior of sedentary inclined senior populations. For you see, like the monkeys who passed along their learning experiences to their peers and parents, so too will the many members of our society who have been inspired to change their sedentary lifestyles pass along their learning experiences regarding the benefits of habituating a healthy exercise lifestyle to their peers and families.

Therefore, if the metaphorical supposition portrayed above can be perpetuated throughout the progressive tiers of our society, like the

Koshima monkeys, someday the "cultural norm" breakthrough actualized by the "hundredth monkey phenomenon" may be realized by the sedentary populations in our society. Plainly, however, a national cultural exercise norm may require considerably more participants than were needed to establish the sweet-potato-washing norm. Nevertheless, whatever the magic number may be—like the "hundredth monkey phenomenon"—the exercise challenge may someday reach its cultural breakthrough goal and all sedentary populations will consummate an exercise lifestyle.

Clearly this ambitious process will require time. However, the proposed Ageing-Happiness, exercise intervention model shows a promising potential to perpetuate an exercise movement enabling the virtue of exercise to become a cultural norm. And, therein, all sedentary inclined seniors will habituate a healthy-exercise lifestyle.

Chapter Summary

A proposed *Ageing-Happiness* exercise-intervention model was presented. It was shown to be consequential in encouraging sedentary-inclined seniors to follow an effective exercise lifestyle.

An Ageing-Happiness exercise intervention model Acceptance Questionnaire was presented to find out if you are in a state of readiness to start a rewarding exercise lifestyle. And the motivational force of consummating a state of Happiness was made clear.

Finally a habituation metaphor was offered as a model to show how the virtue of exercise may become a cultural norm.

Intromission Notation

Having presented the relevancy of the proposed Ageing-Happiness Exercise Intervention Model, I feel comfort and satisfaction in knowing you have been made aware of the promising potential this model has to inspire you to practice a healthy exercise lifestyle that will bring about a state of happiness throughout your senior years.

However, there is another lifestyle that will also accomplish this end, namely, one that fulfills your purpose in life by practicing the Aristotelian Virtues. Therefore, to give even more meaning to your lifestyle choices, I have included in this treatise: Chapter X—*Humankind's Purpose in Life*; Chapter XI—*Aristotle's Golden Mean Virtues*; and Chapter XII—*The Life of Aristotle*.

In these chapters you will find philosophical concepts that offer ethical insight into choosing how you ought to act and ought not to act in order to practice a virtuous lifestyle that brings about a state of happiness throughout your ageing years.

However, these chapter presentations may include select *philosophical terms* and *concepts* that may be unfamiliar to the reader. Therefore, you need to approach these chapters with patience and deliberation. So if you approach these chapters in a state of readiness, I am convinced the philosophical content presented therein is relevant to pursuing a virtuous-ethical lifestyle that will compliment your virtuous-exercise lifestyle and perpetuate a permanent state of happiness throughout your golden years.

CHAPTER X

Humankind's Purpose in Life*

Humankind's Purpose in Life—raises the question: Is there a need for you to identify a purpose in life? The answer to this question is clear. You need a purpose in life to give meaningfulness to your daily being. You need one to provide direction for your daily acts of conduct. And finally, you need a purpose in life to realize the good life.

What is humankind's purpose in life? Many philosophical writings have proposed varying answers to this provocative question. However, it seems a universally agreed upon purpose for life, for all humankind, has not materialized. This is difficult to accept, in view of the fact Aristotle's insightful reasoning regarding humankind's purpose in life is so convincing. In *Nichomachean Ethics*, Aristotle puts forth the criteria needed to accept the proposition: Humankind's Purpose in Life is to consummate a state of Happiness.

Aristotle goes on to explain, humankind's purpose in life must be *Universal*, so it can be acceptable to all people. This means, it must be credulous to all cultures, denominations, and races. And it must have no philosophical conflicts with any devotional convictions. He also proposes humankind's purpose in life must be *Intellectually Infinite*. That is to say, it must be a subjective state of mind that is everlasting. It must have a self-conscious potential that is endless. It must be a

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* As stated in the intromission notation, this chapter may include select, unfamiliar *terms* and *concepts* that need to be approached with patient deliberation in order to appreciate their relevancy.

cognitive condition, feeling, or emotion that is omnipresent. It must be that part of your soul[†]. Moreover, you must be able to pursue your purpose in life, every day of your life, and into eternity.

Therefore, your purpose in life cannot be some select transient goal, such as to graduate from high school, earn a college degree, be free of debt, marry and have children, pay off a home-mortgage, or become a millionaire. These may be noble objectives for some people; however, others may not share the same desire to seek these specific goals. Consequently, select transient goals do not meet the criteria of *Universality*.

Moreover, select transient goals do not meet the criteria of being *Intellectually-Infinite*, because transient goals are short-lived achievements and only bring about a passing or fading state of fulfillment. For example, a goal of completing a college degree cannot be considered an ultimate purpose in life, because after graduation, there would be no subsequent purpose in life. Therefore, it seems clear, achieving personal temporary goals cannot serve as humankind's purpose in life.

In regard to identifying a relevant purpose in life, Aristotle proposes that *Happiness* meets the criteria of *Universality*, because as Aristotle proclaims, no one objects to being happy. Moreover, Aristotle proposes *Happiness* also meets the criteria of *Intellectual Infiniteness*, because *Happiness* is surely an abstract state that can be strived for everlastingly, and it is truly an enduring end prevailing throughout your life and transcending into eternity. In summary, Aristotle's convincing arguments validates that *Humankind's Purpose in Life* is to consummate a state of *Happiness*.

The following story is an example of how identifying the virtue of kindness helped me fulfill my purpose in life.

[†] Soul, as defined herein, may be considered that part of the intellect pertaining to moral decision-making that is eternal.

Purposeful Profession

At the age of 18, I enlisted in the U.S. Navy. After 24 months of sea duty, I realized I could best serve my country as an officer. When I applied for Officer's Training School (OTS), the commanding officer informed me my service-aptitude test scores were high, but a high school diploma – which I had never acquired–was required. Learning of this situation, my mother scheduled a visit to see the principal of my high school, Mr. Olice P. Winter, Figure 10-1 My mother explained the situation and was about to ask if there was any way I could fulfill my graduation requirements when Mr. Winter said, "Just a minute, Mrs. Rohter. I need to talk to my secretary." After a few minutes, she came into his office and handed Mr. Winter a folder. He opened it and disposed his signature. Without hesitation, he said, "Here is your son's diploma, Mrs. Rohter. I remember him well. He was a good student and an outstanding athlete." Mr. Winter was a grand old educator. He never suggested I take any make-up course work or qualifying exams. He just unswervingly signed my diploma. His doubtless act of kindness made it possible for me to be accepted into OTS, which gave impetus to my post-war graduate work and completion of a terminal degree. Mr. Winter's kindness was an act of virtue that shaped my professional career and fashioned my philosophy of teaching. For you see, I have practiced the virtue of kindness to my students throughout my academic life. This virtue has helped me fulfill my purpose in life: To find happiness in my being an effective teacher. For that, I'll always be grateful to Mr. Winter, a kind and compassionate schoolmaster.

Mr. Winter

Figure 10-1
Mr. Olice P. Winter
Principal: Lake View High School, Chicago, Illinois

Relevancy Initiative

When I was in my last year of college, I was a substitute teacher in Chicago Public Schools. One day, I received an assignment to sub at a continuation high school. It was a school where students who wanted to drop out of high school had to attend until they reached the age of sixteen. Needless to say, the risk behavior level of these students was extremely high. Nevertheless, I accepted the assignment. When I reported to the school for my assignment particulars, I asked the office receptionist for a course outline and curriculum study guide. She said, "Just a minute. I think you need to talk with our assistant principal." He was a large man, with a battle-worn face, who looked like he was anxiously ready to retire. He said, "So, you want a course outline and curriculum study guide, do you?" I replied, "Yes, sir." He said, "Son, let me tell you a story about the last sub who tried to teach your class. The students locked in him in a closet, started a fire, and set-off the fire alarms. He only lasted one day! So, here's the deal. If you can keep those kids inside the classroom and control the noise, you can have ten days of work…all that's left to this semester."

Needing the money, I accepted the assistant principal's offer. When I entered the classroom, I was confronted with a cohort of uninviting adolescents. Accepting the situation, I told the class to close their textbooks, I was not going to present an irrelevant lecture. Instead, I passed out an accumulation of sports magazines I had stashed in my travel bag for situations like this. Subsequently, we had a question and answer period, followed by a discussion about individual sports figures.

Next, I asked the students to tell me their favorite subject. They all replied, "Sex." Fortunately, I had some training experience in adolescent behavior on that subject. Consequently, I was able to facilitate an interesting session on the needs, allurement, and responsibilities of a physical relationship. I was surprised at the maturity and relevancy both genders evidenced during the discussion of this foreboding subject.

Then I announced we were going to close the day with an amateur hour. They sang, lip-synced, danced, pantomimed, recited poetry, and even conjured up a one-act, unrehearsed play. After the last act, they insisted I be part of the show. So I sang one of my favorite barroom ditties, and they gave me a standing ovation.

When the bell rang for dismissal, I gathered my sport journals and reported to the office to sign out. When the vice principal saw me he said, "I don't know what the hell you did with those students, but you are the first sub who has been able to keep order in that classroom. You've discovered the secret to teaching."

That evening, I tried to figure out how I was able to handle that class so effectively. It was not something I was taught in school. Then I remembered, as a student I had learned no teacher could hold my interest if I could not see the relevancy to the subject matter. But if I was convinced there was some relevancy to what was being presented, I responded positively.

So I recognized those continuation students were merely biding their time in school until they were sixteen. I knew expounding subject-matter rhetoric of no interest to the students would be futile. So I elected to introduce select experiences relevant to the situation.

As a result of the wakening insight evolving from my substitute experience, over the year, I have perfected the art and science of presenting material that was relevant and not superficial to the student needs. And I made sure I marketed this teaching strategy at the beginning of each class session, so as to affect student readiness to learn.

Practicing the principle of relevancy has made me an "effective" teacher. As evidence of this observation are my teaching evaluations (check internet: Rank my Professor). Throughout my years of teaching, students have ranked me as "outstanding." They appreciate my teaching style because I don't assign endless chapters to read. I only present select concepts that matter. I don't require a text. I don't take attendance. And they can attend class knowing they will

have a relevant and revealing experience.

In summary, because of my awakening experiences as a substitute teacher, the virtue of relevancy has become an important factor in my teaching philosophy, and over the years, helped me fulfill my purpose in life: to enjoy the Happiness I received from being an effective teacher.

Chapter Summary

In *Nichomachean Ethics*, Aristotle puts forth valid criteria to accept Humankind's Purpose in Life; it must be universal (accepted by all cultures, denominations, and populations); and it must be infinite (eternally pursuable) rather than a transient goal (e.g. a university degree).

Aristotle makes a valid argument proclaiming consummating a state of Happiness meets the criteria of Universality and Infiniteness and therefore can be accepted as Humankind's Purpose in Life.

Finally, one story was told about how the Virtue of Kindness inspired a purposeful career. Another story was told about an early experience in learning to become an effective teacher.

CHAPTER XI

Aristotle's Golden Mean Virtues

Introduction*

Aristotle's "Doctrine of Golden Mean Virtues" provides a means of identifying a virtue. This is an important function, because it enables you to assemble a body of virtues you may practice in order to consummate a state of happiness. To accomplish this end, you need to understand and appreciate the function of Aristotle's Doctrine of Golden Mean Virtues.

Aristotle's historic Doctrine involves choosing to perform a *virtuous act* resting between two *acts* of extreme. For example, one of Aristotle's major Virtues, *courage* would be considered a Golden Mean Virtue resting between the extremes of *foolhardiness* and *cowardice*. The term *foolhardiness* would be considered a *Vice* (a flawed act of conduct) lying to the *excess extreme* of the Virtue *courage*. And the term *cowardice* would be considered a *Vice* lying to the deficiency extreme of the virtue *courage*.

The above example serves as a model in identifying a virtue as you seek to assemble a body of virtues you may practice in order to bring about a state of happiness. In this regard, performing an act of *courage* would be a virtue bringing about a state of happiness.

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* Remember: this chapter may also conain select, unfamiliar *terms* and *concepts* that need to be approached with patient deliberation in order to appreciate their relevancy.

Performing an act of *foolhardiness* would be a *Vice* of *excess* bringing about a state of *unhappiness*. And performing an act of *cowardice* would be a *Vice* of *deficiency* bringing about a state of *unhappiness*.

Please note: it would be nice if all virtues could be identified in accordance with Aristotle's Golden Mean Doctrine. But some virtues do not fit Aristotle's mean, between two vices of extreme, model. For example, consider the virtue: *truthfulness*. It appears to have only one vice of extreme, namely the vice of deficiency: untruthfulness (a flawed act of conduct). Therefore to identify an assembly of virtues, you need to consider those virtues categorized as Golden Mean Virtues, as well as those virtues categorized with only one vice, namely a *Contra-Vice*.

Other Aristotelian Virtues

Besides the virtue of *courage*, Aristotle has identified other virtues, such as *temperance, honor, justice, magnificence, liberality, friendliness, and goodness.* Assembling these virtues was an amazing revelation in view of the pagan culture prevailing during the time they were conceived (364-325 B.C.). Greek society was aristocratic in nature with slaves, serfs, and servile women. People were ruled by emperors and the laws of the land were determined by the strongest. There was no ethical code. It was long before Christianity. These were barbaric times. That Aristotle was able to conceptualize his assembly of virtues during this brutish era is truly astounding. Moreover, it should be noted, his historic body of virtues has been an undeniable guidepost, for the good life, for more than 2300 years.

Proposed Body Of Present-Day Virtues

The relevancy of Aristotle's body of virtues goes without saying. However, it is important to recognize, over the years, many other virtues have evolved. Therefore, there seems to be a need to assemble

a more contemporary body of virtues, incorporating the virtues more accumulatively reflecting the ethical values echoed by contemporary societal norms. So in extreme reverence to the master, I have assembled a Proposed Body of Present-Day Virtues, more inclusive than the body conceptualized by Aristotle more than 23 centuries ago. The comprehensive body of virtues about to be presented will include Aristotle's originally conceived virtues, as well as the virtues having become cultural customs over the past 2300 years. Notwithstanding, this treatise makes no claim the proposed virtues are all-inclusive or unchallengeable. Rather it simply proposes a more inclusive sample of moral* virtues than the historical body of virtues introduced by Aristotle.

Each of the moral virtues identified in this chapter symbolizes moral excellence, goodness, righteousness, and embodies beneficent acts of human conduct. These moral virtues are governed by *Free Will.* They are autonomous to any authoritative entity attempting to regulate ethical conduct. Nevertheless, they do comply with legally-binding jurisdictions.

Finally it should be noted these moral virtues are philosophical in nature and are not in conflict with *Divine Virtues*. Rather they are meant to compliment them, because both are profoundly effective in compelling virtuous conduct.

In this regard, it must be noted, Divine Virtues are beyond the scope of this treatise. Therefore the Body of Present Day Virtues proposed herein will be limited to the philosophical virtues empirically

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* The term moral, as described herein, may be defined as an adjective term concerned with the fundamental principles of ethical conduct (right and wrong behavior or attitudes). Moral conduct, as used in this presentation, manifests the distinction between what you ought do rather than what you ought not to do—a behavioral decision determined individually rather than by legalities enactment or ecclesiastical covenants. Moral virtues are based on societal customs and the *wisdom* and *will* you put forth in determining how you should live a virtuous life in order to consummate a state of happiness.

derived from existing cultural norms selected by insightful reasoning.

The proposed body of present–day virtues was catalogued according to the following categories: Golden Mean Virtues, and Virtues with a Contra-Vice. This proposed body of virtues, as mentioned previously, has been broadened considerably so as to incorporate those virtues that have evolved over the past 2300 years. They are founded on the beliefs, customs, and practices of our society.

A virtue may be defined as a good act of conduct. A virtue is a righteous, worthy, beneficent, angelic act of behavior. Performing a virtue is acting as you *ought*. A virtue is good if it compels a state of happiness.

A vice may be defined as a flawed act of conduct. A vice is a bad, wrong, misdoing, wicked, and evil act of behavior.

The criteria for identifying a virtue or a vice is as follows: if the act of conduct you are trying to identify brings about a state of happiness, it is considered a virtue. If the act of conduct you are trying to identify brings forth a state of unhappiness, it is considered a vice. This may seem simple enough; however, it does place the responsibility on you to be able to predict whether your chosen act of conduct brings to bear a state of happiness or a state of unhappiness. This is because identifying virtues and vices is free from sumptuary* legislation, denominational covenants, or any other authoritative entity. Since you have an endowed *Free Will*, identifying and assembling a body of virtues and vices becomes your responsibility and yours alone.

Below you will find a proposed body of virtues and vices based on present-day societal values arranged to help you identify and practice a virtuous lifestyle and bring about a state of happiness, and to identify and disdain the vices that bring about a state of unhappiness.

The proposed body of present–day virtues and vices will be

* Sumptuary means to govern.

presented in six separate sections. Section A: The Golden Mean Virtues and vices of extreme specifically relevant to age-related, physiological changes. Section B: The Golden Mean Virtues relevant to behavior towards others. Section C: Virtues with a Contra-Vice. Section D: Virtues of Survival. Section E: Vices. Section F: Vice Categories.

SECTION A

Golden Mean Virtues And Vices of Extreme Specifically Relevant to Age-Related Physiological Changes

Virtue #1

Temperance: Golden Mean Virtue

The virtue of temperance is particularly applicable to your diet. You will be practicing the virtue of temperance if you use the *pleasure* of taste primarily to allure you to meet your nutritional requirements for survival, rather than allow the pleasures of taste to entice you to overindulge in the foods you eat. By practicing the virtue of temperance, you will fulfill your dietary needs for a healthy lifestyle, disdain the temptation to over eat, and thereby bring about a state of happiness.

Synonyms:
control, constraint, moderation.

Over Indulgence: Vice of excess

If you use the *pleasure* of eating and continue to eat beyond your point of *satiety,** you will commit the vice of excess—over indulgence, or

a flawed act of *gluttony*. You will have acted as a "pleasure seeker." You will have invited the premature onset of obesity, CAD, high blood pressure, diabetes. You will experience an unhappy and unhealthy ageing process.

Synonyms:
unrestraint, overeating, piggishness.

Self-Denial: Vice of deficiency
If you do not use *pleasure* to allure you to eat, your appetite may be affected. Your nutritional needs may not be met. You may not fulfill your dietary recommended allowances (RDAs.) You will have committed the vice of deficiency—self-denial, or a flawed act of self-degredation. Subsequently you may become anorexic† and experience a state of malnutrition. You will bring about an unhealthy ageing process and bring forth a state of unhappiness.

Synonyms:
self-renunciation, self-disinterest, self-neglect.

Virtue #2

Exercise: Golden Mean Virtue
Habituating an exercise lifestyle is an all-absorbing virtue. It will help you maintain your muscle integrity and cardiovascular capacity. It will make possible a healthy ageing process. It will bring about a state of happiness.

Synonyms:
physical activities, cardiovascular conditioning, resistance training.

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* Satiety is the point whereby the neural pathways from your digestive systems tells your intellect your stomach is full.

†Anorexia is a process whereby you lose your appetite and your *will* to eat.

Obsessiveness: Vice of excess

If you over-extend yourself while exercising, you will practice the vice of extreme—*obsessiveness*, or a flawed act of overstressing. You will experience muscle, bone, and soft-tissue injuries. These injuries will force you to rest and recover, and this will disrupt your exercise-training schedule. Furthermore, if you continue your *obsessiveness* and try to work through your injuries, you may even develop long-term injuries prohibiting you from exercising altogether, thus bringing about a state of unhappiness throughout your later years.

Synonyms:

overdoing, overextending, overtraining.

Idleness: Vice of deficiency

If you habituate a sedentary lifestyle, you will have committed the vice of deficiency—idleness, or a flawed act of inactivity. Your skeletal and cardiovascular muscles will atrophy with age. You will experience an age-related loss in skeletal muscle function and cardiovascular integrity. You will become unable to perform your daily living activities. You will become dependent and a burden to your family and friends. You will be living an unhealthy lifestyle. You will experience a state of unhappiness throughout your later years.

Synonyms:

physical inactivity, cardiovascular inactivity, resistance training inactivity.

Virtue #3

Prudence: Golden Mean Virtue

A prudent person deliberates wisely before making a lifestyle decision. A prudent person recognizes the virtue of living a healthy-exercise lifestyle and enjoys a hearty ageing process. A prudent person differentiates between right and wrong and acts as he or she ought rather than ought not. A prudent person chooses to practice the

Golden Mean Virtues, avoids flawed acts of extreme, enjoys a state of happiness.

Synonyms:
judicious, profound, wisdom.

Rashness: Vice of excess
A rash person rushes to judgment and makes hasty lifestyle decisions and choices in acts of human conduct. Rashness leads to a state of unhappiness.

Synonyms
impetuous, cavalier, short-sightedness.

Ignorance: Vice of deficiency
A person who lacks prudence is a fool, a simpleton, childish, and is unable to make the right decision regarding sedentary lifestyles. Ignorance inhibits your ability to differentiate between the good and the flawed acts of conduct and brings forth a state of unhappiness.

Synonyms:
unread, unlearned, inane.

Virtue #4

Perseverance: Golden Mean Virtue
The virtue of perseverance enables you to practice the assembled virtues leading to a state of happiness. Perseverance makes possible the habituation of the virtues of exercise. Perseverance gives you the resolve to follow an active lifestyle and enjoy a healthy ageing process.

Synonyms:
determination, stick-to-itiveness, tenacity.

Preoccupiedness: Vice of excess
The extreme vice of preoccupiedness perpetuates a mindset that inhibits your determination to habituate the virtues that bring about

a healthy lifestyle and compel a state of happiness throughout your senior years.

Synonyms:
oblivious, distraction, diversion.

Yielding: Vice of deficiency
The vice of yielding involves giving ground to the virtue of perseverance and weakening your resolve to habituate an exercise lifestyle nurturing a healthy ageing process throughout your later years. The vice of yielding also weakens your resolve to habituate the body of assembled virtues bringing about a state of happiness.

Synonyms:
submission, giving up, quitting.

Virtue #5

Hopefulness: Golden Mean Virtue
The virtue of hopefulness comes about by the hope you receive from practicing the virtues of *temperance, exercise, prudence,* and *perseverance.* By perfecting these virtues, you will have the temperance, wisdom, and perseverance to sustain a healthy and nutritional exercise lifestyle. And you will be able to prevent the premature onset of age-related, muscle tissue atrophy and the resulting decreases in neuromuscular function and cardiovascular capacity—giving you hope as you face the risk-factors confronting you throughout the ageing process.

Synonyms:
optimism, high expectations, positive purpose.

False Hope: Vice of excess
False hope is unrealistic wishing, for example: hoping you will not suffer the morbidity associated with the ageing process. False hope is dreaming about realizing a healthy ageing process—something that may not really materialize. It is wishful thinking and time-wasting. It

does not lead to a state of happiness.

Synonyms:
unrealistic dreaming, fantasizing, wishing

Hopelessness: Vice of deficiency
Hopelessness is living without purpose, without expectations, without a dream of happiness. Without hope, you have no goal for living. You have no need for existence. You have no direction for your actions. You are destined for a life of unhappiness.

Synonyms:
despair, gloom, futility.

SECTION B

Golden Mean Virtues Generally Relevant To Societal Norms

Virtue #1

Magnanimous: Golden Mean Virtue
A magnanimous person is generous to his or her family, friends, and colleagues. If there is a financial or personal problem he or she is there to provide monetary and moral support. A magnanimous person is philanthropic, charitable, warm-hearted, altruistic.

Synonyms:
great heartedness, noble minded, go out of your way to help.

Extravagance: Vice of Excess
An extravagant person spends money lavishly, frivolously, and foolishly. An extravagant person is careless about loaning money and not

frugal about saving appropriately. An extravagant person uses money to buy friendship.

Synonyms:
squandering, wasteful, over-spending.

Miserliness: Vice of Deficiency
A miserly person is a penny-pincher and hoards his or her money intentionally. A miserly person is ungenerous and petty. A miserly person skimps and lives parsimoniously. A miserly person is cheap and shabby.

Synonyms:
tight-fisted, penny-pincher, skin-flint

Virtue #2

Friendliness: Golden Mean Virtue
A friendly person is gracious in social situations. For example: you are invited to a party. You arrive on time and ask the hostess if she needs help. You volunteer to serve the refreshments and lead a party-mixer game. After the party starts, you join a small group discussing current affairs and ask interesting questions to stimulate the conversation. Later, you meet a special person, receive an invitation to lunch, and are asked to join a social club. You help clean up after the party and call the hostess the next day to thank her for the invitation. You practiced the Golden Mean Virtue of friendship and have strengthened your virtuous character. You have compelled a state of happiness.

Synonyms:
amiable, congenial, harmonious.

Patronization: Vice of Excess
At the party, you behave in an offensive and condescending manner. You fawn over the hostess. You kowtow to her demands to help serve the food. You seek notice by over-complimenting her on the

decorations. You seek favor by servile demeanor. You flatter her because she is vain. Your behavior is patronizing and you have committed a vice of excess. Expect to experience a state of unhappiness.

Synonyms:
condescending, fawning, apple-polisher.

Unfriendliness: Vice of Deficiency
At the party, you find refuge in a corner chair. When people approach you, you are standoffish. When they introduce themselves, you offer a cold handshake and fail to ask their names. In a small group conversation, you fail to ask stimulating questions and are uncomfortable with the conversation. You complain about the refreshments and reluctantly participate in a part mixer game. You are guilty of unfriendly conduct, which is a vice of deficiency. You will experience a state of unhappiness.

Synonyms:
standoffish, loaner, uninviting.

Virtue #3

Tastefully Humorous: Golden Mean Virtue
Tastefully humorous is a virtue practiced in social situations. For example: you attend your first high school reunion. You enjoy the reunion laughter and contribute by offering humorous anecdotes of your classmates' school years. You bring up funny times of the past and your classmates enjoy your humorous memories. Your conduct is tastefully humorous and is a golden mean virtue. You have strengthened your virtuous character. You have compelled a state of happiness.

Synonyms:
keen-witted, personable, warm-hearted.

Buffoonish: Vice of excess
In an attempt to be humorous, you jokingly make fun of one of your

classmate's excess weight and loss of hair. Your degrading remarks are embarrassing. You tell an off-colored, anti-minority joke which is not appreciated by your classmates. Your conduct is buffoonish and you have committed a vice of excess. Expect to experience a state of unhappiness.

Synonyms:
clownish, foolish, cloddish.

Boorishness: Vice of deficiency
Because you are insecure about your sense of humor, you are afraid to make appropriate fun-loving comments to your classmates. You find it difficult to join the laughter typical of class reunions. Your conduct is boorish and you committed the vice of deficiency. This will lead to a state of unhappiness.

Synonyms:
commonplace, dullness, weariness.

Virtue #4

Confidence: Golden Mean Virtue
A confident person is secure and acts with certitude. Confidence is a virtue reflecting poise and composure. A confident person is trusted and respected.

Synonyms:
sureness, decisiveness, presence.

Cockiness: Vice of excess
People who are cocky are boastful and conceited. They are pretentious and vain. They are self-opinionated and self-glorious. Cockiness is a flawed act of impudence.

Synonyms:
brash, arrogant, braggart.

Timidity: Vice of deficiency
Timidity is a flawed act of shyness. People who are timid may appear to be browbeaten, shy, or bashful.

Synonyms:
self-conscious, meek, sheepish.

Virtue #5

Courage: Golden Mean Virtue
Courage is Golden Mean Virtue resting between the vices of extreme: foolhardiness and cowardice. For example: you pass a burning building as a child calls for help from a second-story window. You study the extent of the fire carefully and judge rescuing the child would be dangerous. However, you are convinced—with cautionary strategies—you could save the child without endangering your own life. You rescue the child while executing the precautions for personal survival. Your choice of action was courageous and considered a Golden Mean Virtue. By performing this virtue, you have strengthened your virtuous character.

In choosing the virtuous course of action in the above situation, you had to decide: if you had the muscle strength, if you had the cardiovascular capacity, if you had an effective strategic rescue plan—including wetting down your clothing, covering your head and shoulders with a jacket, covering your nose with a handkerchief, and staying close to the floor and steps, and finally if you are confident you can rescue the child without sacrificing your own life.

Admittedly, the proposed self-evaluation process presented above may seem excessive but the point being made is, if you decide to act courageously in the rescue of the child, you have to be convinced you can accomplish your mission without giving up your life. Because self-sacrificing your life is morally unethical.

Synonyms:
valiancy, bravery, gallantry.

Foolhardiness: Vice of Excess
In the same situation presented above, you rush to judgment and attempt an extremely dangerous rescue without first conducting a careful study of the existing dangers. Consequently, you fail to save the child; moreover you die in the attempt. Your choice of action was vice of excess: *foolhardiness,* or a flawed act of rashness.

Synonyms:
recklessness, carelessness, impetuous.

Cowardice: Vice of deficiency
In the same situation presented above, you judge the fire as being not too dangerous to make a safe rescue. However, you are afraid to trust your judgment and ignore a rescue attempt. As a consequence, the child dies in the burning building. Your misjudged fear was an act of deficiency: *cowardice*, or a flawed act of faintheartedness. You would experience a state of unhappiness.

Synonyms:
gritlessness, weak-heartedness, dastardliness.

SECTION C

Virtues with a Contra-Vice

Virtue #1

Praiseworthiness: Virtue
To practice the virtue of *praiseworthiness*, you need to act in a dignified manner. You must be stately, reserved, and unostentatious. Your acts of conduct must be exemplary and commendable.

Synonyms:
meritorious, unpretentious, humble.

Vanity: Contra-vice
The contra-vice, *vanity,* means to act vain-gloriously. To show your insecurity by broadcasting your self-importance. To show your conceit by evidencing self-admiration. To demonstrate your inflated pompousness. To exhibit false pride.

Synonyms:
puffed up, arrogant, ostentatious, self-aggrandizement.

Virtue #2

Trustworthiness: Virtue
To set about the virtue of *trustworthiness*, you need to be truthful, honest, sincere. You must be uprighteous, loyal, honorable.

Synonyms:
veracity, integrity, sterling.

Deceitfulness: Contra-vice
The Contra-vice *deceitfulness* means you are devious, cunning, and diabolical. You are truthless, manipulative, underhanded. You lie, misrepresent, and prevaricate.

Synonyms:
ingenuine, trustless, spiteful.

Virtue #3

Tolerance: Virtue
The virtue of *tolerance* involves the practice of acting in an unprejudiced, unbigoted, unbiased manner. It means you are impartial, fair, patient.

Synonyms:
forbearance, indulgent, unopinionated.

Prejudicial: Contra-vice

If you are *prejudiced* you are guilty of the contra-vices: partiality, discrimination, bigotry. You are narrow minded, biased, intolerant.

Synonyms:
class-conscious, petty, opinionated.

Virtue #4

Thoughtfulness: Virtue
When you act *thoughtfully*, you are caring, attentive, compassionate. You are considerate, watchful, kind. You are warm-hearted, supportive, beneficent.

Synonyms:
understanding, regardful, concerned.

Unfeeling: Contra-vice
A person who practices the contra-vice *unfeeling* is neglectful, inattentive, cruel. They are oblivious, heedless, hard-hearted.

Synonyms:
ignore, grim, caustic.

Virtue #5

Strong Willed: Virtue
If you are strong willed, you will be able to habituate a healthy exercise lifestyle. You will be able to anticipate your state of dietary *satiety* and disdain overindulgence and gluttony. You will be able to practice the moral virtues and abstain from flawed acts of conduct.

Synonyms:
resolve, moral strength, game.

Weak Willed: Contra-vice
If you are weak-willed, you will rationalize your inability to follow a healthy exercise and nutrition lifestyle and exemplify the frailties

inviting moral transgressions.

Synonyms:
weak hearted, intemperate, wimpiness.

SECTION D

Virtue of Survival

The virtue of *survival* is a select virtue involving fulfilling your basic needs. Fulfilling these basic needs is a virtuous act that will bring forth a state of happiness. Below you will find the needs that have been identified for human survival.

- **Physiological Needs:** *food, water, sleep, clothing, shelter.*
  You need to fulfill your physiological needs in order to sustain life and internalize a state of happiness.
- **Intellectual Needs:** *knowledge, wisdom, understanding.*
  You need to fulfill your intellectual needs by nurturing your capacity to deliberate dialectically* so you may identify and practice the virtues habituating a virtuous character and bringing forth a state of happiness.
- **Anti-morbidity Needs:** *healthy nutrition, optimal exercise, wellness lifestyle.*
  You need to fulfill your anti-morbidity needs by adhering and complying to a healthy, nutritional, and exercise lifestyle so you may experience a state of happiness throughout your senior years.
- **Emotional Needs:** *security, love, friendship, belonging, hope.*
  You need to fulfill your emotional needs so you may actualize

* The term dialectical may be defined as the art of investigating the truth of an opinion or proposal by deliberate and admissible reasoning.

the highest level of self-confidence, self-esteem, self-determination, and bring about a state of personal happiness.

- **Ethical Needs:** *practicing virtuous acts, habituating a virtuous character.*
  You need to fulfill your ethical needs by practicing all of the identifiable virtues leading to a state of happiness.
- **Spiritual Needs:** *as defined by your denominational convictions.*
  You need to contemplate your respective spiritual needs to strengthen your resolve to live a virtuous life and consummate a state of eternal happiness.

SECTION E

Vices

Vices resting to the extreme of the proposed assembly of virtues were presented in Sections A-C. However, there is another important category of vices, namely, Vices without Virtues. These vices will be presented below. These vices are bad in themselves. They have no respective virtues. It is not possible to be right with these vices. You must always be wrong.

- **Infidelity**: hurtful, heartless, mean
- **Cheating:** wrong, damaging, foolish
- **Jealousy:** envious, insecure, begrudging
- **Passing Moral Judgment:** cold, dreadful, contemptible
- **Hatefulness:** evil, hideous, vulgar
- **Revenge:** ruthless, dastardly, ignoble
- **Spitefulness:** wicked, dreadful, obnoxious
- **Lawlessness:** misguided, criminal, uncivil
- **Barbarianism:** savage, beastly, infamous

SECTION F

Vice Categories

It is interesting to note, Aristotle does not seem to differentiate between the vices. However, if you study the various vices, there does seem to be an apparent distinction between them. Below is a proposed ranking of the vices (with examples) according to their degree of viciousness.

- **Flawed acts of conduct:**
  tardiness, carelessness, timidity, ignorance.
- **Wicked acts of conduct:**
  revenge, spitefulness, envy, intolerance.
- **Evil acts of conduct:**
  cannibalism, animalism, barbarianism, murder.
- **Deceitful acts of conduct:**
  infidelity, adultery, dishonesty, distrustfulness.

Unknowing is not Immoral

A family relocated from a tough neighborhood in Chicago to a congenial city in Florida. The father enrolled his son in the local elementary school. On the first day of school, his son was expelled for fighting. The following day, the father enrolled his son in a different elementary school. Again, his son was expelled for fighting.

In desperation, the father sought help from his neighbor. The neighbor suggested the father enroll his son in the nearby Catholic school. But the father replied, "We are not Catholics, and my son has had no religious exposure." The neighbor explained Catholic schools welcome all students, regardless of religious training.

As a last resort, the father enrolled his son in Saint Francis Academy. Surprisingly, after the first day of school—no expulsions.

The second day of school—no expulsions; moreover, the son was doing his homework. The father was amazed and asked his son how he had made such a dramatic adjustment. The son replied, "That's a tough school, Dad. The first day I was there, they had some guy nailed to the door."

Chagrined by his son's irreverent comment, the father visited the headmaster of Saint Francis and apologized to the priest for his son's impious remark. Whereupon, the priest replied, "Not to worry, your son simply committed a flawed act of conduct, *unknowingly*. And a seven-year-old child—who has had no theological orientation—is not old enough to perfect the intellectual virtue of *Practical Wisdom*, is not mature enough to understand and appreciate the consequence of committing an undutiful act of conduct, and is not considered immoral if he brings to pass a 'moral transgression,' unknowingly."

Consequently, the child's irreverence to Jesus's Crucifixion cannot be considered a vice, because he had not been exposed to the divineness of Jesus Christ. He acted unknowingly. The priest went on, "Let us be patient with your son, and with time and some spiritual guidance, he will have matured enough to understand and appreciate the divinity of Jesus's sacrifice on the cross."

The moral of this story is the priest was a wise and effective teacher who recognized the virtue of tolerance and the relevancy of understanding the imperfection and unknowingness of a young child.

A Hidden Virtue

Years ago, there was a World War II classic movie starring Sir Alec Guinness and the powerful English actor Jack Hawkins. Guinness played the part of a priest who was the spiritual leader of a small French town invaded by Germany. Hawkins played the part of a German interrogator whose role was to probe the priest's past, penetrate his spiritual frailty, and diabolically coerce him into confessing the moral despair he feared most. The interrogator's

strategy was to break the priest's will and brainwash him into convincing the townspeople not to resist the German intruders. The movie was a psychological drama taking place in a small interrogation room. It matched the psycho-dramatic *wills* of two powerful minds, each trying to break the *will* of the other. After a series of long, brilliant, ego-ideal exchanges, Guinness seemingly breaks down and admits his mother had been a prostitute. Hawkins proclaims victory. However, the plot suddenly changes. Guinness was not ashamed to reveal his mother was a prostitute. Rather, he was afraid the motive behind his courage to resist Hawkins' inquisition was for the glory he would receive from his parishioners subsequent to his release. For that he would be *vain* and guilty of *cardinal vice*, according to Aristotle's principle of ethics. Preferably, he hoped he resisted the invader's grilling because it was the virtuous thing to do. And if none of his followers recognized his courageous resistance, it would be all right, because he knew he had acted as an honorable man, and consequently would have experienced a state of happiness.

In regard to the vanity dilemma, you need to remember, if you have overt concerns about recognition, self-notoriety, or excessive praise, you will be disappointed if any expected adulations are not forthcoming. However, if you are modest and perform to fulfill your intrinsic desires, rather than to receive extrinsic awards and recognition, you will never be disappointed, because your internal needs will be fulfilled.

Beauty in Virtue or in Body?

As I was racking my bike in preparation for the start of the 1983 U.S. Triathlon National Championships in Hilton Head, NC, an attractive female triathlete asked me if she could borrow my bicycle tire pump. As she walked back to inflate her bike tires, I couldn't help but notice her structural beauty. Her upper shoulder arm girdle was strong. Her legs were sinewy, and her symmetrically-rounded calf muscles

tapered into a thin-set ankle tendon.

When she returned, we discussed our triathlon performance strategies. After an interesting exchange, she wished me good luck and departed to execute her pre-event, warm-up. As she walked away, I reflected not only on her somatic elegance but also on her glowing intrinsic beauty.

That night at the awards banquet, when it came time to honor the age group of the beautiful lady that borrowed my tire pump, I listened anxiously as the presenter announced, "And in first place, with a time of 2:05':36", please recognize one of our outstanding triathletes, the very popular Sister Madonna Buder.

Shortly afterwards, I was recognized for my first-place finish and as I returned to my banquette table, Sister Madonna congratulated me and said, "I knew you would win. I said a special prayer for you just before the race."

It was then I recognized that while she had attained her somatic aestheticism through her year of triathlon training, it was her intrinsic beneficences that reflected her angelic loveliness.

Chapter Summary

A proposed body of assembled virtues and vices was presented to help you identify and practice a virtuous lifestyle and pursue a state of happiness. Stories were told about: Unknowing not Immoral, A Hidden Virtue, and Beauty in Virtue or Body?

CHAPTER XII

The Life of Aristotle

Aristotle
384 B.C. – 322 B.C.

Chronology

Aristotle was born in 384 B.C. in Stagia, a small township in northern Greece. His father was a court physician and a personal friend of the king of Macedon. When Aristotle was seventeen, he was sent to Athens to study with Plato.

Plato was a disciple of Socrates, a humble ex-stonecutter who lectured in his bare feet. Plato was enormously influenced by Socrates and his probing questions as he searched for philosophical truths. But Socrates was charged with impiety and put to death by the leaders of

the democracy. After Socrates' death, Plato founded the Academy in 387 B.C. He gathered the finest minds in the Greek world, including Aristotle, who was noted for his sharp tongue. Plato soon found Aristotle to be a troublesome student who questioned what he taught and openly disagreed with him.

Aristotle spent twenty years at the Academy experiencing the philosophical principles dialogued by Plato. After Plato's death, Aristotle was summoned to Macedonia where he became a tutor to the thirteen-year-old heir to the throne, the future Alexander the Great. Aristotle held this post for eight years, wherein he gained the friendship and protection of the man who became the most powerful ruler of his time.

Subsequently, in Alexander's favor, Aristotle returned to Athens where he founded the Lyceum, which became a generic term for the schools that followed. The Lyceum consisted of a Temple of Muses, an altar, select lecture rooms, a library, and a map room. These accommodations were encircled by a spacious botanical garden where the masters and their students walked and dialogued. Aristotle lectured to the students in the morning, and the public was admitted to the afternoon sessions. The Lyceum was close to being considered a university in the modern sense.

Aristotle lectured on more than 150 different subjects, including Metaphysics, Justice, Politics, Physics, Rhetoric, Astronomy, Animals, and Biology. He also wrote some 550 books. And over a period of thirteen years, Aristotle used the Lyceum as a forum for the development and exposition of his philosophy and as an intervention model for students who would carry on his methods of critical thinking.

When Alexander the Great died in 323 B.C., the rising national party in Athens changed the political climate. Aristotle, who had always been suspect for his Macedonian connections, was charged with impropriety. And remembering the fate of Socrates, Aristotle fled to Chalis where he died the following year at the age of 63.

Fearing the anti-Macedonian party of Athens might try to destroy Aristotle's classical writings, his friend Theophrastus smuggled them off to Asia Minor where they remained hidden for more than 150 years. It wasn't until the thirteenth century that Aristotle's writings resurfaced by virtue of the Latin translation that came from Arabic versions of the Greek original texts. The Catholic, Hebrew, and Muslim commentaries that followed throughout the Renaissance resurrected Aristotle's visionary philosophical conceptualizations. After centuries of commentary, adulation, and criticism, most of Aristotle's postulations have been repudiated. Nevertheless, he is still remembered for his astounding nimbleness of analysis and reasoning, his pioneering ambition and scope, his creative vision, his unique and brilliant speculations, and the role he played in shaping Western thought.

There does remain one of Aristotle's most significant contributions that withstood the "sands of time," namely, his sustaining treatise: *Nicomachean Ethics*. This classical work was named after his son Nicomachus. It presents Aristotle's consummate insightful thinking as he conceptualizes four major self-evident truisms: Happiness, Humankind's Purpose in Life, Virtues, and Free Will. His proclamation of these truisms meets the criteria of *irrefutability* and *beyond a reasonable doubt*. No reported evidence has been found that challenges these self-evident truisms.

Aristotle's system of moral virtues has been adopted by Christian writers. Evidence of this is manifested by St. Thomas Aquinas, as this noted Catholic theologian identified Aristotle's four major virtues: prudence, justice, temperance, and fortitude as *Cardinal Virtues*.

Aristotle's influence is also reflected in the 12th century writings of the renowned theologian Maimonides. This Jewish writer advances the concept of habituation that parallels Aristotle's truism, namely that the *repeated practice* of moral habits compels a virtuous character.

And finally, Aristotle's four major truisms have remained a topic

of philosophical thought for more than 25 centuries as evidenced by the writings from a host of contemporary philosophers, such as professors Mortimer Adler, Alasdair Macintyre, Austin Fogothey, Jonathan Lear, and Jonathon Barnes.

Chapter Summary

A chronology of the life of Aristotle (384 BC- 322 BC), a visionary Greek philosopher, was paid tribute for his historic treatise: *Nichomachean Ethics* wherein he conceptualized the noble, exciting self–evident truisms—Happiness, Human Beings Purpose in Life, Virtues, and Free Will.

EPILOGUE

This treatise has brought to light the age-related losses in skeletal and cardiovascular muscle mass and contraction strength in sedentary seniors. It has also made clear these losses are caused by the *disuse* of specific muscle groups resulting from sedentary lifestyles.

Moreover, this treatise reminds you of the endless number of exercise intervention models that have attempted to prevent the premature of skeletal and cardiovascular muscle mass and contraction strength losses prevalent in sedentary seniors. Each of these models has failed to induce sedentary seniors to change their inactive lifestyles because they lack an effective motivational premise.

In this regard, this treatise has conceptualized an Ageing-Happiness exercise intervention model distinctly different from the unsuccessful attempts that have been tried in the past. The proposed Ageing-Happiness model is an unparalleled and visionary prototype based on the premise that there is a relationship between the following two diverse variables: Ageing—a physiological variable and Happiness—a philosophical variable. This conceptualized Ageing-Happiness exercise intervention model is extraordinary because it has a unique premise in that it offers a *State of Happiness* as an allurement to practice a healthy exercise lifestyle. And since achieving a State of Happiness is an *end* in itself, there can be no other more powerful premise to inspire sedentary seniors to initiate, adhere, and comply with a healthy exercise lifestyle. I am convinced; the proposed Ageing-Happiness exercise intervention model offers a more compelling force to seduce sedentary seniors to exercise than all of the intervention models that have been tried throughout the years. Therefore, I have

made the presentation of this model a major mission of this treatise.

Finally, since there are many other contemporary virtues, besides exercise, that have evolved over the years, I have identified an assembly of these virtues that, if practiced, also compel a state of happiness.

Glossary

Act of Conduct: Personal behavior; way of acting.

Aerobic Exercise: Exercising at a pace whereby the oxygen transport is able to provide the energy needed to prevent the onset of cardiovascular fatigue.

Ageing: A present-day term defined as the collective physiological changes taking place in the body over time.

Ageing-Happiness Exercise Intervention Model: A proposed concept that shows promise in motivating sedentary seniors to initiate and adhere to a healthy exercise lifestyle.

Age-Related Losses in Caloric Expenditures: Because of the age-related losses in muscle mass at a rate of 1.0% per year, there must be a corresponding 1.0% loss in the resting calories used up each year.

Age-Related Losses in Muscle Contraction Strength: Occurs at a rate of 1.0% per year, resulting from sedentary lifestyles which produce a 50% loss in skeletal and cardiovascular contraction strength by age 70.

Age-Related Losses in Muscle Mass: The reduction in muscle mass caused by the wasting away of muscle fibers that occurs at a rate of 1.0% per year resulting from sedentary lifestyle.

Anorexia: The process whereby you lose your appetite and *will* to eat.

Aristotelian Ethics: A philosophical treatise dealing with the right and wrong of human conduct as derived by natural law. A body of laws reaped from the practical reason which governs the human conduct that is ethically binding in a human society.

Aristotle: An ennobled Greek philosopher (384-322 B.C.); an ethical theorist; logician, and framer of the renowned classification of golden mean virtues.

Arteries: Major blood vessels that transport blood nutrients to muscle tissue and other cells of the body.

Attenuate: To reduce, slow down, lower…

Blood CO_2: Carbon dioxide—a fatigue product produced in muscle tissue that needs to be transported out of the muscle cells in order to prevent the onset of fatigue.

Blood Flow: The volume of blood transported by the cardiovascular system (heart, arteries, and capillaries) to skeletal muscles and other body organs.

Blood Glucose: A simple-sugar molecule, prevailing in the blood, which comes from digested food sources and provides the energy needed for muscle contraction and general body functions.

Blood Sugar: An essential nutrient in the blood ingested from foods you eat.

Body Balance: The ability to maintain postural stability and steadfastness at rest and during exercise.

Bone Density: A measure of the mineral content within bone tissue reflecting its structural strength.

Calorie: Defines the potential energy trapped in foods. Fat rich foods have high caloric values.

Capillary: A tiny blood vessel that connects an arteriole (the smallest division of an artery) with a venule (the smallest division of a vein).

Capillary "Kinking" Phenomenon: An alternating-rhythmical contraction and relaxation of the muscles in your legs, that nips capillary blood flow during muscle contraction.

Cardiovascular: Consists of the heart, arteries, capillaries, and veins that constitute the body's circulatory system.

Cardiovascular Muscle: Consists of two different kinds of muscle tissue—cardiac muscle tissue of the heart, and smooth muscle tissue of the arteries and veins.

Character: The sum of all the traits and characteristics that make up your individual personality. It involves your good habits and ethical qualities as well as your amoral habits and unethical qualities.

Cholesterol: Second most powerful predictor of coronary artery disease.

Compel: To force or drive to a course of action; to have a powerful or irresistible effect or influence.

Complex Carbohydrate: A starch—the storage form of carbohydrates found in plants that serves as an important energy source.

Consummate: To consummate means to reach your highest level of perfection.

Consummation of Happiness: To bring about a state of perfection; to perfect a virtuous behavioral habit; to fulfill man's purpose in life.

Contra-Vice: A vice associated with a virtue that has only a vice of extreme.

Contra-Vice Virtue: A virtue with only one vice of extreme.

Contraction Strength: The contraction strength of an individual muscle may be defined as the maximum force that muscle is able to generate.

Coronary Artery Disease (CAD): The number-one killer in America; a critical heart disease caused by atherosclerotic plaques that form in the coronary arteries and block the blood flow in the heart.

Cultures: The behavior and belief characteristics of a particular social, ethnic, or age group; the sum total of ways of living created by a group of human beings.

Degenerative Diseases: Age–related degenerative processes that occur in the body.

Divine: Pertaining to God; Supreme Being; Heavenly Kingdom.

Devine Decree: Covenants emanating from a Supreme Being.

Dialectical: The art or practice of logical discussion as employed in investigating the truth of a theory or opinion.

Ecclesial Virtues: Virtues based on denominational teachings, reverent covenants, sacred commandments, devotional convictions, or solemn faith.

Empirical: Derived from or guided by experience; dependent upon method or theory provable by experience.

"End": A state beyond which there is no other.

Endorphins: A hormone that brings about a state of euphoria.

Eternal Happiness: The divine happiness that prevails after life on earth.

Epilogue: Concluding part of a literary work.

Excess Body Fat: A postulated vice of extreme; the percent of body fat over the minimal amount of fat needed to maintain a healthy body, which is approximately 12% for females and 4% for males.

Exercise Habituation: To practice an exercise lifestyle until it becomes a permanent part of your character.

Exercise Intervention: Starting an exercise lifestyle.

Fat: An essential nutrient, too much of which can cause CAD.

Fiber: An essential nutrient in foods. RDA for fiber is 25g.

Fight or Flight Hormone: A hormone secreted by the adrenal gland that increases your muscle blood blow and provides you a needed burst of emergency energy.

Forearm Flexion: Movement of the forearm towards the upper arm.

Forearm Extension: Movement of the forearm away from the upper arm.

Free Will: The fourth of Aristotle's major truisms. It means that you, and you alone, decide your destiny.

Glycemic Index: A reference score assigned to a specific food that represents how fast it breaks down in your digestive system and diffuses into your blood.

Golden Mean Virtues: A category of Aristotle's famed system of virtues that includes select moral and intellectual virtues accompanied by their respective vices of extreme, namely the vice of *excess* and the vice of *deficit*.

Good: Moral excellence, virtuousness, righteousness, praise, or beneficent.

Habituation: To accustom the mind to a particular situation; to cause to become an intellectual habit by virtue of repeated practice.

Habituation Metaphor: Shows how the Hundredth Monkey Phenomenon can be used in a metaphor to energize the habit of exercise and make it a futuristic-cultural norm.

Happiness: A state of meaningful excellence, the upper most quality of feeling good about yourself, a consciousness about feeling fulfilled, an "end" in itself—desired for its own sake.

Hawaiian Ironman Triathlon: An international triathlon. (2.4 mile swim, 112 mile bike, 26.2 mile run.)

Heart Muscle: A life-sustaining organ that is an integral component of the cardiovascular system.

High Density Lipoproteins (HDL) : Good cholesterol fraction that transports cholesterol out of the body and helps prevent the premature onset of CAD.

Hypertension: (High blood pressure)—a degenerative process that becomes a high risk factor for the onset of CAD.

Humankind: A gender exclusive term that is preferred over the term "mankind."

Humankind's Purpose in Life: Aristotle proclaims that happiness is the purpose in life of all humans because it meets the criteria of "universality" and "infiniteness."

Hundredth Monkey Phenomenon: An amazing event that occurred in 1958, when the 100th monkey of the Macaca tribe learned to wash her sweet potato in the local stream. Somehow, the accumulated energy of the 100th monkey inspired a cultural breakthrough as every member of the money tribe, simultaneously, decided to wash his or her sweet potato in the nearby stream.

Hypoglycemia: The fatigue feeling setting in an hour after eating simple carbohydrate foods because your blood sugar drops below normal values.

Inalienable Right: A right according to natural law; a right that cannot be taken away, denied, or transferred.

Infinite: Boundless, endless, eternal.

Intellect: That part of the brain producing the ability to "think."

Intellectual Infiniteness: Everlasting; prevails throughout life and transcends into eternity.

Intellectual Virtues: Includes the virtues of *understanding* and *practical wisdom.* The former is essential to the assimilation of first principles and the primary axiomatic self–truths that lie at the root of all knowledge. The latter includes excellent reflection, deliberation and calculation of what is right or wrong in determining which path you take to reach your moral destiny.

Intromission: An act of entering; entrance to a new section.

La Vita Nuova: A term proclaimed by Dante, a 13th century Italian poet, when he first sees Beatrice, his true love. When translated it means *The New Life*.

Life Expectancy: The number of years you are projected to live.

Low Density Lipoproteins (LDL): Bad cholesterol fraction that adheres to the lining of the coronary arteries and causes CAD.

Metabolic Fatigue Products: The CO_2, lactic acid, and heat that build up in the muscle during exercise and cause the pain and fatigue that terminate physical performance.

Motor End-Plates: The network of motor–nerve endings situated in select sections of skeletal muscle fibers that synchronize body balance.

Muscle Atrophy: Involves the wasting away of muscle tissue. It includes the loss in the number of muscle fibers in an individual muscle, and the reduction of muscle mass and contraction strength in that muscle.

Muscle Fiber: An elongated contractile cell that forms the muscles of the body.

Muscle Mass: The muscle mass of an individual muscle may be defined as the total number of muscle fibers in that muscle and the collective, cross-sectional diameters of its muscle fibers.

Muscle-Tendon: The muscle and its connected tendon that inserts into a bone and moves that bone during exercise.

Neurology of Exercise Habituation: Adhering to an exercise regime until it becomes a permanent aspect of your life.

Nicomachean Ethics: A translated collection of Aristotle's brilliant lecture notes dating back to 325 B.C. which introduced a system of classifying moral and intellectual virtues based on introspective reasoning and self-evident postulates.

Norm: A rule, standard, or measure whereby you can gauge the morality of an act.

Omega-3: A nutrient that decreases inflammation, blood clotting, heart disease, and increases HDL, your good cholesterol fraction.

Omega-6: A nutrient associated with age–related, tissue inflammation and the premature onset of degenerative processes.

Optimal Walk-Pace: The fastest speed you are able to walk a specified distance without reaching a state of fatigue.

Osteoporosis: Age-related loss in bone density caused by an age-related reduction in skeletal muscle strength.

Perpetuation: To preserve from distinction or oblivion.

Pleasure: A means to satisfy an acquired need; an accompaniment of your sensuous and intellectual faculties; a state of being pleased or gratified.

Postulates: Stipulations used as a basis for reasoning; astute observations embodying a general rule and open to question.

Practical Wisdom: The practice of deliberation and choosing to perform virtuous acts of conduct and avoiding flawed acts of conduct.

Premise: A statement upon which a proposition is made.

Present-Day Virtues: a proposed arrangement of virtues based upon contemporary norms for good acts of conduct.

Protein: An essential nutrient needed for muscle structure and optimal muscle functionality.

Rated Perceived Exertion (RPE): A scale for quantifying perceived exertion, with 4 being extremely light exertion and 9 being extremely hard.

"Red Cord": A contemporary system of exercising select body parts by performing anti-gravity, body movements on a supported rope unit.

Relevancy: A critical term related to "effective" teaching. It refers to presenting information that students recognize and appreciate the value therein and are receptive to learning about.

Resting Caloric Expenditure: The number of calories used up by your body while it is not exercising.

Resting Metabolic Rate (RMR): The amount of calories that the cells of your body organs burn at rest.

Resistance Training Modalities: Form of training that targets select muscle groups in order to build muscle mass and contraction strength.

Resistance Training: A noteworthy form of exercise evidencing the potential to maintain the physiological soundness of the body's 616 respective skeletal muscle groups and prevent the premature onset of projected losses in muscle mass or contraction strength associated with ageing.

Satiety: The point whereby the neural pathway from your digestive tract tells your intellect your stomach is full.

"Second Wind": Involves the following physiological changes: muscle temperature, redistribution of skin blood flow to active skeletal muscle, and the onset of sweating, all of which increases the energy nutrients which enhance performance capacities.

Self-Evident Truths: Philosophical truths derived by empirical evidence and deductive reasoning.

Simple Sugar: Smallest molecular forms of carbohydrates that cause hypoglycemia e.g. table sugar, fructose, cane sugar, honey, and refined carbohydrates, all of which have high glycemic index.

Skeletal Muscle: Includes the body's 626 different muscle groups that move and support the body's skeletal systems. Skeletal muscles are controlled voluntarily by the central nervous system.

Smooth Muscle: Smooth muscle is an involuntary non-striated muscle circumscribing the inner lining of arteries and veins.

Sodium: A spice associated with high blood pressure.

Somatic: Pertaining to the body.

Soul: Soul, as defined herein, may be considered that part of the intellect pertaining to moral decision-making.

Sumptuary: Legislative statutes that attempt to regulate moral behavior.

"Third Wind": The endorphins released during extended periods of exercise produces an "exercise high" that increase your tolerance to pain and fatigue.

Treatise: A literary composition dealing with a formal subject.

Universality: Accepted by all cultures, societal entities, and individuals.

Vanity: A major vice wherein recognition, glory, and fame are sought when performing an act of conduct.

Vice of Deficit: A vice that falls to the extreme of a golden mean virtue.

Vice of Excess: A vice that falls to the other extreme of a Golden Mean Virtue.

Vices of Extreme: Vices of excess and deficit that fall to the extremes of a Golden Mean Virtue.

Virtue: Consists of moral virtues and intellectual virtues. Virtues are evolved from societal norms and represent righteous conduct and moral excellence.

Wisdom: An age-related aptitude that enables you to reason with prudence and sound logic.

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Transference

If you have had a good experience exploring this treatise; if you have developed an appreciation and understanding of the consequential effects of sedentary lifestyles on age-related, degenerative changes taking place in the body; if you are convinced exercise is a virtue that compels a State of Happiness; and if you are confident the proposed assembly of virtues presented herein also compels a State of Happiness throughout your senior years and fulfills your Purpose in Life—perhaps you would like to share your findings with others. If so, please refer to the information below:

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