

Are Your Lungs **DYING?**

By Al Sears, MD



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Uniquely Qualified to Keep You Healthier For Life



Al Sears, M.D. currently owns and operates a successful integrative medicine and anti-aging clinic in Royal Palm Beach, Florida, with over 25,000 patients. His cutting-edge therapies and reputation for solving some of the most difficult-to-diagnose cases attract patients from around the world.

As a graduate of the University of South Florida College of Medicine, Dr. Sears scored in the 99th percentile on his MCAT and graduated with honors in Internal Medicine, Neurology, Psychiatry, and Physical Medicine.

After entering private practice, Dr. Sears was one of the first to be board-certified in anti-aging medicine. As a pioneer in this new field of medicine, he is an avid researcher, published author, and enthusiastic lecturer. He is the first doctor licensed in the U.S. to administer TA-65, the most important breakthrough in anti-aging medicine today.

Dr. Sears is board-certified as a clinical nutrition specialist and a member of the American College of Sports Medicine (ACSM), the American College for the Advancement in Medicine (ACAM), the American Medical Association (AMA), the Southern Medical Association (SMA), the American Academy of Anti-Aging Medicine (A4M), and the Herb Research Foundation, (HRF). Dr. Sears is also an ACE-certified fitness trainer.

Dr. Sears currently writes and publishes the daily email broadcast, *Doctor's House Call*, and contributes to a host of other publications in the field. He has appeared on over 50 national radio programs, *ABC News*, *CNN*, and *ESPN*.

Since 1999, Dr. Sears has published 14 books and over 100 reports on health and wellness with a readership of millions spread over 163 countries.

In his first book, *The T-Factor, King of Hormones*, Dr. Sears perfected the use of natural and bio-identical testosterone boosters to help men restore the drive, ambition, muscle strength, vitality and sexual performance of their youth.

Dr. Sears followed up with *12 Secrets to Virility*, a full-blown strategy for male performance that includes his own patient-tested protocols for successfully dealing with men's health concerns like fighting excess estrogen, protecting the prostate, eliminating fat gain and keeping a sharp mind and memory.

In 2004, Dr. Sears was one of the first to fight against the conventional belief that cholesterol causes heart disease, proving that cholesterol is not the cause, but the part of the body that heart disease acts upon. In *The Doctor's Heart Cure*, Dr. Sears offers an easy-to-follow solution that effectively eliminates your risk of heart disease, high blood pressure and stroke.

In 2009, Dr. Sears shocked the fitness world by revealing the dangers of aerobics, "cardio" and long-distance running in his book, *PACE: The 12-Minute Fitness Revolution*. Expanding on the fitness principles in *The Doctor's Heart Cure*, he developed a fast, simple solution to restore muscle strength, guard against heart attack and burn excess fat. Today, PACE is practiced by thousands of people worldwide.

In 2010, Dr. Sears made history by bringing telomere biology to the general public. As the first U.S. doctor licensed to administer a groundbreaking DNA therapy that activates the gene that regulates telomerase, his breakthrough book *Reset Your Biological Clock* shows how anyone can preserve the energy of youth by

controlling the length of your telomere, the true marker of aging.

An avid lecturer, Dr. Sears regularly speaks at conferences sponsored by the American Academy of Anti-Aging Medicine (A4M), the American College for the Advancement of Medicine (ACAM), the Age Management Medicine Group (AMMG), and the Society for Anti-Aging, Aesthetic and Regenerative Medicine Malaysia (SAAARMM).

As the founder and director of Wellness Research Foundation, a non-profit research organization, Dr. Sears has made it his life's work to bring his patients the latest breakthroughs in natural therapies. As part of his ongoing research, Dr. Sears travels the world in search of herbs, novel cures and traditional remedies. Meeting with doctors and healers, Dr. Sears has brought back and revitalized much of the traditional knowledge considered endangered in today's modern world.

- **During an expedition to the Peruvian Andes, Dr. Sears brought back a nutrient-dense oil made from the Sacha Inchi nut, containing the highest plant source of heart and brain boosting omega-3 fatty acids.**
- **In India, Dr. Sears studied at the oldest existing school of Ayurvedic medicine, the ancient Indian healing tradition, and was tutored by Ayurvedic doctors on the use of potent Indian herbs used to treat heart disease, cancer and Alzheimer's disease.**
- **While trekking through the Amazon rainforest in Brazil, Dr. Sears lived among the native Ashaninka Indians, incorporating their ancient knowledge of healing herbs into his own nutritional supplement formulas.**
- **In Jamaica, Dr. Sears met with the last living healer from the ancient and forgotten lineage known as the Maroons. Coming from West Africa 500 years ago, their knowledge was on the brink of extinction until Dr. Sears published a book showcasing their unique herbs and healing formulas.**
- **On the island of Bali, Dr. Sears had a meeting with the most famous of the ancient healers known as "Balians," – Ketut Leyir – and also met two of the country's foremost herbalists. Dr. Sears is publishing a book showing how to use Balinese herbs and make unique healing mixtures for the skin and body.**

With a life-long interest in botany, herbology, physiology and anthropology, Dr. Sears has a unique capacity to investigate the evidence behind the stories and claims of traditional medicine from native cultures around the world.

By exposing the flaws of mainstream medicine and pioneering new solutions through innovative approaches to exercise, nutrition and aging, Dr. Sears continues to empower the lives of his patients and readers through his books, newsletters and regular media appearances.

Are Your Lungs Dying?

It's the Most Destructive Effect of Aging...

I bet your doctor never told you this: As you age, cells in your lungs start to die off faster than you replace them, causing your lungs to shrink.

That's bad news not just for your strength and stamina but also for your ability to fight off disease. And here's the real eye-opener: The smaller your lungs, the greater your chance of dying – *of all causes*.

The groundbreaking Framingham Heart Study looked at data stretching back six decades and concluded your lungs tell you how long you'll live. This ongoing research is particularly convincing for two reasons: it's the longest running study in medical history and it has no involvement from the big drug companies.

Doctors involved in the Framingham Study, William B. Kannel and Helen Hubert, both from the Boston School of Medicine concluded: ***your lungs are the number one predictor of death.***

To put another piece of this monumental discovery in their own words, here's what they said:

“This pulmonary function measurement appears to be an indicator of general health and vigor and *literally a measure of living capacity*... Long before a person becomes terminally ill, vital capacity can predict life span. The Framingham examinations' predictive powers were as accurate over the 30-year period as were more recent exams.”¹



That's a remarkable equation: Your ability to breathe equals your ability to live.

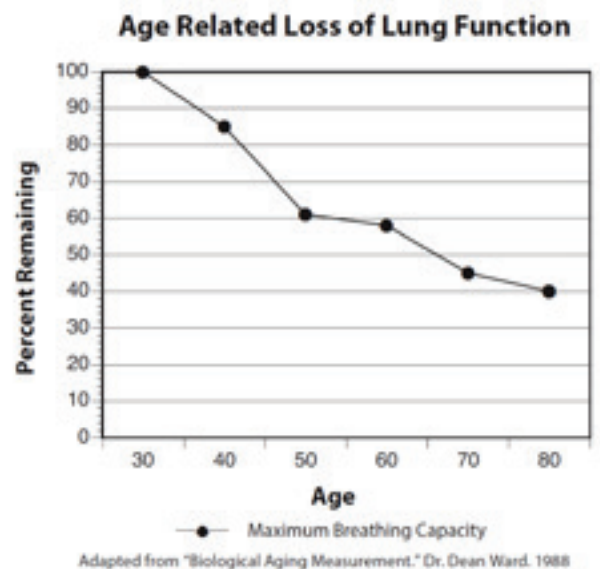
You won't hear that from your doctor and you won't read about it in the newspaper. But you can do something about it. And, your life depends on it.

Have a look at the graph to the right.

By the time you're 50 years old, 40 percent of your lung-power is gone. By the time you're 80, you lose over 60 percent – and that's just an average.

The Framingham Study found your lung-power drops 9 to 27 percent per decade. If you're on the high end of that scale you could lose 80 to 90 percent by the time you retire. Don't expect much help from mainstream medicine. Dr. Kannel and Dr. Hubert announced their findings back in the early 1980s. Yet doctors and the media continue to overlook or ignore this critical breakthrough.

If the Framingham Study were the only one to make this point, it might be easier to understand. But it's not. More recent studies confirm your lungs' ability to predict lifespan and risk of disease.



In 2000, the American College of Chest Physicians published a 29-year follow up to an earlier study from the University of Buffalo. The researchers, led by Dr. Holger J. Schunemann, tested the predictive value of lung-power in both men and women after 29 years. The results were consistent... and sobering.

In addition to confirming the link between lung-power and death, they also found an increased risk of death for people with *moderately* impaired lung-power – not just the people who had the worst damage.

Dr. Schunemann remarked, *“It is surprising that this simple measurement has not gained more importance as a general health assessment tool.”*²

That’s quite an understatement.

Your lung-power is the primary predictor of your health and your future. Even if you have just a moderate loss, which most people do, you’re at risk.

A pulmonary function test is a tool every doctor should be using. In my own practice I monitor my patients’ lung-power and give them simple, easy-to-follow steps to rebuild lost lung capacity. You’ll find those techniques in part two of this report, where I give you easy to follow PACE workouts and describe exactly how to do them.

But first, let me show you exactly why lung-power is so important, and how you can increase yours...



PART I

Rebuild Your Lungs and Enjoy Immediate, Youthful Energy

If you ask your doctor, they will probably tell you lung-power is not important. What’s more, they will tell you it’s impossible to maintain or increase your lung capacity. But that’s not true. It may be accepted as “fact,” but your lungs are not helpless. They respond to the right challenge. In the same way you can build real heart

More Revelations From the Framingham Heart Study:

Reduced Lung Function Predicts Congestive Heart Failure

Following 5,209 people over 18 years, researchers discovered that the risk of congestive heart failure goes up 10-fold as lung-power decreases. What’s more, the people in the study showed no sign of heart disease when their lung-power started to shrink. But as the years went by, those who had smaller lung capacity had up to a 1,000 percent greater chance of developing congestive heart failure. Here’s a quote from the study:

*“Examination of the net contribution of vital capacity (a measure of lung function) to risk of congestive heart failure revealed that a low vital capacity was associated with development of congestive heart failure even after taking into account other contributing factors including blood pressure, relative weight, pulse rate, cigarette smoking, heart enlargement on X-ray, ECG-LVH, blood glucose and age. **Both a persistently low and recent fall in vital capacity** [lung-power] **were associated with increased risk of congestive heart failure.**”*

This study was published back in 1974... in the prestigious journal of the American Heart Association, *Circulation*. Yet 35 years later, the medical mainstream still ignores the power of the lungs to predict disease.

Kannel WB, Seidman, JM, Fercho, W, Castelli, WP. Vital Capacity and Congestive Heart Failure: The Framingham Study. *Circulation*. 1974;49(6):1160-1166.



strength, you can build healthy, robust lungs.

I'm living proof. As of this writing I am 56 and have the lung- power of an 18-year old. This has been verified using independent labs with the latest maximum lung-power-testing technology. I accomplished this simply by following PACE.

I first observed and documented lung-power when I was an undergraduate in college. I always wanted to be a gymnast but I wasn't that good in tumbling routines. But I could do the strength moves better than anyone on the team.

The coach asked me what weight lifting routine I used to develop shoulder, arm and back strength. When I told him that I didn't lift weights he asked me to assist in strength training the team. I had a job at the school infirmary so I borrowed their equipment to measure as many parameters of strength as I could. This would be our starting point.

As part of this assessment, I ran a series of pulmonary function tests. I put those with the lowest lung volumes into running programs because everyone "knew" that long distance running would make you develop more lung-power, right?

A few months later, after they had finished a long-duration cardio program, I ran another series of lung capacity tests. Much to my initial shock, their lung-power had shrunk. That's when it all began to click...

If you don't challenge your lungs' maximum power you'll actually give up lung-power. What's more, the strain of lost lung-power speeds up the aging process, making you even more vulnerable to infection and chronic disease.

PACE *challenges* your peak lung volume. Short bursts of intense exertion followed by rest send a signal to your lungs to expand. Over time, your body adapts to the challenge by increasing its lung volume and power.

I do the same for my patients. I've helped people across the board. Whether they're recovering smokers, have problems like emphysema or COPD, or simply have a moderate loss of lung function, PACE successfully rebuilds their lungs and gives them greater energy, stamina and performance power.

I have proof that even if you are in your



Small Lungs Boost Risk of Heart Disease – Even in Young Adults...

The University of Otago in New Zealand discovered a link between reduced lung-power, inflammation and the risk of heart disease.

Measurements of lung-power and blood inflammation were taken when the study participants were 26 years old, and then again when they were 32 years old.

Researchers found higher levels of a key marker of inflammation – C-reactive protein (CRP) – in the blood of those with smaller lungs.

CRP is a risk factor that leads to heart attack, stroke and atherosclerosis (hardening of the arteries).

The study's co-author, Dr. Bob Hancox said, "Increased levels of inflammation markers have previously been found in older people with reduced lung function and chronic obstructive pulmonary disease (COPD), but as far as we know, this is the first time it has been reported in young adults without lung disease."



In other words, reduced lung-power is related to inflammation. And inflammation leads to heart disease and stroke.

The evidence is clear: the damage starts when you're in your 20s and 30s.

PACE is the only program designed to build lung-power and eliminate the risk of heart attack and stroke associated with inflammation.

Hancox RJ, Poulton R, Green JM, et al. "Systemic inflammation and lung function in young adults." *Thorax*. 2007;62(12):1064-1068.

70s it's still possible to regain and maintain the lung capacity of someone in their 30s. Starting in the late 1960s, the German physicist and inventor Manfred von Ardenne tested the relationship between exercise and lung function.

In one set of studies von Ardenne showed the average loss of lung-power over time. But he also measured the lung-power of older men and women who used one of the techniques in my PACE program – *short bursts of intense exertion followed by rest and recovery*.

He discovered that people who challenge their lungs with the right type of exertion could have the lung-power of someone much younger. This graph reveals his findings:

You can see that maximum oxygen uptake starts to drop off in your 20s and falls sharply as you age. This loss over time is represented by the black line. By the time you're 80, you have lost almost 60 percent of your lung-power.

But the people who challenged their lungs *had younger lungs*. Even in spite of their age. In one example, a man in his early 50s had the lung-power of a 20-year-old (Point A). Another man in his early 70s maintained the power of a 30-year-old (Point B).

Overall, the men who exercised had younger lungs (diamonds) compared to the people who didn't (circles).

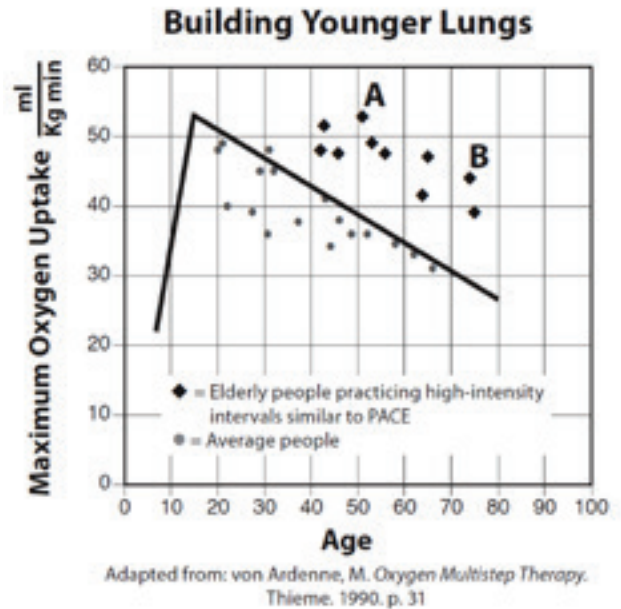
Rebuilding your lungs is not only possible, you can do it successfully with little effort. And the benefits go far beyond your lungs.

Manfred von Ardenne discovered that your cells produce more energy when you practice short bursts of intense exertion – a capacity you build with my PACE program. This improves the way your organs use oxygen, keeping them younger longer. By keeping your routine focused on short, intense bursts you mimic the movements of our ancient ancestors. And you send waves of life-giving oxygen through every cell in your body.

For thousands of years our hunter-gatherer ancestors stayed fit from activities that involved intense exertion followed by rest. This included hunting, foraging and escaping from wild animals.

Aside from keeping them lean and muscular, this pattern of exertion followed by rest flooded their bodies with oxygen.

Have a look at this table:



Your Blood Flow at Different Levels of Exertion				
Blood Flow (ml min)				
	Rest	Light Exertion	Heavy Exertion	Maximal Exertion
Brain	750	880	1,000	1,400
Coronary	250	350	750	1,100
Lungs	Basic Value, (BV)	1.4 x BV	3 x BV	4 x BV
Skeletal Muscle	1,200	4,500	12,500	22,000
Cardiac Output	5,800	9,500	17,500	25,000

Adapted from: von Ardenne M. *Oxygen Multistep Therapy*. Thieme. 1990. p. 144

This table shows how blood circulation increases with exertion. The numbers are stunning.

When you look at “maximal exertion,” a capacity you achieve from your PACE routine, circulation – and therefore oxygen transport – goes through the roof.

Blood flow to your lungs and your cardiac output increase by **more than 400 percent**. Compare that to the relatively small increases during light exertion, the kind of exertion level you achieve when you practice a medium-intensity challenge like aerobics or cardio.

The difference is important. Your brain gets almost **twice as much blood and oxygen** during maximal exertion than it does with light or medium exertion.

Traditional exercise has failed you. By not recognizing the rate of blood flow associated with different levels of exertion, aerobics and cardio miss the point. And, you won’t build your lungs by training for endurance, or by jumping around for an hour while you watch a Richard Simmons workout video.

You build your lungs by challenging their maximal capacity. In other words, you give it everything you have for a very short period of time. Then you rest. What could be simpler?

Why Didn’t Anyone Tell You This Before?

Medical students don’t learn much about breathing. One study of med students in the UK found they weren’t able to reliably tell the difference between normal and abnormal breathing. This, of course, led to a “*high number of inappropriate and potentially harmful actions.*”³

It’s a serious situation. Your lungs are your number one predictor of death, yet most doctors have no clue. Some would even laugh at the idea. And if you’re lucky enough to find out, there’s no one to turn to... no one to point you in the right direction on what to do about it.

Your lungs are ignored. Modern exercise strategies leave them out completely. No one says anything about them until disease strikes. And by then it’s often too late.

Aerobics, cardio and long-distance running are all designed to give your heart more “endurance.” That sounds great, except that your body was not designed for the kind of medium-intensity, long-duration activity you get when you practice cardio or aerobics.

Can you think of a situation when cavemen needed to run for hours on end? Or jump around, working up a

sweat, repeating the same body movement over and over with no break or rest?

Ancient man had no application, no need and no context for continuous exertion without rest. It was not a part of their daily routine. And that's a critical observation. The body you have right now is a direct result of thousands of years of collective movement and evolution – refined over 100,000 generations.

Your heart and lungs were designed for short bursts of intense exertion followed by rest. And that's the exact opposite of what modern “fitness gurus” tell us to do.

It's the same in the animal kingdom. Animals instinctually exert themselves in small bursts followed by rest. You will very rarely see animals run for hours on end. That kind of movement is not the daily norm in nature.

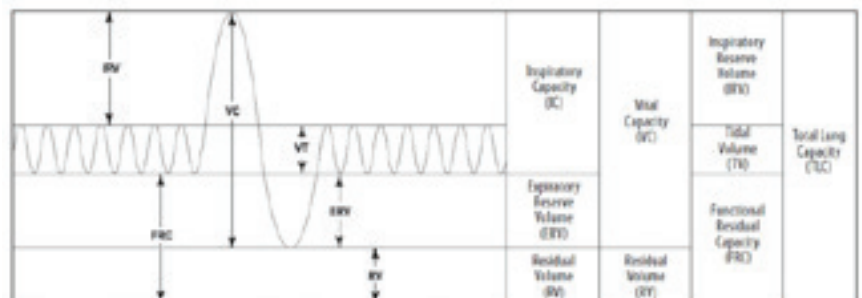
Your lungs need to be challenged to their maximum capacity in order to thrive and stay healthy. Think for a moment... when was the last time you ran as fast as you could? It's probably been a while. Cardio is designed so that you plod along, never running too fast, never running too slow. But what is the purpose?



In ancient times, different forms of quick acceleration (like sprinting) were essential. And this kind of activity, whether on land, or in water, challenged the lung-power of our ancestors.

Check out the graph to the right.

The middle section – where you see the short, wavy lines – is your normal, everyday breathing. It's called “tidal breathing.” Notice it's a very narrow band. Tidal breathing only represents a small fraction of our total lung capacity.



Adapted from the standard output of a spirometer.

In the middle of that, you see one bigger wave. Inside that bigger wave are the letters “VC.” That wider band represents your vital capacity. Vital capacity is what shrinks as you age.

Doesn't it make sense that if you want to preserve your lung's vital capacity you need to challenge it? Of course, right? But we never do.

During the course of our busy days, our breathing stays within that narrow band of tidal breathing. And if you go to the gym or practice cardio, your breathing will expand – but you never challenge your vital capacity. And you almost never reach total lung capacity.

Here's what we face: Our vital capacity drops quickly with age. And during the course of our lives we do nothing to change that. In fact, most of us never experience what it's like to breathe fully.

Adding fuel to the fire, day-to-day stress makes breathing short and shallow. Have you ever noticed that you tend to hold your breath when you're tense or stressed out?

A study from Harvard, published in the medical journal *Thorax*, found a connection between anger and

decreased lung function.

In the article, Dr. Rosalind Wright of the Harvard School of Public Health stated, “hostility is associated with poorer pulmonary function and more rapid rates of decline among older men.”⁴

Modern life is stressful and our lungs take a beating. Often times you don’t even realize you’re not using them to the fullest – or that you can’t.

Loss of lung-power is common and chronic. That means it’s a constant problem that continues over many years. You don’t notice because you don’t have anything to compare it to.

PACE is different. It’s the only effective program designed to rebuild and restore your lost lung-power. And it doesn’t take more than 12 minutes a day, three times a week.

Supercharge Your Performance by Racking Up an Oxygen Debt

The *oxygen debt* triggers bigger lungs and more lung-power. It happens when your body needs more oxygen than you can give it... like after a short burst of intense exertion. It’s one of the key features of PACE.

Conventional wisdom tells you to exercise at a *moderate intensity*. They call this your “aerobic zone.” But staying within this narrow band never challenges your limits.

When you do a high-intensity activity – which becomes easy with PACE – you challenge those limits. Once you cross over from medium exertion to intense exertion, you need more and more oxygen to sustain that high level of activity. Sprinting would be a good example. Of course, you can’t sprint for very long. You will be exhausted after half a minute or so.

But when you stop sprinting, you’ll become short of breath and pant. This is your body’s way of getting oxygen back into your body as quickly as possible. The concept is easy to understand: High-intensity activities need lots of oxygen fast.

Oxygen is the basic fuel your cells need to keep moving. When you’re jogging, your body can inhale enough oxygen to keep that activity going for quite a while. But when you’re sprinting fast, the demand for oxygen is so intense you can’t go for even a minute. As you approach maximal exertion, the amount of oxygen required to keep you going will exceed the amount you’re taking in – that’s the point when you begin accumulating an oxygen debt.

You may wonder why an oxygen debt is important. You might even think that pushing your body to that

Obesity Puts Some in Death Spiral

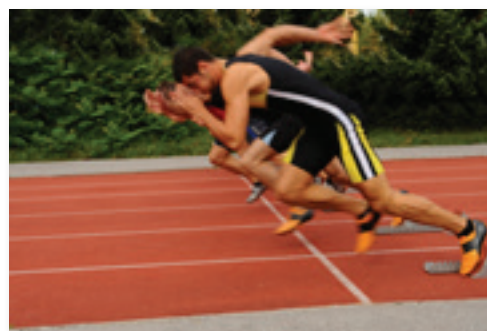
Doctors discovered that obesity restricts a person’s lung-power by as much as 20 to 30 percent.

The extra weight pushing on their chest and lungs creates a respiratory resistance that must be overcome in order to breathe.

By increasing the normal loss of lung-power that comes with age, obesity accelerates the aging process and puts people at a higher risk of other chronic diseases, which in turn diminishes the lungs’ vital capacity.

PACE not only reverses loss of lung-power, it activates your “native fat burner.” In later chapters you will learn how some of my patients lost as much as 18 pounds in a single month.

Zerah F, Harf A, Perlemuter L, Lorino H, Lorino AM, Atlan G. Effects of Obesity on Respiratory Resistance. *Chest*. 1993;103(5):1470-1476.



point is counter-intuitive. After all, why would you want to starve your body of oxygen?

The answer lies in your body's "adaptive response."

Think about what those words mean for a moment... an adaptive response is a change your body makes after confronting a challenge. If you don't give your body new challenges, it won't make these changes. In other words, you won't grow or progress.

That's one of the reasons why aerobics, cardio and long-distance running are not the best options for your long-term health. No progress will be made to build back lung capacity because you are not challenging your current lung capacity.

In fact, because you are "pre-programmed" to lose capacity with age, if you don't train your body to make changes in response to challenges, you'll actually start sliding backwards.

But when you give up these long, boring workouts, you can change your body's experience with exertion.

When you achieve oxygen debt, your body responds. Plateaus are broken. Changes are made. First and foremost, your body reacts by increasing your lung volume and boosting your heart's output.

By doing those kind of activities you actually "ask" your body to make those changes. And in response, it does. You can train your body to make any kind of change you want. If you want small, tight lungs and decreased cardiac output, then keep jogging.



But if you want the kind of longevity and heart attack prevention that comes with bigger lungs and a stronger heart, then shoot for an oxygen debt each time you do an exertion period with PACE.

Here's an easy example:

Let's say you're on a stationary bike and you've cranked up the resistance level... enough to give you a considerable challenge.

After a few minutes, your breathing will change. You will need to breathe more deeply and more quickly to sustain that level of intensity. When this happens, pay attention. Instead of breathing with no thought or intention, put some focus on your breath.

When you inhale, do it quickly and fully. Imagine your lungs filling up on both sides of your chest. Both in front and in back. Think of your lungs as two big barrels that fill up quickly all around.

Even a Moderate Drop in Lung-power Increases Your Risk of Heart Attack by Over 200 Percent

Researchers at the Royal Free Hospital School of Medicine in London, in a 7.5 year follow up of 7,735 men, discovered those with even a moderate loss of lung-power had a more than two-fold increase in heart attack risk.

Even after adjustments for other risk factors, including smoking, the increased risk was still over 200 percent.

Their findings were published in the *European Heart Journal*.

Cook DG, Shaper AG. Breathlessness, lung function and the risk of heart attack.

European Heart Journal. 1988;9(11):1215-1222.

Then exhale quickly and fully. Imagine those barrels depleting – like two dried up raisins.

Repeat this process quickly and steadily. Inhale fully. Exhale fully. Count it off... One, two. One, two. Get into a rhythm and be completely aware of each breath.

In order for you to sustain a high-intensity activity, you have to gain control over your breath. And when you're in the heat of the moment, your breathing needs to be fast and full. No hanging on. No resistance. Give in to it and let go.

Of course, every high-intensity exercise is short lived. And even after focusing on an intense breathing routine, you'll have to stop after a few minutes. But when you do, be very aware of that moment.

From that regulated, fast in, fast out, breathing, you'll stop your activity and break into a pant. The rhythm of your breath will change. The panting will be faster and feel more desperate and out of control.

You can achieve this during any kind of high-intensity activity. It doesn't have to be sprinting or cycling on a stationary bike. It could be anything. Even fast walking.

The key is self-awareness and observation. Watch yourself. As you start to exert yourself, pay attention to your breath. As your breath accelerates, get into a rhythm you can follow. Regulate your breath. And by that I mean allowing yourself to inhale and exhale fully in a repetitive and consistent manner.

When you're pushing yourself during PACE, that regulated breathing will be fast and deep. And if you follow these simple guidelines, you can achieve it every time.

Rebuilding your lungs is not impossible. Using the oxygen debt is a surefire way to regain the power, flexibility and stamina of your younger days. It's one of the techniques I use to keep the lung capacity of a 20-year-old. You can do it too.

PART II

Build Your Most Powerful, Healthy Body With These Unique PACE Workouts

One of the things that sets PACE apart from other categories of exercise is that it expands your lungs.

In part one of this report I showed you how tiny lungs drastically reduce your lifespan. And how PACE can help you grow bigger and stronger lungs, adding quality years to your life.

So, how do you make this change happen?

One of the best ways is to use a circuit-style workout, but do it as a PACE routine. You start by picking 5 or 6 exercises that you already know – one for each major muscle group in the body – and apply PACE to doing them.

That way, it's fun, quick, and easy to create variations. Plus, those the variations that will keep PACE effective over time.

For example, here's what a simple circuit could look like:

- Push-Ups – 10 reps
- Lunges – 5 reps
- Crunches – 10 reps
- Dips – 10 reps
- Pull-Ups – 10 reps
- Run/Sprint – 40 seconds

At the end of this set, rest until your heart rate has recovered to within 20% of your maximum heart rate. Then repeat the circuit.

Start off with at least two sets. As you become more conditioned, you can make progressive changes by adding sets and changing the exercises in the circuit pattern.

Try out this simple circuit, and I guarantee you'll build a bigger and stronger heart, and lungs.

Keep It Fun – The Trainer's Workout

At the new **PACE Fitness Center** here in South Florida, our certified PACE instructor and fitness specialist uses the workouts I'm about to show you to train people who are new to PACE. The beauty of them is that they are easy to do, and work for both beginners and those with PACE experience.

Do these exercises for about 3 minutes each, for a total of no more than 12 minutes of total exertion.

March in Place

- 1. Lift your knees upward, one at a time. Keep them at a 45 degree angle and raise them as high as they will go.**
- 2. As you raise your left knee, pump your right arm. Then, when you raise your right knee, pump your left arm.**

Beginners: If you are unable to perform a full knee raise, simply lift your feet a few inches off the ground. Try lifting them a little further on each workout.

Adding Intensity/Advanced: Maintain a quick, steady rhythm – almost a run – as you alternate legs. Bring the knees up high and use exaggerated pumping action in your arms.

Standing Crunches

- 1. Stand with your legs apart. Position your arms, bent at the elbow, so your hands are next to your ears.**
- 2. Tighten your stomach muscles, then lift your right leg and slightly twist your torso to bring your left elbow toward the knee. Touch elbow to knee.**
- 3. Return to starting position and repeat the exercise with your left leg/right arm.**
- 4. Alternate sides for a total of 1 minute.**

Beginners: Don't worry if you can't bring your knee and elbow together in the beginning. Perform the exercise as best you can to tone and build your abdominal muscles. As these muscles are strengthened, you'll be able to reach your goal.

Adding Intensity/Advanced: Up the intensity with higher leg lifts and faster movement.

Jumping Jacks

- 1. Stand with your arms at your side with your feet straight and close together.**
- 2. Bend your knees and jump, opening your legs outward so they are positioned in an upside-down V-shape when you land. As you jump, raise your arms over your head.**
- 3. Jump back into starting position while lowering your arms.**

Beginners: A low impact version of the jumping jack is called a “half jack.” Simply stand with your feet together, then tap your right foot out to the side while raising your arms. Repeat with other leg. Continue alternating for a full minute.

Adding Intensity/Advanced: Count the number of jumping jacks you can do each minute. As your workouts progress add 3 to 5 jumps to each set and see if you can still get them done in a minute.

Squat Thrusts

1. Stand straight with your arms at your sides.
2. Squat down.
3. Lean forward and place your hands on the floor.
4. Step both feet behind you at once into the push-up, or “plank” position.
5. Keeping your upper body in place, pull your legs forward underneath you and back up into squat position.
6. Stand back up into starting position.

Beginners: If you have a hard time getting up and down from this exercise start off by doing squats. With feet shoulder-width apart, squat as far as possible while bringing your arms out to the front. Then return to starting position. After a few weeks of squats, try and add the remainder of the movements into your routine.

Adding Intensity/Advanced: There are a couple things you can do to add intensity to this exercise. 1) Do a push-up or two while in plank position. 2) When you come out of the final squat, jump up and throw your arms in the air.

Compound Your Fitness Payout

Have you ever heard of compound exercises?

They help you burn fat and develop lean muscle a lot more quickly than other types of exercise. And when you combine compound exercise with PACE, you’ll see the payout in no time.

Compound exercises move more than one joint at the same time.

Compound exercises date back to our native ancestors, even though they may not have called them that at the time. They were just living their daily lives hunting and gathering.

Those same exercises you did in elementary school and haven’t thought about since.

Like jumping jacks. They’re a compound exercise because you move many joints at once. Jumping jacks utilize your shoulders and most of your arm and leg muscles. They also engage your core, and can really get your heart beating and lungs bursting.

In other words, *jumping jacks can really give you a bang for your buck!*

I suggest a slightly modified version of them, which I call “**Scissor Jacks.**”

1. When you do a regular jumping jack, you start with feet together and hands down. When you jump, you spread your legs, raise your arms above your head, and clap your hands... then return to starting position.

When you do a “Scissor Jack,” you’ll start in the same position. But when you jump, place one leg forward and one leg backward while raising your hands over your head.

2. On the first jump, put your right leg forward, left leg behind you.
3. On the second, put your left leg forward and right leg behind you. Right forward, left forward, right forward, left forward.

Add this to your PACE routine to work the most muscle in your body for advanced fat burning and muscle development.

Boost Your Mood Every Morning

When I do PACE, I like to do it outside whenever I can. The outdoor air energizes me and sets the tone for the entire day.

So I wasn’t surprised when this review came out a couple of weeks ago. It turns out that exercising outside in a natural environment is associated with greater feelings of revitalization, increased energy, and a reduction in tension, confusion, anger and depression.⁵

Exercise alone is a great stress-reliever, and this new study just gives you one more reason to move out of repetitious gym routines and into more invigorating land exercises.

I like to get my lungs pumping, my heart pounding and break a good sweat when I do my PACE exercises. To help you do the same, here’s a new outdoor workout you can try a couple of times a week. As always, it can be modified to fit your level of conditioning.

Whether you are advanced, or just beginning, you’ll perform a total of five sets. So you’ll complete the exercise set once, rest and recover; then do it four more times.

Advanced - Sprint for 30 seconds, then stop and do five advanced burpees.

Intermediate – Jog for 30 seconds, then stop and do five regular burpees.

Beginner – Walk briskly for 30 seconds, then stop and do five squats.

Don’t know what burpees are? Let me explain...

To do the advanced burpee:

1. Stand straight with your arms at your sides.
2. Squat down.
3. Lean forward and place your hands on the floor.
4. Kick your legs backward so that you’re in push-up or “plank” position.
5. Perform a push-up by lowering your body to the ground and back up.
6. Keeping your upper body in place, pull your legs forward (back into squat position).
7. Jump up and throw your arms in the air.

To do a regular burpee:

8. Stand straight with your arms at your sides.

9. Squat down.

10. Lean forward and place your hands on the floor.

11. Kick your legs backward so that you're in push-up or "plank" position.

12. Keeping your upper body in place, pull your legs forward (back into squat position).

13. Stand back up into starting position.

As you progress, you can add a modified push-up (knees on ground) after step #4 and try adding a jump when you return to starting position.

Use Your "Adaptive Response" For Positive Change

Doing the same workout over and over again will produce a predictable result – a plateau.

So unless your goal is to stay the way you are, it's not effective. You might injure yourself, you might go nowhere, or you might get a negative result.

If you want change for the better – a leaner torso, a stronger heart, leg muscles that have real strength, a more masculine "V" shape – you have to challenge yourself, and then progressively, incrementally increase that challenge.

In other words, you want to trigger your body's **adaptive response**. This means giving your body a new set of challenges so it adapts to what you're asking it to do.

You can do it a little bit at a time. It doesn't have to be dramatic to trigger your adaptive response. But you do need to be conscious of what change you're building and what challenge you're providing your body for your workouts to be effective

PACE is going to do this for you. Whatever challenge you decide on, all you have to do is apply PACE – be aware of what change you're building, incrementally increase the challenge, and then accelerate it – and you set your body on a path toward positive change.

Here's a routine that will challenge you and trigger your body's adaptive response.

Cross-Crunch Jump Squat

Movement 1: Stand upright with your legs together and arms extended in front of your chest, elbows bent. Lift your right knee toward your left elbow. At the same time, swing your right arm down and behind you. Return to starting position and repeat motion on the other side.

Movement 2: Place feet shoulder width apart. While keeping your arms bent in front of you, lower into squat position. With body crouched, jump upward as high as you can. Simultaneously, extend arms and reach overhead.

Alternate those two movements until you've reached your desired intensity for each of three sets. To include acceleration, remember to shorten your recovery time between sets, or get up to your desired intensity faster.

If you're just beginning, you can modify the cross-crunch by bringing your knee up and touching your hand to it instead of your elbow. For the jump, you can simply reach overhead while raising yourself onto your tiptoes. Then move up to full arm swings and jumps to trigger the adaptive response.

To add a challenge and intensity to this workout, frog hop to the left, then to the right before jumping.

To change it up and force your body to adapt again, add the lateral hop, then turn the squat into a squat-thrust. While in squat position, place your hands on the floor, and hop your feet backwards into a “push-up” position. Then hop forward and perform your jump.

Say Goodbye to Your Bulge

The spare tire. The midriff bulge. It sticks out and makes you feel uncomfortable. It feels unattractive for both men and women.

And it can be a little hard to get rid of. For the most part, you can't get rid of it by doing sit ups. That just builds muscle in the area. So you need to do a regular PACE program that increases your metabolic rate, which is going to help you shed that fat while you rest.

But there are things you can do to trim your waistline and firm up that area so it not only looks better but enhances your health and strengthens your core.

All it takes is adding a few new exercises to your PACE routine that focus on those muscle groups. Here they are:

Beginner

1) Plank Exercise

- Lying face down on the floor, brace yourself on your elbows. Raise yourself until your elbows are directly under your shoulders and bearing most of your upper body weight.
- Balancing on your toes, lift your torso so that you create a straight angle from your shoulders to your feet. Squeeze your abdominal muscles to help hold you in position.
- Hold position for 5-10 seconds.
- Gently lower your body back to the floor.
- Repeat 10 times.

2) Side lunge

- Place your hands on your hips with your feet together.
- Take a large step to the side with your right foot.
- Keeping your left leg at a straight angle, bend the right knee and lunge toward the floor.
- Push off with right knee and step back into starting position.
- Try doing 12 lunges on each leg, then recover.

Repeat each exercise two more times for a total set of three.

Moderate

1) Plank with Leg Lift

- While in plank position, slowly lift one leg off the floor.
- Count to three and slowly lower your leg back to the floor.
- Do the same with your opposite leg.
- Repeat 10 times.

2) Side lunge with leg lift:

- Place your hands on your hips with your feet together.
- Take a large step to the side with your right foot.
- Keeping your left leg at a straight angle, bend the right knee and lunge toward the floor.
- Push off with right knee and step back into starting position.
- Raise arms over your head and, at the same time, kick your right leg out to the side. As you raise your arms, your back should have a slight arch to it.
- Lower your arms and leg back into starting position.
- Do 10 on each leg.

Repeat each exercise three more times for a total set of four.

Advanced

1) Plank with Arm Lift

- While in plank position, slowly shift your weight to your right arm.
- Extend you left arm straight out in front of you.
- Keeping your abdominal muscles tight, count to 3.
- Bring arm back into starting position.
- Switch arms and repeat.
- Do this exercise 10 times on each arm.

2) Weighted side lunge with leg lift:

- Hold a 5 or 10 pound medicine ball, kettle-ball or dumbbell weight with both your hands and hold it straight in front of you.
- Take a large step to the side with your right foot.
- Keeping your left leg at a straight angle, bend the right knee and lunge toward the floor as you lower the weight.
- Push off with right knee and step back into starting position.
- Raise the weight over your head and, at the same time, kick your right leg out to the side. As you raise your arms, your back should have a slight arch to it.
- Lower your arms, legs and weight back into starting position.
- Do 10 on each leg.

Repeat each exercise four more times for a total set of five.

Build Muscle the Natural Way - With the PACE "Superset"

PACE is great at strengthening your heart and lungs. But don't forget, it's also a great way to tone, strengthen, and build muscle.

Having strong muscles is important for staying healthy well into your "golden years." They're what keep you

mobile as you age.

Plus, strong muscles can help you:

- Lower resting blood pressure
- Reduce body fat
- Increase bone mass and density
- Alleviate lower back pain and increase lower back strength
- Improve appearance

That's why it's important to mix up your PACE workouts and include exercises that target your upper and lower body.

Stick to bodyweight exercises. They're the best way to gain usable, functional strength.

In fact, bodyweight exercises are so effective, they form the core of the strength-training program for the Green Berets and Navy Seals.

Here's a challenging PACE workout that will build muscle and tone your body from head to toe:

Lower Body Superset

<u>Exercise</u>	<u>Reps</u>
Hindu squats	15
Alternating lunges	15
Jump squats	15

Upper Body Superset

<u>Exercise</u>	<u>Reps</u>
Push-ups	15
Pull-ups	15
Dips	15

Here's how you do the workout:

Step 1: Start with the lower body superset. Do 15 Hindu squats. Go right into 15 alternating lunges. Then do 15 jump squats.

Step 2: Rest 3 to 5 minutes.

Step 3: Next, do the upper body superset. Do 15 pushups, then 15 pull-ups, then 15 dips.

Step 4: Rest another 3 to 5 minutes.

Step 5: Repeat steps 1-4 one more time.

If you can only do the lower body and upper body supersets one time through, that's okay. Gradually build yourself to where you can complete the workout.

This workout will not only build strength and muscle, but you'll still be building your heart and lungs as well.

And if you really want to bump up the intensity, you can jump rope in between each exercise for 30 seconds.

Here's how you do the exercises I've mentioned in this workout:

Lower Body

- **Hindu squats** – Stand with your feet shoulder-width apart. Extend your arms out in front of

you, parallel to the ground with your hands open and palms facing down. Inhale briskly and pull your hands straight back. As you pull back, turn the wrists up and make a fist. At the end of the inhalation, your elbows should be behind you with both hands in a fist, palm side up.

From this position, exhale, bend your knees, and squat. Let your arms fall to your sides and touch ground with the tips of your fingers. Continue exhaling and let your arms swing up as you stand.

This brings you back to the starting position: standing straight up with your arms extended in front of you, hands open, and palms facing down.

- **Alternating lunges** – With your hands on your hips, take a step forward with your right leg until your front knee is bent 90 degrees and your back knee almost touches the ground. Push off from your leading foot and return to the starting position. Repeat with your left leg.
- **Jump squats** – With body crouched, feet together, arms at sides, head straight and level, quickly straighten legs and jump upward as high as you can. Simultaneously, extend arms and reach overhead. After landing, quickly return to original position, without losing your balance.

Upper Body

- **Push-ups** – Lie face down. Place hands a little wider than shoulder-width apart. Straighten your back and place feet together. Lower yourself until you almost touch the ground. Now press your body back to the starting position.
- **Pull-ups** – Palms face out for a traditional pull-up on a bar to strengthen middle-back muscles. Palms face toward you to do a chin-up, which strengthens the back and biceps.
- **Dips** – Use parallel bars, two chairs, or two desks. Lift feet off ground, while putting one hand on each object. Slowly lower yourself until elbows are at 90-degree angles. Pause. Slowly raise yourself. Works your triceps, chest, and middle back.

Add a Little Extra...

You don't need any special exercise equipment to do your PACE workouts.

In fact, the only thing you really need is your own body. It's the most amazing machine science has ever had the good fortune to study. It's all you need to build muscle strength, drop pounds, boost lung capacity and strengthen your heart.

Sprints, lunges, squats and calisthenics are all you need for a powerful PACE session. That being said, you *can* add some extra "oomph" to your sessions by incorporating a few simple items into your workout:

1. Diagonal Wood Chop with Resistance Band

- Attach your resistance band to a stationary object above shoulder level.
- Turn sideways so that your left arm is nearest the band.
- With your feet shoulder-width apart, grasp the band in both hands and hold it next to your left ear.
- Pull the band down toward your right knee as though you were chopping wood with an ax.
- Return to starting position.
- Depending on the tension in your resistance band, repeat 20-30 times. If you are out of

condition and can't hit that number, don't worry. You'll build strength and stamina as you go.

- Recover then perform the exercise on your right side for the same number of repetitions.

Adding intensity: When you are able to perform this exercise easily, replace the resistance band with a single 10-pound weight. Simply hold the weight near your ear with both hands, then chop downward in the opposite direction.

2. Box Step-Up

- Stand in front of the box with your arms at your side.
- Place your left foot on the box.
- Pull yourself up with your left leg (try not to push off with your other leg).
- Bring your right leg up; then lower yourself back to starting position.
- Repeat 10-15 times; then repeat with your left leg.

Challenge yourself: Once you've mastered standard step-ups, try them laterally. Stand next to the box instead of in front of it, and side-step up the box. For added intensity, hold a dumbbell in each hand.

3. Dumbbell Squats

Before performing this exercise, you should be able to perform a complete set of regular squats. Once you've mastered that, here's what you can do to "up-the-ante"...

- Take one dumbbell and grasp it with both hands in front of you. Your arms should be pointing straight forward with elbows bent slightly.
- With your feet shoulder-width apart, squat as far as possible while keeping the dumbbell in front of you.
- Return to standing position.
- Repeat as often as you can for 45 seconds; then recover.

Adding intensity: Lower the dumbbell between your thighs as you squat. Then, when you return to standing position raise the dumbbell until it is over your head.

4. Hip Extension with Resistance Band

- Lower yourself onto hands and knees.
- Wrap the resistance band around the sole of your left foot and grasp the ends in your hand.
- Raise your left leg off the floor and straighten it behind you. When fully raised, it should be level with your spine.
- Return to starting position.
- Again, depending on the tension in your resistance band, repeat 20-30 times.
- Recover; then perform the exercise on your right leg for the same number of repetitions.

Challenge yourself: Work your way up to 50 reps per leg.

Recover Your Youthful Mobility: The Secret to Pushing Through Aches, Pains and Injuries

Every day I meet new patients who have creaky knees, bad backs or hip problems. These are the patients I'm

most concerned about, because a lack of exercise increases their risk for obesity, heart disease, diabetes and other deadly health conditions.

But a few aches and pains don't have to stop *anyone* from doing PACE, including you.

It doesn't matter whether you have a trick knee or a bad hip. All you have to do is move your exercise to a different venue: *the water*.

Physical therapists regularly use aquatic exercises to help patients who have joint pain, arthritis and muscle strain. It works great because buoyancy in the water removes the impact that accompanies more traditional land exercise.

Athletes frequently resort to water therapy during recovery from sports-related injuries. In fact, a new study published in the *American Academy of Physical Medicine and Rehabilitation* showed that elite athletes recovered from injuries more quickly using water exercise than land-based exercises.⁶

Exercising in the water can increase joint range, improve muscle strength and prepare you for more strenuous land exercises.

So that tender knee or aching back doesn't have to slow you down. You can get all the exercise you need at your community pool or nearby beach.

Here are some of my favorite PACE exercises you can perform in the water, no matter what shape you're in:

- **Vertical Squat Jumps.** Find an area where the water reaches the bottom of your ribs while standing. With your feet shoulder-width apart, squat down until your shoulders are just below the surface of the water. Jump straight upward, bringing your legs together as you rise. When you land, lower yourself back into squat position. Do this exercise as often as you can for 30 seconds, then stop to recover. Repeat the sequence three more times.
- **Jumping Jacks.** Stand in water up to your shoulders. With your feet flat on the bottom, relax your arms at your side. Bend your knees and launch yourself upward. As you jump, kick your legs out to the sides and raise your hands above your head ... just like a regular jumping jack. However, unlike a standard jumping jack, you will land with your knees bent and your feet apart. Start off with four sets of 10, stopping to recover between sets. (Note: If this is too difficult, you can start in shallower water and work your way up.)
- **Water Sprints.** Place your hands at your sides while standing in water up to your shoulders. Using exaggerated movements, begin striding through the water extending your arms and legs as far as you can, just as if you were running. (Because you're in water, it'll feel like you're sprinting in slow motion). Start with one minute exertions and repeat five times. Again, if you find this hard to do, simply move to shallower water to start with and progress to deeper water as you gain strength.

Once you begin performing these water exercises, you'll gain a greater range of motion along with more energy and improved metabolism. You'll also begin to feel the changes in your body as you drop weight, build muscle and regain your heart strength.

And in a very short time, you'll have no problem when you want to exercise on solid ground.

