#### THE PERFECT WORKOUT

# The Fast Explanation of SLOW-MOTION STRENGTH TRAINING

## DR. PHILIP ALEXANDER



#### **BROUGHT TO YOU BY:**

# THE PERFECT WORKOUT<sup>™</sup>

THE PERFECT WORKOUT is a unique program that uses slow-motion strength training to guarantee results from just two 20-minute sessions per week.

In 1999, our founder Matt Hedman opened the doors to our first personal training studio and pioneered a new approach to exercise and personal training.

After spending hours in the gym on a daily basis, Matt believed there had to be a better way to exercise. He'd been injured, his weight constantly fluctuated, and his results didn't coincide with the time he was putting in. Matt's outlook on fitness was forever changed in 1992 when he discovered Slow-Motion Strength Training. This method was easier on the joints, yielded strength gains in short periods of time, and only needed to be performed two times a week. In his eyes, it was The Perfect Workout. He quit his 9-5 job as an Engineer and turned his passion for fitness into a mission:



To Revolutionize the Way People Exercise.

Today, The Perfect Workout is the largest privately-owned 1-on-1 personal training company in the United States with over 60 fitness studios nationwide.

# HIGH INTENSITY EXERCISE

**Dedicated to Mark** 



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#### FOREWORD

One question I'm often asked in the gym is "Why are you doing it that way?" I hope this book answers that question for you, simply and clearly. It is a condensed version of the countless diagrams I have drawn on paper napkins, and slide presentations I have given, on the "why" and "how" of SuperSlow high-intensity exercise.

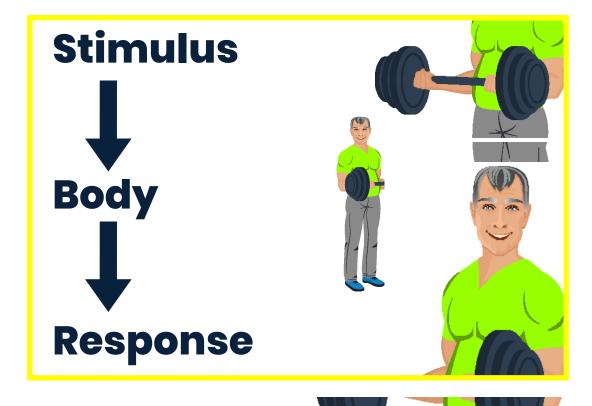
I didn't discover high-intensity exercise, and I didn't invent SuperSlow. These came from the minds of Arthur Jones and Ken Hutchins, and the many others who have contributed to this effective, rational, and safe way to improve our physical well-being. This is only my translation of their work, condensed into an understandable and usable form that I hope will give you a practical approach to physical training for the rest of your life.

This book is written for the person who doesn't know a pushup from a pulldown. Before you go to the gym, you need to know what you're going to do, how much you're going to do, and why you're doing it. I hope this book will tell you these, and will enable you to answer that recurring question, "Why are you doing it that way?".

Philip Alexander, M.D. College Station, Texas February, 2001

## THE BASIS OF EXERCISE





This is as basic as it gets, but unfortunate

A stimulus (exercise) acts upon the body response (growth and improvement).

It's just like we get a suntan from the sun the body did. The sun was only the stimu

Makes sense, doesn't it?

••• Exercise is a stimulus that acts on the \_ oduce a

intan -

OW.

body

### THE DEFINITION OF EXERCISE

Exercise is performing a <u>demanding</u> and <u>meaningful</u> activity, <u>anatomically</u> and <u>safely</u>, of a sufficient <u>intensity</u> to <u>stimulate</u> the body to make <u>anatomic</u> and <u>metabolic</u> adaptive growth <u>changes</u> within a <u>minimum</u> period of time.



Think about each underlined word in this definition of exercise for a moment. Exercise needs to be of a sufficient intensity to make the body initiate its own growth and improvement. And exercise should certainly be safe. No part of the body should improve at the expense of another part (i.e., don't trash your knees!)

••• Exercise should be of a sufficient \_\_\_\_\_ to stimulate the body to \_\_\_\_\_<sup>.</sup>

# WORKOUT"



Retired professional golfer Lynn Adams felt she'd let her body go in recent years. Even though she walked 3 miles a day, Lynn had gained weight and lost muscle.

Lynn has seen a big difference in her body since she started slow-motion strength training: she's lost 12 pounds, Dropped 4-5 inches off her waist, Her clothes fit better, and she has definition in her legs and arms again

"What's fun about The Perfect Workout is I feel great! I feel strong and healthy, and 20 minutes is nothing."



LYNN ADAMS MISSION VALLEY, CA CLIENT



BARBARA PRICE MISSION VALLEY, CA CLIENT "Working with seniors, I see the path people go on as they age. It was starting to happen to me. I was backing off on activities, and I didn't like that." Barbara has slight scoliosis, a herniated disk, and back issues - all of which made her very cautious about exercise. Unlike many people who want to lose weight, Barbara says she was underweight. She always felt weak, and didn't have any arm, shoulder or abdominal strength. Barbara exclaims, "I couldn't even find my ab muscles in the beginning! I was out of shape. Now I'm very pleased with my abs, it's no longer embarrassing. My arms have definition and my shoulders are stronger.

In the last 11 months, her total cholesterol dropped 28 points, without any medications or changes in her diet!



### **REQUIREMENTS OF EFFECTIVE EXERCISE**

Sufficient Stimulation
Sufficient Recovery



For exercise to be effective, you need a sufficient stimulus to the body, and then you need to give the body a sufficient recovery time to allow growth. Again, makes sense, doesn't it?

•••

Effective exercise requires a sufficient \_\_\_\_\_ and a sufficient recovery time

stimulus

### **THRESHOLD**

The level of exercise intensity needed to stimulate the body's adaptive changes ("Physiologic Inertia")

There appears to be an exercise threshold, which is a minimum level of intensity needed to stimulate the body to make its growth changes.

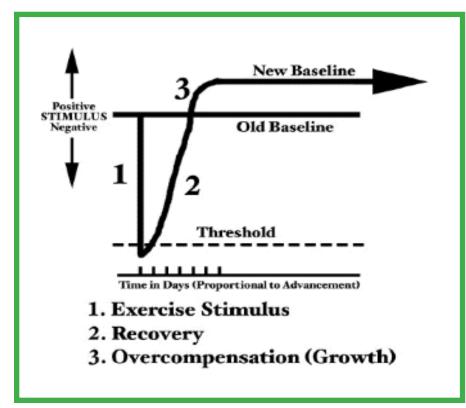
If your exercise intensity is too little, you won't reach the threshold, and the body won't be stimulated to grow. It's like partially turning on a light switch you make an effort, but not enough to click the switch. But once the light is on, you don't need to flip the switch again and again.

•••

The threshold is the minimum level of \_\_\_\_\_ needed to stimulate the body to grow.

intensity

## **EFFECTIVE EXERCISE**





Here's how effective exercise works.

Your exercise is of sufficient intensity to reach the threshold (1), and then you stop and give your body time to recover (2). If the stimulus was intense enough, and if you allowed enough recovery time, the body will then overcompensate (grow).

You then have a higher starting baseline the next time you work out. That's the way you want your investments to do, so why not for your body as well?

Ideally, you should have a higher physical \_\_\_\_\_ for each succeeding exercise session.

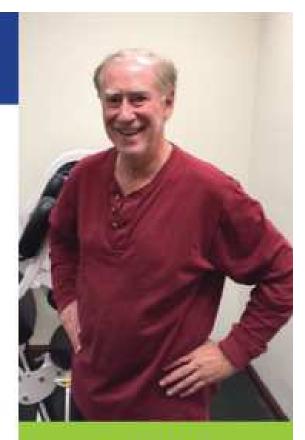
baseline

## WORKOUT

financial management consulting firm. Which also means he doesn't have time for the typical long workouts at most gyms.

Improved nutrition and strength training have gotten Bill results he's pleased with. In spite of osteoarthritis in both hips and knees, he was still able to build up his leg muscles without pain. He dropped from 222 to 198 pounds.

"I have a whole bunch of stuff in my closet that I can wear again! If I wasn't going to The Perfect Workout, I probably wouldn't keep the weight off."



BILL KLEIN DANVILLE, CA CLIENT



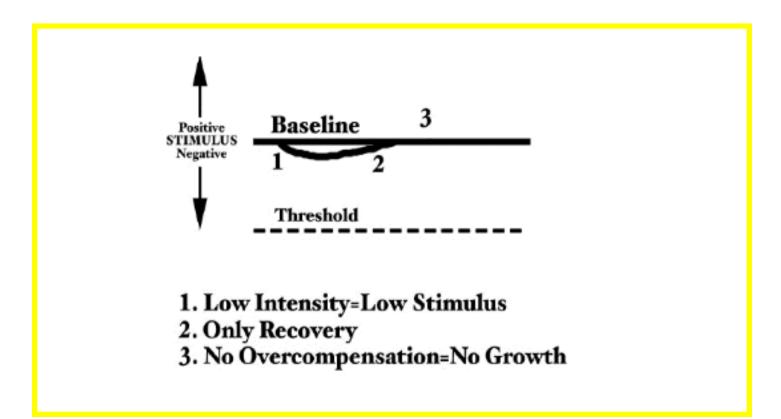
JODI WARNER OAKLAND/ PIEDMONT, CA CLIENT Jodi wanted to lose weight, tone up, and get stronger. That was part of her motivation, but she had a deeper, more bighearted reason for coming to The Perfect Workout. "My purpose in life is to be the matriarch of a close and loving family. It's so important to me, it's the core of who I am." Jodi is pleased with her strength training results. "My clothes fit me!" She has an increased sense of self-confidence and strength. Jodi noticed hiking and climbing near her house are easier now, and she often walked up to 7 miles a day on a recent stay in France.

"I take care of my one-year old grandson. It's

so easy to lift him high out of his chair and swing him on my hip. I also noticed how much more energy I had. It's all so much easier."



## **INEFFECTIVE EXERCISE**



In this example, only a low-intensity activity was done, short of the threshold and short of producing any meaningful stimulus on the body.

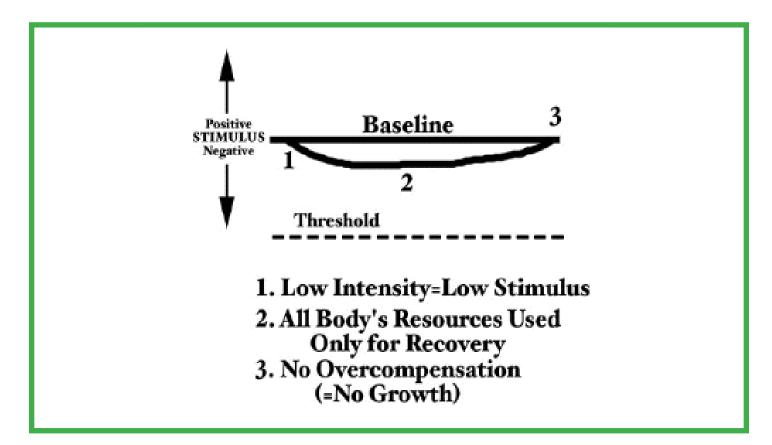
The only result is that that body simply recovers, with no incentive to grow to a higher physical baseline.

Your savings account is just keeping up with inflation.

Low-intensity exercise, which fails to stimulate the body to grow, is largely\_\_\_\_\_.

ineffective

# LOW INTENSITY/ HIGH WORK



This is another example of ineffective exercise, except that the amount of work has increased without an increase in the intensity.

The stimulus was insufficient, and it took the body more time and resources to recover back to where it started. But still no growth.

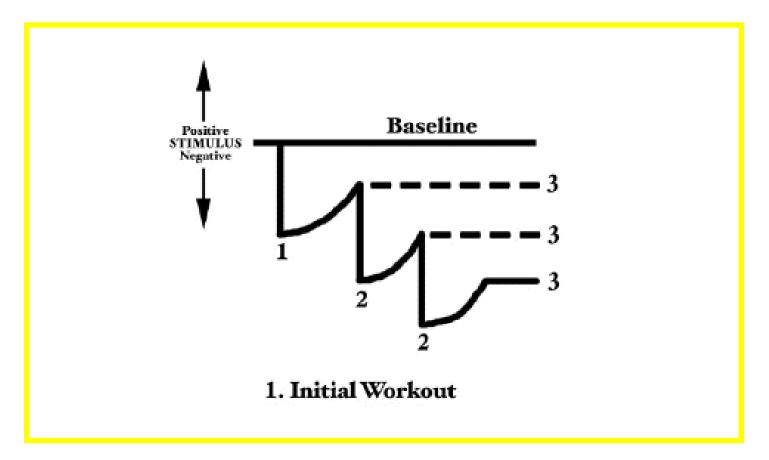
You're depositing a lot of money, but you're not making a profit.

•••

If your investment banker got you similar results, you'd \_\_\_\_\_ him.

fire

## **OVER-TRAINING**



This is over-training, which is worse than just spinning your wheels with ineffective exercise.

Whether or not your exercise was of sufficient intensity, the problem here is that you returned to the gym before you have fully recovered. This means that you have a progressively lower starting baseline each session.

This time, your investment banker is losing your money.

••• Not allowing enough recovery time results in \_\_\_\_\_.

over-training

# WORKOUT"



Cindy, 58, was post-menopausal, and overweight. With her metabolism gone, she figured she'd never be able to lose the extra pounds, and she felt frumpy.

Since Cindy started strength training and got disciplined with her nutrition: She lost 30 pounds. She dropped 2 sizes, and her leaner, more muscular body allows her to enjoy traveling the world with her husband.

"I'm shocked that I can feel that strong and energized from 20 minutes a week!"



#### CINDY DANIELSON DANVILLE, CA CLIENT

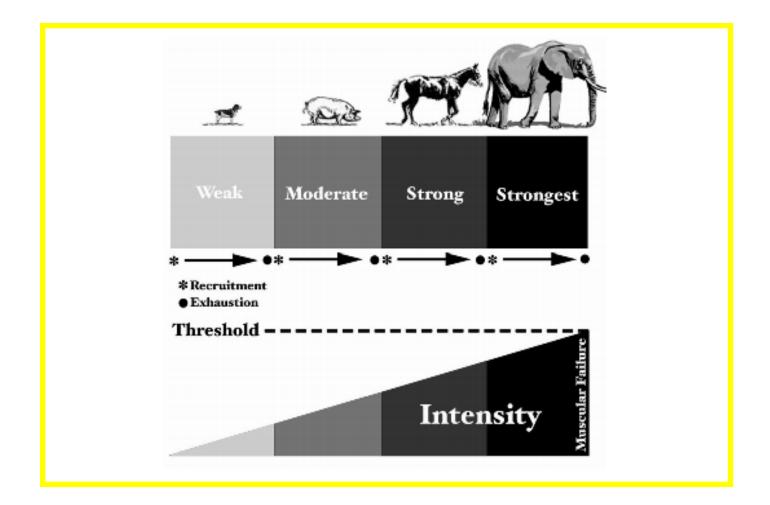


BILL YOUNIS LA JOLLA, CA CLIENT Bill was spending 90 minutes per session, 3-4 times a week at his previous gym. He'd hit a plateau, the equipment there was older technology, and it took too much of his time.

Bill's strength training results speak for themselves: His average weight is now 198.6, exactly where it was at age 28. His arms look strong, His abs are carved up & His love handles are gone!

Bill says, "This is the best thing that ever happened to me, workout-wise."





As you do an exercise, you begin to tire out the muscles. Since the stress on the muscles continues, the body recruits stronger and stronger parts of the muscles to meet the need. When the strongest parts of the muscle are exhausted, you have reached temporary muscular failure.

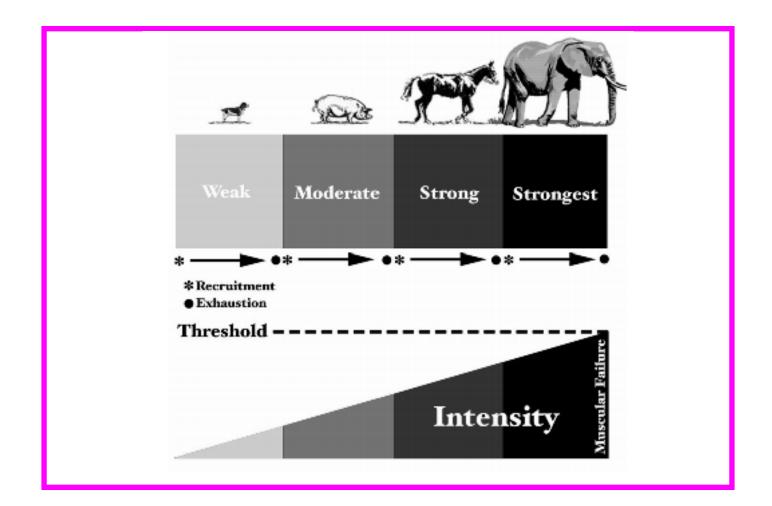
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Muscular failure is when the \_\_\_\_\_ parts of the muscle have been exhausted. If an \_\_\_\_\_ stepped on your foot, it would really hurt.

strongest

elephant

#### <u>CLICK HERE TO SEE MUSCLE</u> <u>SUCCESS IN ACTION!</u>



Another comment on those animals (i.e., your muscles! - those things that let you get up from a low, soft couch) - The weaker ones can contract longer, and they recuperate quickly. The stronger ones can't contract as long, and they take longer to recuperate. (Isn't Nature logical?)

Therefore, you must never relax during an exercise, because your weaker muscles will recuperate and you will not get complete temporary muscular failure.

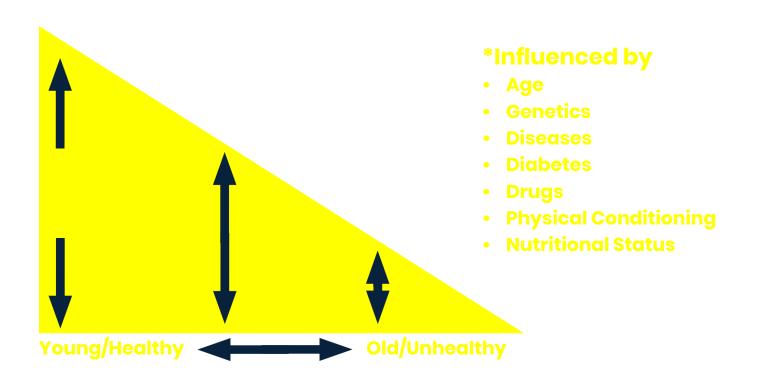
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Temporary muscular \_\_\_\_\_ is a strong stimulus on the body to grow.

failure

## THE BODY'S RECOVERY RESOURCES

#### (Its Ability to Recover and Grow)



Your body has only a finite amount of recovery resources. The older (and sicker) we get, the less recovery ability the body has.

••• The body has only a finite ability to \_\_\_\_\_.

Recover

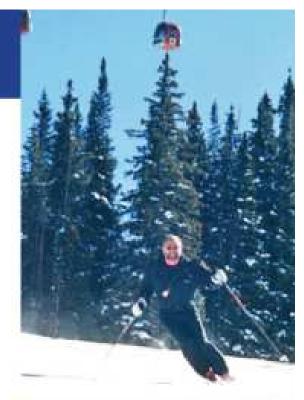
# WORKOUT

Richard used to work out at a regular gym 45-60 minutes, 4-5 times a week, but gained little strength or endurance. For several years he even swam 1,000 yards

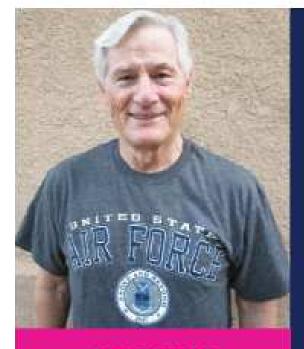
every other day, but felt he was wasting away rather than getting stronger and healthier.

His results from strength training are fantastic: He now weighs the same as he did at age 35. His blood pressure & LDL cholesterol levels are down. His strength and bone mass are up & His fine muscle control has improved & his balance back

Of the 20 minute workout, Richard warns, "Don't be fooled! This is intense training and it's hard. I bust my butt and I'm proud of it."



#### RICHARD HARDESTY HUNTINGTON BEACH, CA CLIENT



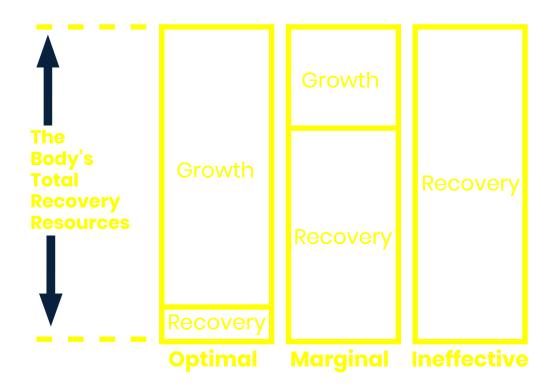
MIKE KELLY RANCHO BERNARDO, CA CLIENT Mike came to The Perfect Workout 2 years ago at age 68 after reading Power of 10 (the approach of slow-motion strength training made sense to him) and because he wasn't getting the results he wanted from working out at home or at traditional gyms

Since he started strength training, he's had great results. He's lost 23 pounds, Dropped 2 inches from his waist & is able to fit into clothes that used to be too small & He started out at 370 pounds on the leg press and is now able to do over 500 pounds!

"I had never really worked with a personal trainer before," says Mike. "A trainer can zero in on what works for you. It helps to have a trainer with the skill to know when to step in and when not to."

## **RECOVERY & GROWTH**

#### The Body's Total Recovery Resources



Since the body does not have an unlimited ability to recover, it stands to reason that the most efficient type of exercise would be the one where most of your resources are used for growth, and not just to recover back to the point where you started.

Likewise, it's logical that the least efficient exercise would be where most of your recovery ability is used only to recover from the exercise, with little or none left for\_\_\_\_\_.

growth

#### IT'S NOT HOW MUCH EXERCISE YOUR BODY CAN <u>WITHSTAND</u>. IT'S HOW LITTLE IT ACTUALLY <u>REQUIRES</u>.

This one was always hard for me to grasp. What this really means is - here it comes - you need to do a really intense exercise session without doing much work. Doesn't sound right, does it?

Remember, you want a strong stimulus to the body, and then the body will do its thing. That's delivered by the temporary muscle failure (remember the light switch?) Hopefully, that will require little recovery and result mostly in growth.

When we do hours of low-intensity work in the gym, we use up those finite recovery resources just to recover from all that work.

•••

High-intensity exercise need not involve a lot of \_\_\_\_\_\_. It's not how much exercise your body can withstand. It's how little it actually requires.

work

## HINDRANCES TO RECOVERY

Too much work	
Too little time of	F

At least two things can hinder your recovery -

- doing too much \_\_\_\_\_, and allowing too little \_\_\_\_\_ to recover.

work

time

# WORKOUT

A lifetime runner who's logged over 20,000 training miles over the past 51 years, Dr. Fandrich's weight training was always sporadic at best. After reading about slow-motion strength training. he was ready to embraceit. His results from strength training have been impressive: "In the first six weeks I gained % inch on my biceps, 1% inches on my chest, and % inch on my calves.

He also got an unexpected side benefit for his Type I diabetes. "I magically needed less insulin." He gained II pounds of lean muscle, and lowered his body fat to 13%. His HDL (good cholesterol) levels have gone up to 67, higher than they ever were from running.



DR. CURTIS FANDRICH THE WOODLANDS, TX CLIENT



LYNDA BOTTEM WEST PLANO, TX CLIENT

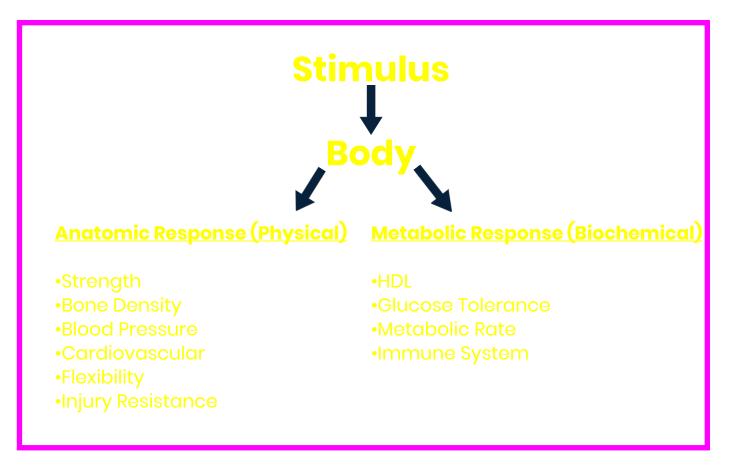
"This is the first thing I've ever done that I haven't wanted to quit," says Lynda, who has tried water aerobics, hot yoga, and regular gyms. They didn't work for her, and she put on 75 pounds and lost strength. She was playing on the floor with the three dogs that she walks. "I couldn't get up! That was a big wake-up call," she says.

Lynda is delighted with her results from strength training: She lost an inch off her arms as they toned up & She's down 50 pounds, with a goal to lose 25 more. Walking the dogs uphill isn't a problem anymore, now that she is leg pressing 400 pounds!

"I don't feel like I'm 62," says Lynda. "I can't even begin to say how good I feel!"



## THE BODY'S RESPONSE



If you provide a sufficient stimulus to the body that results in growth, the body will respond with both anatomic and metabolic changes.

It's probably not an all-or-none phenomenon, but it is certainly maximal when the stimulus is maximal (i.e., temporary muscular failure).

••• In response to exercise, the body can respond with physical growth (\_\_\_\_\_ change) and biochemical improvement (\_\_\_\_\_ change)

anatomic

metabolic

### BENEFITS OF HIGH INTENSITY EXERCISE

- Decreased Body Fat\*
- Increased Basal Metabolic Rate\*
- Increased Strength\*
- Increased Bone Density\*
- Increased Cardiovascular Efficiency\*
- Increased Glucose Tolerance\*
- Increased HDL Cholesterol\*
- Decreased Blood Pressure\*
- Increased Resistance to Injury
- Improved Flexibility
- Improved Immune System

#### \*Biomarkers of Aging

(Loss of muscle mass worsens all these)



Notice the \* items above. Those are the famous Biomarkers of Aging. The more of them that worsen, the "older" you are medically. The common denominator to them all is the amount of muscle mass we have, or don't have. As we get older, we steadily lose muscle. Without strength-building exercise, all of those get worse as we age.

•••

The common denominator of our aging factors is the amount of \_\_\_\_\_ mass. The best way to improve our aging factors (Biomarkers of Aging) is \_\_\_\_\_\_ - building exercise.

muscle

strength

### CALORIES

It's not the calories burned <u>DURING</u> exercise It's the calories burned <u>AS A RESULT OF</u> exercise

This is an important concept. If you walk or run a mile, that's about 100 calories. And there are about 3500 calories in a pound of fat. So, if you're planning to "burn off" a pound of fat, get ready to walk 35 miles.

The more efficient way is to add muscle. If you add 3 lbs. of muscle, that takes an extra 300 calories a day just to keep alive. You do the math, but that's 9000 calories a month. That's a lot of walking. And, you have just defined raising your metabolic rate.

It's not the calories burned during exercise, it's the calories burned \_\_\_\_\_ exercise.

as a result of

### CALORIES

It's not the calories burned <u>DURING</u> exercise It's the calories burned <u>AS A RESULT OF</u> exercise

#### (This is my way of making you read that again.)

Another comment about calories. When we talk about calories, most of us are really talking about fat (but "calories" is a much nicer word!) And when we talk about weight loss, we really mean fat loss. When you lose weight without strength-building exercise, you lose fat and muscle (and other goodies, too).

Take another peek at those Biomarkers of Aging. Go figure.

So don't use your bathroom scales. Use your bathroom mirror instead - it's a much more sensitive scientific instrument.

•••

When we say we want to lose weight, we really mean we want to lose

\_\_\_\_\_

fat

## WORKOUT"

As a busy executive who often travels, Ruth, 50, needed a workout that fit in with her lifestyle.

After 6 months of slow-motion strength training: she dropped from a size 14 to an 8, Lost 32.5 total inches, Lost 17.7 pounds of fat & Gained 5 pounds of lean, calorie-burning muscle. "I'm thrilled with my progress and amazed with the 20 minutes and what it can do for you."

Ruth offers straightforward advice for anyone else considering changing course. "Time will pass whether you do something or not. Give it a try. You won't be disappointed."



#### RUTH JOHNSON LAGUNA NIGUEL, CA CLIENT



BETH MCFEELY RANCHO BERNARDO, CA CLIENT Beth, 60, has gotten great results from strength training. She has gone from lifting 160 lbs on the leg press to 252 lbs. "My legs are toned and no longer squishy. I have muscles in my thighs." She's doubled the amount of weight she can lift on the triceps machine from 22 to 44 pounds. "My arms have much more muscle and good definition now," Beth says. "They're solid!" While gaining strength, Beth's weight has actually gone down, making her clothes fit much better. Everyday activities are much easier now. "I'm stronger, I love it. I come into work and I make them feel my muscles!"

"I wish I had started this sooner! It's money well

spent. What's more important than your health? The Perfect Workout is the best thing I've ever done for myself."



## **EXERCISE VS. RECREATION**

- LogicalUniversal
- Physical
- Physical
- Not Fun

- Instinctive
- Personal
- Mental
- Fun





Exercise is not recreation, and recreation is not exercise. High-intensity exercise will help everybody, but what's an enjoyable recreation for me may not be fun for you.

So just don't confuse the two. Use good exercise to stay healthy, and use that good health to enjoy your recreation.

Exercise is universal for everybody, but recreation is \_\_\_\_\_

personal



#### force = mass x acceleration

In this equation, as either mass or acceleration increases, so does force. If an 18-wheeler bumps into you at 1 mph, no big deal. But if it bumps into you at 80 mph, big deal.

#### That's f=ma.

If either mass or acceleration increase, so does \_\_\_\_\_

force



#### force = mass x acceleration

#### (Translated for Exercise) force = weight x speed

#### "Why do you do your exercises so slowly?"

Here's the answer, and this is why high intensity exercise is so safe and effective.

In the "translated" f=ma above, if either weight or speed approach zero, so does force. So, if the weight is almost zero, so is the force, but unfortunately so is the intensity (i.e., effectiveness).

But, if the speed approaches zero, so does the force (and chance of injury), but the effectiveness (intensity) increases. Voilà!

As speed is lowered, so is \_\_\_\_\_. As force is lowered, so is your chance for an\_\_\_\_\_.

force

injury

### GUIDELINES FOR HIGH INTENSITY EXERCISE

- 10 seconds to lift, 5 seconds to lower (10-10 for low friction machines)
- Do one set of each exercise, using a weight that results in muscle failure (positive => static => negative) between 6-8 repetitions, or between 80-160 seconds
- Perform both upper and lower body in the same workout
- Do no more than 6-8 exercises per session
- Move quickly between exercise, ideally taking no more than 15 seconds
- Allow sufficient recovery time (usually 3-4 days)
- Workouts should last less than 30 minutes
- Always breathe don't hold your breath (Val Salva)
- If you get a headache, stop your workout.
- Keep accurate records (exercises performed, reps)
- Make your workouts brief, intense, and infrequent.

These are the general guidelines for effective, high-intensity exercise.

They are self-explanatory, and important.

•••

Always \_\_\_\_\_! Never hold your breath.

breathe

## WORKOUT

After breaking her hip, and a frustrating year of rehabilitation, Jeanne was weak and using a walker. She was shocked after her Learning Session at The Perfect Workout. "I could do it! That made me feel accomplished, and I was doubly surprised that it didn't cause any pain. Since she began strength training, Jeanne: Dropped 32 pounds and 25.5 inches, Noticed improved balance, more stamina, Can climb stairs again & her core is stronger, Joined a bowling league thanks to her increased stamina & strength, No longer has neuropathy pain in her leg and stopped taking pain medication.

"I started noticing my clothes getting looser. Slowly and surely I got my quality of life back, too."



JEANNE TURNER RIVER OAKS, TX CLIENT



MARK DUGGAN THE WOODLANDS, TX CLIENT Mark was at 375 pounds, and he needed to be under 300 pounds to go on the Northern Tier wilderness cance trip with his son's Boy Scout troop. Talk about motivation. "I was always making excuses," says Mark. "It was time to start doing something."

Strength training and improved nutrition helped Mark: Shed more than 85 pounds, and he's still dropping, Gain significant strength (he increased his chest press by over 100 pounds!), Drop from size 48 stretch pants and 5x shirts to a 42 (and he has to cinch his belt), and 2x shirts.

"The Perfect Workout isn't a big gym with everyone looking at you, It's 1-on-1, personalized. Go and try this! It's unbelievable."



## WHICH EXERCISES TO DO

- Leg Press
- Leg Curl
- Bench Press/Chest Press
- Pulldown/Row
- Shoulder Press
- Others



Most body muscles can be exercised using very few exercises, usually five or six.

The leg press uses the low back/buttock muscles and the large muscles on the front of the leg. The leg curl uses the flexor muscles on the back of the leg.

The bench (or chest) press (pushing away) uses the triceps and chest muscles. The pulldown or row (pulling toward) uses the biceps and back muscles. The shoulder (upward) press uses the deltoid muscles.

You could consider adding a few others, such as the calf raise, lower back, biceps curl, or abdominals. But avoid adding too many, so you don't work the same muscle group more than once.

### THE THREE PHASES OF A REPETITION

- Positive The "Lifting" Phase
- Static The "Holding" Phase
- Negative The "Lowering" Phase

These are the three parts of every repetition.You will get to a point in a set (ideally after 6-8 repetitions) when you can't lift it any more. That's fine. But you can't quit then - you're just 1/3 through.

When you've "used up" the Positive phase, hold the weight motionless as long as you can. That's the Static phase, and you're 2/3 through. When gravity then begins to win, you resist it all the way to the end. Every inch. With all you've got. That's the Negative phase, and then you're through.

Many authorities feel that the Negative phase is the most important of the three, providing the greatest stimulus to the body.



CLICK HERE TO SEE THIS EXERCISE IN ACTION!

### THE THREE PHASES OF A REPETITION

- Positive The "Lifting" Phase
- Static The "Holding" Phase
- Negative The "Lowering" Phase

If you can't do even 4 repetitions, lighten the weight until you can.

If you can do more than 8 honest repetitions, increase the weight by 5%.

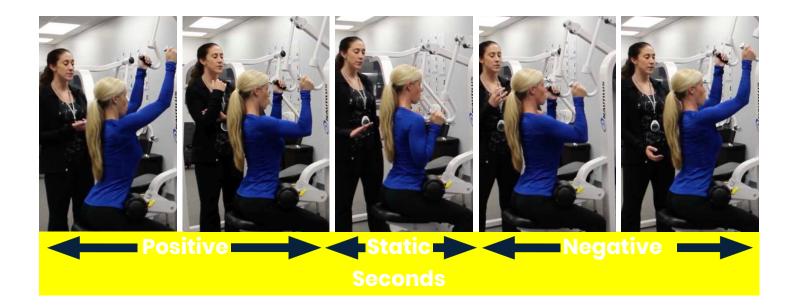
Remember, it's not how much you can lift, but the quality of stimulus the exercise delivers to your body.

•••

The 3 phases of a repetition are the positive, static, and the \_\_\_\_\_\_

negative

## THE COMPLETE REPETITION



Here is a lovely young lady doing a pulldown in good form. Remember, it's 10 seconds pulling down and 5-10 seconds (depending on the exercise and the quality of the machine) going back up.

She's doing it very smoothly, with no jerking or resting, and with no stopping at the end of a repetition.

And I'm sure she will fully go through the Positive, Static, and Negative phases before stopping. That's probably why she looks like she does!

•••

Be sure not to \_\_\_\_\_ at the end of a repetition.

stop



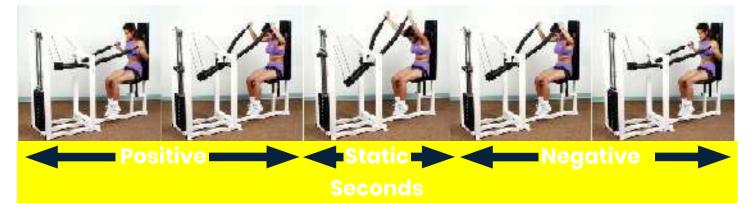


## **THE CHEST PRESS**

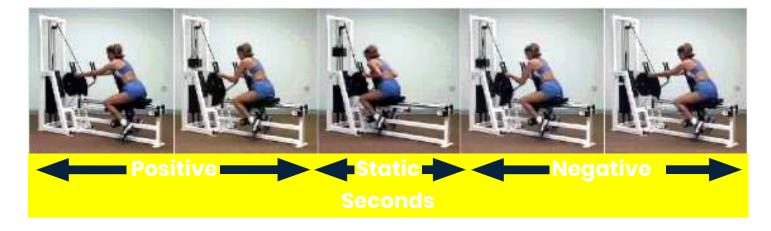


See how Strong & Healthy you feel with High-Intensity Training, Schedule FREE Intro Session - click here.

## THE UPRIGHT (SHOULDER) PRESS



### **THE ROW**



CLICK HERE TO SEE THIS EXERCISE IN ACTION!

See how Strong & Healthy you feel with High-Intensity Training, Schedule FREE Intro Session - click here.

## SUMMARY

- Fatigue each muscle group to failure once then stop and allow the body to recover and grow
- More is not better
- Strength training delays aging factors
- It can, and should be, injury-free
- Make your workouts intense, brief, and infrequent
- One should expect:
  - 30-50% strength gain in 2-3 months
  - Improvements in blood pressure, cardiovascular status, injury resistance, flexibility, metabolic rate, and body fat
  - Increases in HDL, Bone Mineral Density, and Glucose Tolerance
  - It can be done in a very short period of time, usually about 15-20 minutes 1-2 times a week

I hope you now have a clearer understanding of high-intesity exercise, and how this type of high-intensity training can help you.

And what a great return on your investment for just 0.2% of your time (20 minutes a week)!

The body is a marvelous machine, and it has healing and growing powers far beyond what we can now imagine.

#### Exercise well, be well, and live well.



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# ECCENTRIC EXERCISE

## Addition by: Mark Alexander

### I felt like it was a necessary addition to our exercise manual to include the subject of eccentric exercise.

After all, we now include eccentric only exercise as a major component in our protocol. The proper eccentric only exercises used to be extremely difficult to implement because it required one, two or even three strong individuals to lift a given weight and then hope to safely load it to the trainee. Now, the equipment is available with our designs and modifications so we can safely offer eccentric only exercise as part of Efficient Exercise Protocol®.

To better explain the biomechanics of eccentric exercise, you must understand that a muscle under tension can either be shortening (concentric), lengthening (eccentric), or staying the same (static).

While there are benefits to using all three stages of a muscle under load depending on the exercise selection and the client's needs and goals, studies have shown that the most hypertrophy (muscle growth) and micro trauma (injuries that trigger change) occurs during the eccentric phase of the repetition and can greatly benefit a person training using these techniques (1).

Remember, exercise is a stimulus-response relationship. So why exert unnecessary time, effort, and energy towards unproductive work when you can maximize results using eccentric contractions?

Within the last 12 months, we have seen clients experience lean muscle growth (**hypertrophy**) equal to and/or beyond their previous years of training using Efficient Exercise Protocol®.

Some client's results within one year of including eccentric only training along with the Efficient Exercise Protocol® equals the same results as the past seven years of training with our former training program which was safe, effective, and efficient but we have now truly maximized the protocol.

#### So how does one safely do eccentric training?

The answer is only on the proper equipment with the supervision and instruction of a highly trained instructor. At Efficient Exercise, we now use a machine that allows us to do numerous exercises; mostly compound exercises in nature (an exercise movement that requires multiple joints and muscle groups working together) on one piece of equipment without the danger and risk involved with typical negative only training. Our instructors are trained in how to implement eccentric only workouts to our clients.

#### How are clients experiencing some of these results?

Typically, one can lower (eccentric) at least 40% more weight than lifted (concentric). So the body is safely stimulated to grow and change b/c of the weight being lifted is a higher load than previously with our previous standard protocol although it is still extremely safe to exercise in this manner. (2)

Human growth hormone has also been proven to be elevated hundreds of times higher than the elevations to be expected after a more traditional bout of strength training. (3) This means that science has shown that the stimulus is being met far greater than when one uses traditional means of lifting weights.

If you sum up the studies, benefits, and anecdotal evidence that we have accrued, then there really cannot be an argument against using eccentric training with the proper equipment. The only discussion should be is this ALL the exercise you need? I think the answer is no. We have found that using a slow cadence high intensity training protocol with variable time under loads alongside an eccentric or negative only program you will produce the greatest results from exercise (proper nutrition will actually prove to give more results in terms of weight and fat loss than any exercise program alone can produce).

Why the combination of the two types of programs? Eccentric training takes even less time than slow cadence training with a typical workout lasting 15-20 minutes in most cases. However, with less oxygen being needed for eccentric training (this can actually be a tremendous benefit for the geriatric and/or rehabilitation client) (4) the exercise prescription should also include something that gets the heart rate elevated and causes a larger metabolic demand on the system. So the package together equals our business, our model, and our program: The Efficient Exercise Protocol®.

#### **References:**

(1) Norrbrand L, Fluckey J.D., Pozzo M, Tesch P.A. Resistance training using eccentric overload induces early adaptations in skeletal muscle size

(2) Hubal, Monica J, Rubinstein, Scott R. and Clarkson, Priscilla M. Muscle Function in Men and Women During Maximal Eccentric Exercise

(3) Scheet, Tim. The Growth Hormone Rep

(4) Lastayo, P.C. Reich, T.E. Urquhart, M. Hoppeler, H. and Lindtetdt, S.L. Chronic eccentric exercise: improvements in muscle strength can occur with little demand for oxygen

#### But what about my "Aerobics"?

When I am asked this question, it almost always refers to the cardiovascular system, with little reference to other systems of the body. Remember that we not only want the most efficient and beneficial exercise, but one that does not result in benefit to one part of the body at the expense of another.

Let me quote from Doug McGuff, M.D., from "Paradigm Shift for Exercise" which appeared in a recent issue of Atlanta Medicine:

"Thirty years later, many of us are finding that the exercise rage that we helped create may have done more to destroy America's knees than it did to save America's hearts."

"A review of the more recent literature seems to suggest that resistance training may be the best way to train the cardiovascular system. If you think about it, this makes sense. The only way we can get at the cardiac or vascular system is by performing mechanical work with the muscles. It only makes sense that the higher the intensity and quality of the muscular work, the greater will be the effect on those systems that must support the muscluar work. If you think of exercise in biological terms, you will note that exercise is simply an irritative stimulus which acts upon the body (an organism); if the stimulus intensity is high enough, and the organism has the resources available (nutrition, rest) it will produce an adaptive response. By raising the stimulus intensity, we can produce a more pronounced and well-preserved adaptive response."

I wholeheartedly agree. Resistance training is not only quite beneficial in preventive medicine, but also in patients with proven cardiovascular disease.

#### To continue from Dr. McGuff:

"Resistance training has even been shown to be safe early after myocardial infarction. An article from the Journal of Cardiopulmonary Rehabilitation looked at resistance training as early as 6 weeks post-MI and compared it to more traditional aerobic-based rehab protocols. Amazingly, they noted '...30 of 42 subjects had one or more cardiovascular complication (arrhythmia, angina, ischemia, hypertension, hypotension) during the aerobic exercises as compared to only 1 subject with complications during resistive exercises." I believe this is a very important observation, and certainly should make us take a second look at how we "rehabilitate" cardiac patients. In addition to the beneficial cardiovascular effects of resistance exercise, we should remember that the cardiac benefits are closely related to the musculoskeletal benefits as well. Concluding my quotes from "Paradigm Shift for Exercise":

"Despite its profound effects on the cardiovascular system, resistance training still has its major impacts through peripheral adaptations, mainly in terms of increased strength. We have all told our patients that just performing activities of daily life (walking, taking the stairs, yard work) can preserve our cardiovascular health. Unfortunately, the age-related loss of muscle (sarcopenia) can undermine our ability to carry out those activities. Resistance training can prevent and even reverse sarcopenia. Furthermore, as a muscle becomes stronger, fewer motor units will have to be recruited to perform a given task, thus reducing the demand on the cardiovascular system. Clearly, the best kind of exercise is the kind that will tax the musculature the most, that will create a powerful cardiovascular stimulus, while producing hemodynamic changes that minimize the risk of cardiac ischemia and also produce the most profound peripheral changes in the form of muscle strengthening."

High-intensity exercise provides the benefits that were often associated with aerobics in the past, and has some distinct advantages:

It clearly has beneficial physical effects on the heart, and with apparent increased safety. Strength training increases venous blood return to the heart through muscular contraction, thus increasing blood supply to the heart itself (remember the 30 of 42 patients above?), and decreasing peripheral resistance in the vessels, thereby decreasing the work load on the heart. This is true not only for preventive medicine, but in people with known heart problems.

Strength training helps all parts of the body, including the heart, HDL cholesterol, blood vessels, lungs, muscles, bones and bone mineral density, connective tissues, and the joints. Remember that old saying, "Be kind to your knees - you'll miss them when they're gone." And by making us physically stronger, we are more able to do all our activities - activities of daily living, recreational or exercise. A recent study examined the muscle mass loss during the 4th decade of male distance runners and sedentary males. Interestingly, the loss was the same (5%) in the two groups during those 10 years. If the runners lost muscle mass for those 10 years, what did that do for their Biomarkers of Aging, which are muscle-dependent?

It's not that "aerobic" activities are innately harmful or non-productive, it's just that there is a much more efficient and safe way to reap the benefits of exercise. Do you want to invest in Savings Bonds for the next 20 years, or a good mutual fund?

I have always told my patients that "exercise" will help raise their HDL levels (the "good" cholesterol). Until about five years ago, I never specified what type of exercise or how much, although it was usually one of the endurance exercises, and of course "more" was always better. I myself used to do a lot of distance running and biking, and my highest HDL while running 60 miles a week was in the low 40's. Currently it is in the 58-60 range on only SuperSlow. I am also following HDL's in patients who are doing high-intensity exercise, and most are having 50-100% rises. This is unheard of with medications. Bone mineral densities are also dramatically improving.

One of the saddest things I hear in my practice is when a middle-aged person tells me, "I want to get back into an exercise program, but it makes my knees and back hurt too much". By "an exercise program", they mean walking, running, stationary biking, stairsteppers, or treadmills. Do you remember the f=ma discussion earlier in this book? It's the force that is limiting their activities, so they lower the intensity which of course guarantees that little beneficial body response will occur. They are the perfect candidates for lowforce, high-intensity exercise.

#### If I do high-intensity exercise, do I still have to eat my vegetables?

Yes, and if you don't, I'll tell your mother.

### When I begin a high-intensity exercise program, when should I expect to see some results?

You should easily see strength gains in the first 6-8 weeks (and remember, that's probably only about 6-8 workouts!). Several studies involving elderly nursing home patients 85-90 years old showed 30-50% strength gains in the first 6 weeks, so age itself is certainly no contraindication.

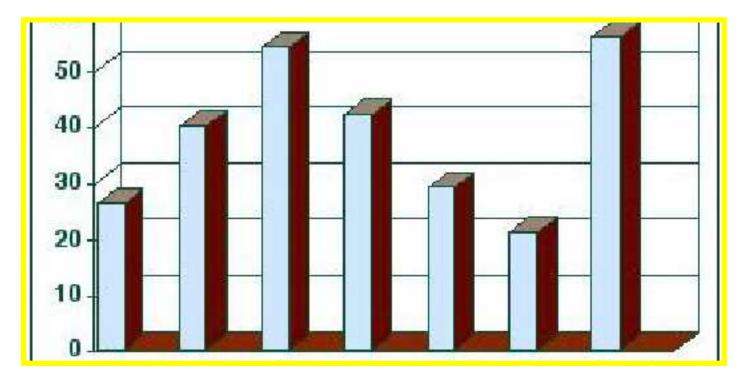
### What if I go on vacation, and can't get to the gym for several weeks?

No problem. First of all, if your trip is a week long, you won't be off schedule at all.

Second, in your hotel room you can still do any of the basic calisthentic exercises, but using the 10-10 second protocol. Doing pushups 10 seconds up and 10 seconds down can be quite intense.

And third, since the body's changes are certainly not transient, you're not going lose anything if you don't exercise for several weeks. If you do have to take an extended break, you can quickly regain any losses. One of my patients (see the following graph) had a beginning HDL of 26 (dangerously low). In 6-8 weeks after starting high-intensity exercise, his HDL was 54. Several months later he had an extended European trip, followed by unexpected sinus surgery. As a result, he didn't exercise for about 3 months, and his HDL went back down to 25. He then resumed high-intensity exercise, and his HDL returned to 56 within a month. Therefore, even if you are forced to stop exercise for an extended period of time, the body is quite capable of responding again and again to the proper stimulus.

### EFFECTS OF HIGH INTENSITY TRAINING ON HDL



#### How often should I do high intensity exercise?

The rule of thumb is that the more advanced you are, the longer the recovery period you need. In the beginning, then every 3-4 days should be sufficient. As the intensity of your workouts increase, you may start requiring. as many as 7 days to recover.

If you are doing your exercises correctly, but failing to make any gains, the first thing you should do is to add an extra day of recovery time between workouts.

#### A special word of thanks to just a few of the many who have contributed in their own way to the writing of this book:

Beverly Mark Julie Ken Hutchins Doug McGuff, M.D. Doug Holland "Coach" John Colman My many wonderful patients My workout partner, who keeps me honest in the gym

#### **AFTERWORD**

#### **Some General Thoughts on Health**

Your health - physical, mental, and spiritual - is your most vital concern.

It is more important than your work, play, money, friends, social status, appearance, house, and cars. If you have all these, and lose your health, you have nothing.

It is your responsibility. It is not the primary responsibility of the government, Medicare, your insurance company, HMO, doctor, hospital, pharmacy, or family. It is in your hands, in your control.

Most health problems are preventable.

Good health is made up of choices. You choose to have a healthy life style. Or you choose not to.

Exercise. Everything. Your body, mind, spirit, and willpower. They'll only get stronger.

If you smoke, you made a voluntary, conscious decision to smoke. Unless a maniac was holding a gun to your head when you saw your first pack of cigarettes, the decision was yours. The decision to quit is also yours.

If you are overweight, you choose to eat each spoonful. And unless that maniac is still holding that gun to your head, you can choose not to eat it.

#### It's never too late to start. Never.

If you don't exercise, that is your choice. Even if you have medical problems, you can do something.

You choose to take your medication regularly. You choose to get regular medical follow-up. You choose to eat right. You choose to exercise. You choose to work and play hard. You choose to relax. You choose to give of yourself to others. Or you choose not to. Don't look to anybody else. It's in your hands, baby.

You are the captain of your health care team. Work with them. They'll guide and advise you, but you do the doing. If you do, take the credit. If you don't, don't blame them.

#### It's never too late to start. Never.

Take control of your own life. Medical professionals, insurance companies, and the government can't assure you of good health without your direct participation.

Most choices for good health are either free or very inexpensive. Forget the houses, the cars, the boats, the jewelry, the Rolexes. They're just not worth it.

Volunteer.

Look outward, not inward. Use windows, not mirrors.

Compliment others. Compliment yourself.

Love others. Love yourself.

Throw something away every day. Start with guilt, regret, and depression.

#### It's never too late to start. Never.

Make huge changes. The heck with the little changes.

Remember nature. Enjoy it, and protect it. We are only temporary renters here.

No matter how bad it is, it's probably not fatal.

Laugh.

Go out and play for an hour. The world will be here when you get back.

Surprise the heck out of someone with one of those random acts of kindness. It'll blow them away, and will be your highest high of the day.

Overdress. Or underdress. You'll love it.

Create something. The world didn't have it until you made it.

It's OK to go to bed early, stay up late, or sleep in. Sometime.

It's OK to live in the past. Sometime. Relish those old memories, friendships, and momentos.

It's OK to live in the future. Sometime. Plan your dream, then live it.

It's OK to live for today. Always. Don't regret yesterday. Don't worry about tomorrow.

Don't diet. Change your life.

Commit now. Every day you don't is a day lost, and you're that much farther behind.

It's never too late to start. **Never**.

"For 10 years Dr. Philip Alexander ran 60 miles a week and on days when he didn't run he would put in time on his bike. Then, five years ago, he really got serious about physical fitness. The 56-year-old Texas internist now spends just 20 minutes a week exercising, and he rarely soaks his shirt. Using weight machines, he works through a half-dozen muscle groups, diligently exhausting each one. Then he gets on with his life. 'When I was running,' he recalls, 'the next day I would feel I was run over by a truck.' The new routine never leaves him feeling bonked, but that's not the best part. Alexander has shed some 20 unwanted pounds since switching regimens, and his waist has shrunk by four inches."

#### Newsweek