

From UNDERSTANDING
to *Knowing*



Unlocking your Path to Optimal Health

Dr. Jason Loken N.D, DOMP, RMT, Ph.D (cand)



FROM UNDERSTANDING TO KNOWING

Unlocking your path to Optimal Health

By Dr. Jason Loken, ND, DOMP, RMT, Ph.D (cand)

Ivory Songs Publishing, Inc.
Unionville, Ontario, Canada

In association with "Personal Shifts" a division of Global Shifts Inc.
www.globalshifts.org

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For information, contact the publisher:

Ivory Songs Publishing, Inc., c/o Music To Care, 4261-A14 Hwy #7, Suite #117,
Unionville, Ontario, L3R 9W6 www.globalshifts.org

Original Photographs by Ed Franks Photography.

Stock Photographs by Shutterstock Images.

Cover and Book design by Cori Ashley and Cindy Wilson Designs

Edited by Jenna Kalinsky

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From Understanding to Knowing

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This book is about “Personal Shifts”

Medicine is personal. It's about that gut feeling that tells us when something doesn't feel right, isn't working for us or plain and simply...it hurts.

The true blessing of medicine comes when there is a blending of 3 things:

- 🕒 *Our Intuitive Feelings*
- 🕒 *Knowledge and Experience*
- 🕒 *The Willingness To Act*

This book is a support system for your intuitions. A knowledge base of vital and essential information that will bring you the confidence to express your concerns from an informed place, become involved in your healing and invite your strength, courage and willingness to act.

This book is my ripple to ease the journey to a highly joyful and healthful quality of life for us all.

With Gratitude,

Jason Loken



The Healing Power of Nature

We are all born with the innate capacity to care for ourselves and for others. A founding principle in osteopathy is that our body is a system of “autoregulation”. This is an internal adaptive mechanism that works to adjust our system’s response to stimuli. In other words, we possess the magical and natural ability to heal. Our bodies are hard wired to create balance within us. This is why our own temperature, hormonal and enzyme systems are able to function within very specific ranges.

*The question is, “if our bodies are so effective at maintaining balance, why is it that as a population we are so out of balance?”. Well, according to the principles of “nature cure”, humans are born strong and healthy and will continue living this way as long as they abide by the **laws of nature: fresh air; healthy food; clean water; sunshine; exercise; relaxation; healthy mental attitude; sleep; prayer or meditation.** If these essential principles are lacking or out of balance they will greatly tax our internal system of “autoregulation” and open the door to disease. When we start to incorporate them back into our life, they have the power to transform our health.*

“You can’t give someone a drink from an empty cup”. We must first care and heal ourselves in order to best care for those around us. We can physically see our innate ability to heal and care for others in daily life within a mother’s bond with her child or the unconditional care and support that exists in twelve step groups such as AA. What I have found with my patients is that once they start to truly care for themselves and heal, their ability to care for others grows exponentially. This book is a powerful first step in caring for yourself so that you are able to have the energy, patience and capacity to care for others.

“From Understanding to Knowing” provides you with essential information to assist and support you in making informed decisions about your health, empowering you with the tools to prevent chronic disease and enrich the quality of your life. This program will also assist you in effectively working with health care professionals to personalize a treatment program for you. This will provide you with the opportunity to begin re-balancing your body, mind, emotions and life. The continued results of your lab tests will keep you on track and serve as a guide to your success.



Welcome...

Have you ever made a phone call and hit that busy signal over and over... or get tossed over to that infuriating answering machine, "leave me a message... you're important – I'll get back to you?", well, in some cases, this is what we do to our bodies.

Each day, in-fact every moment, your body is sending you little (and sometimes not so little) "messages", yet, it may be getting a busy signal each time it tries to get through to you!

The result is that you miss out on all sorts of things that can make a huge difference to your well-being.

In a wonderful book, "Planet Heart", by Dr. Mary-Ellen Kelly, it is suggested that within our bodies, we all possess a phenomenon called our "Internal Guidance System" or IGS. Our IGS tells us what is going on in our body at all times. Our guidance systems are not complicated. It doesn't run on some foreign power source or need special instructions... in-fact, everything you need to control this guidance system is within you. You simply need to tune in and listen.



The problem is that most of us have "pushed aside" our vital connection to our IGS and we become almost numb to the negative and stressful effects our environment, diet, thoughts, and emotions are having on us.

I see many patients who have come to a place of "disconnect or disregard" for what their physical bodies are telling them. It's a natural result of the pace and demands of life. The overwhelm of life. Too busy to look or listen. We wait until it gets bad enough... and then we have to do something about it!

The real earthquake hits when your lowered or stressed state of health, energy, mood and overall fitness becomes your "Normal". We just learn to live with it.

Well, there is one concept that is often overlooked. It's more effective than simply pulling yourself up to a better state of "Normal". It's my opinion that you deserve more. Your quality of life and your abilities to cope will magnify and multiply when you reach "Optimal". Your "Optimal" state of well-being.

This is a state of reserve, resource and support for a busy life. This means that you don't constantly run with the tank on empty, try to give a drink from an empty cup – or pretend that your sense of daily drain... is fine and normal and oh well... I just have to be like this. This book is my greeting card to you that says "It's time to take care of **YOU!**"

UNDERSTANDING

Listening to your body's essential information and learning what to do with it.



DR. JASON LOKEN ND,DOMP, RMT, Ph.D (cand)

Reaching your Optimal Health

So... how? How do you reach “Optimal?”

To reach your state of “optimal” health, it is absolutely essential that you learn to re-connect with yourself - with your “IGS” (internal guidance system) - in order to hear the messages that your body is so desperately trying to tell you! Time to re-open your lines of communication. The process of listening, however daunting it may seem, is actually much easier than it sounds. In fact, it is one of the most natural things we can do.

When we were infants we had a very acute awareness of how we were feeling. Whenever we were unhappy, hungry, in pain or scared we acted on it immediately, usually by crying until our discomfort was addressed and “fixed”. As we get older, we learn that crying isn’t always the most effective or appropriate way to deal with our discomforts. This is the beginning of our disconnect.

In many situations, we are taught to push down, push aside or completely ignore our discomforts and deal with them at a later date...or not at all. Sometimes we are told that our symptoms “aren’t a big deal” or that it is all in our heads.



At this point, we stop trusting ourselves, our inner voices and start second-guessing the messages that our bodies are trying to tell us. This is true for so many of us. Over time we learn to stop paying attention to our “Internal Guidance System” completely.

I wrote this book to support you in re-connecting with yourself – so you can “understand” your body’s messages and use the essential information to get you to a place of “knowing” how to prevent and correct illness and disease.

Imagine the amount of discomfort and suffering you will avoid when you listen and understand what your body is telling you. It’s a wonderful skill that you were born with and it is your key to reaching and maintaining your “optimal” health.

Take a few minutes to complete the questionnaire on the following pages and see for yourself, if and how your body is trying to get your attention:

Listening to your body...

Questionnaire

Rate the following questions on a scale of 0-5 (0 being “not at all” and 5 being “most severe”)

Question	Your score: 0 - 5
Do you crave sweets or alcohol?	
Do you crave breads?	
Do you experience mood fluctuations?	
Are you depressed?	
Are you feeling stressed out?	
Do you get headaches or migraines?	
Do you experience indigestion, gas or bloating?	
Do you experience heart-burn?	
Do you have elevated blood pressure?	
Do you have any skin concerns (acne, eczema, etc...)?	
Do you require any prescription medications? (0=no, 5=yes)	
Are you overweight?	
Do you have troubles falling or staying asleep?	
Do you experience muscle/joint aches and pains?	
Do you experience nasal or sinus congestion?	
Do you have low energy and feel lethargic?	
Do you have troubles turning your mind off when it is time to relax or sleep?	
Do you have bad breath?	
Do you have constipation or diarrhea?	
Are you sensitive to various smells and perfumes?	
What is your current level of stress?	
Do you feel bored, or a lack of purpose in life?	
Do you eat less than 1 piece of fruit or 2 colorful veggies/day?	

Questionnaire continued next page...

Listening to your body...

Question	Your score: 0 - 5
Do you have brain fog or troubles with your memory?	
Do you have hemorrhoids?	
Do you get frequent colds, or other types of infections (including yeast)?	
Do you feel refreshed and ready to start your day each morning? (0=very refreshed, 5 = very un-refreshed)	
Do you crave salty foods?	
Do you experience hormonal symptoms related to your menstrual cycle?	
Do you experience shortness of breath?	
Do you experience a loss in your sex drive?	
YOUR SCORE TOTAL	

Tally up your score:

If you scored more than 20 points then your body is desperately trying to get your attention.

The next step is to **USE this awareness** to shine a light on these symptoms and figure out what is actually going on. What are the triggers and aggravating factors causing these symptoms in the first place? How far off track are you and what is necessary to get things back into optimal zones?

Awareness is an extremely valuable tool. It guides us to find those triggers and aggravating factors that are ultimately at the root of the problem. I love the saying, *“What we focus on expands.”* Pertaining to our health, the more we focus on our health and how to feel better, the more of this we will create in our lives. A good comparison is when we find ourselves knee deep in “keeping track” of our finances. You sit down with the facts and look over all the details. We become aware of how our money has been used... yet more importantly we often discover hidden things that have fallen **outside of our awareness** - or that we chose to ignore altogether. So, with regards to our health, it is imperative that we discover all of our own personal details, including those things that are off our radar... or we just don't want to look at. This enables you to reveal the root of your challenges and in turn create a more healthy and fulfilling future.

On the following pages you will find a series of tracking forms. These forms are an effective and easy way to track your daily food intake as well as discover a number of important health determinants. This information brings you a renewed understanding of your current lifestyle - and how your body is responding to it. These discoveries in combination with the results of your completed Lab Tests, will offer you many tools and solutions to make your positive personal shift.



Making The Connection...

One more key piece of information that we will now add to your process of understanding:

Our thoughts and emotions play a great role in our physical selves.

These thoughts and emotions play a pivotal role in how we feel, the choices we make, and our overall outlook on life. When something has this kind of an impact on our current and future state of health and well being it makes sense to take a moment and pay attention to it. Very often I find patient's that have chronic pain are very aware of their chronic pain...but when they stop to do a self-check on how they are feeling there are often a number of other sensations that come to their awareness. Feelings of frustration, stress, sadness, grief, guilt and any number of other emotions that seem to go hand in hand with their physical symptoms. I remember one elderly man who's pain literally disappeared as soon as he was shown loving attention from his children, as well as another women who's chronic lower back - more specifically tail bone pain - would flare up the second she got off the phone with her ex-husband who in her own words describes as a "complete pain in the ass". Sometimes our bodies take things very literally.

We can more effectively achieve our Optimal Health when we understand how our emotions can trigger, aggravate and even intensify our physical symptoms. On the flip side of the coin - positive emotions can act as an effective support system for that which ails us. A good laugh and a joyous moment is a most uplifting remedy.

So, here's a wonderful way to begin the process of listening. A means of hearing the messages that your body is sending you:

It really begins with something very simple. Slowing things down even for a split second to do a self-check, to be present in your body and ask it how it is doing. Throughout the day just remind yourself to stop for 20 seconds or a minute and ask your self, "How am I feeling right now?" Take notice of any thoughts, feeling and specifically any physical feelings that come up. Notice any aches or pains in your body, feelings of fatigue, or low energy, restlessness, stress, or feelings of anger, frustration, sadness...just stop and be very present with what you are feeling. At this point your mind will likely want to jump in and create a lot of stories around what you are feeling. For example, if your low back is sore you may find your self saying things like, oh, that sucks...its bugging me again...its never going to get better, or if you are feeling stressed or anxious your mind may start running more stories about why you are so stressed or angry, the things that need to get done or the situations that have been unfair etc... For now stop the mind from getting involved and just pay attention to the actual feelings you are experiencing. This is about listening to the body...not justifying why the body is feeling a certain way. This is the first step in paying attention to your body's constant messages.

Daily Food Journal

Tracking your diet is one of the best ways for you to confirm what *is going in your body*. It is very easy to skip a meal here or there or have a "few too many treats" sneak into your day more regularly than you would like. When you actually choose to write down everything that you eat and drink throughout your day, it provides you with an awareness that becomes an essential support system towards your optimal health.

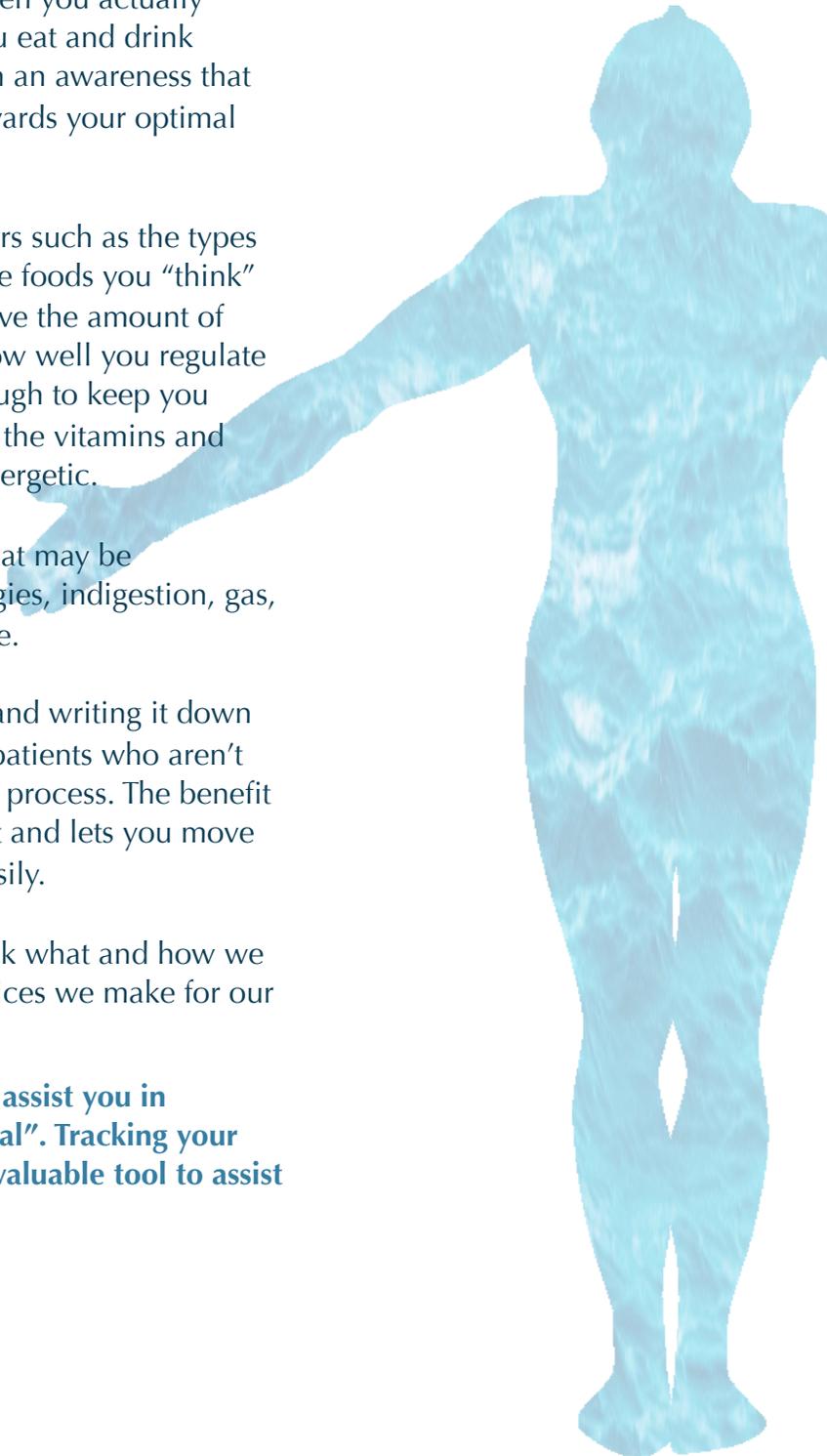
You will become privy to important factors such as the types of foods you are actually eating verses the foods you "think" you are eating. You will be able to observe the amount of food you consume and determine just how well you regulate blood sugar, if your protein intake is enough to keep you going and make sure that you receive all the vitamins and minerals you need to stay healthy and energetic.

You will be able to release those foods that may be aggravating your symptoms such as allergies, indigestion, gas, bloating, headaches, joint pain, and more.

Keeping a close eye on this information and writing it down makes it real. There are very few of my patients who aren't completely surprised at the results of this process. The benefit is that it puts you back in the driver's seat and lets you move towards a greater state of health more easily.

When we make a conscious effort to track what and how we eat it has a significant impact on the choices we make for our bodies.

The tracking sheet on the next page will assist you in creating your own personal "Food Journal". Tracking your daily food intake is a very simple and invaluable tool to assist you along your journey.



Daily Food Journal

Name: _____ Date: _____

Tracking	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Breakfast							
Snack							
Lunch							
Snack							
Dinner							
Snack							
Mood, energy & Symptoms							
Number of Bowel Movements							

Determinants of Health

There are certain fundamental health determinants that provide the best overall picture of how well your body is functioning. Generally speaking, when all of these factors show you are in the normal to optimal range, you are likely feeling great and your body is healthy and functioning well. Further, you are not only living healthily in the moment, you are also decreasing your risk for developing many future health problems.

Forms are an excellent way for people to track their progress. I think it is very important for you to be able to evaluate exactly how you are doing so you know what is working and what areas require further modification and support. **This section will give you a brief understanding as to the importance of each health determinant and a way to track your progress:**

- Resting Heart Rate
- Waist to Hip Ratio
- Blood Pressure
- Temperature
- Bowel Movements
- First morning urine pH
- Sleep
- Energy
- Mood
- Exercise
- Stress

Resting Heart Rate

Resting heart rate (Resting HR) is the number of heartbeats that occur in one minute when you are at complete rest. Resting heart rate is a good measure of your basic fitness level. Generally speaking, the more well-conditioned your body, the less effort and fewer beats per minute it takes your heart to pump blood through your body at rest.

To measure your resting heart rate, immediately after awakening and before you get out of bed, use your heart rate monitor or feel your pulse (at the carotid artery in the neck or the radial or ulnar artery on the wrist). Count the beats for 15 seconds then multiply that number by four. You can sleep with your heart rate monitor on and in the morning simply read it first thing. Be aware, however, that if your bladder is full, you didn't sleep well, or you're feeling stressed, you might have a slightly elevated resting heart rate.

Take these measurements for five consecutive days and find the average. This average is your “actual” resting heart rate. Your resting heart rate is dependent on a number of factors such as quality of sleep, stress level, exercise and diet. If you find that your average resting HR is higher than you would like, take a look at these factors and see what needs to change:

- **Optimal = 45-59 beats/minute**
- **Normal = 60-80 beats/minute**
- **Risk = >80 beats/minute**

Determinants of Health

Waist to Hip Ratio (WHR):

WHR is an excellent indicator of your overall health and what your risk of developing many serious health conditions might be. Research shows that people with "apple-shaped" bodies (those who carry more weight around the waist) face more health risks than those with "pear-shaped" bodies (those who carry more weight around the hips).

There is an undisputed link between obesity, abdominal fat and the increased risk of heart disease. WHR is used as a more accurate measurement of obesity, which makes it an excellent tool to assess and monitor your risk of cardiovascular disease and other serious health conditions. According to the National Institute of Diabetes, the National Institute of Digestive and Kidney Diseases (NIDDK) and the Centre for Disease Control CDC, women with a WHR of more than 0.8 and men with a WHR of more than 1.0 or even 0.9 (according to the CDC) are at increased health risk because of their fat distribution.

To determine if you have a healthy waist to hip ratio, use a measuring tape to measure the circumference of your hips at the widest part of your buttocks. Then measure your waist at the smaller circumference of your natural waist, usually just above the belly button. To determine the ratio, divide your waist measurement by your hip measurement. **MEN: Optimal: <0.8, Risk >0.9. WOMEN: optimal 0.7, Risk >0.8**

Blood Pressure

"Blood pressure" is the force of blood pushing against the walls of the arteries as the heart pumps blood. If this pressure rises and stays high over time, it can damage the body in many ways. About 1 in 3 adult's in the United States has high blood pressure. The condition itself usually has no symptoms. You can have it for years without knowing it. During this time, though, high blood pressure can damage the heart, blood vessels, kidneys, and other parts of your body. Even moderate elevation of arterial blood pressure leads to shortened life expectancy. Dietary and lifestyle changes play a major role in the control of blood pressure and the reduction in associated health complications. Knowing your blood pressure numbers is important, even when you're feeling fine. If your blood pressure is normal, you can work with your health care team to keep it that way. If your blood pressure is too high, diet and lifestyle changes and other treatment may help prevent damage to your body's organs.

Normal: Less than or = 120/80, **Prehypertension:** 120-139/80-89, **Hypertension:** Stage 1 = 140-159/90-99, Stage 2 = 160 or higher/100 or higher

Determinants of Health

Oral Body Temperature

Even though it has been shown that body temperature can fluctuate between 97 F (36.1 C) – 99 F (37.2 C), I like to see people somewhere between 97.5 F (36.4 C) - 98.6 F (37 C). I regularly find in clinic that most people have a lower than optimal oral body temperature. I believe that part of the reason for this is chronic stress has an inhibitory effect on your thyroid function which can lead to a slightly lower core body temperature. This subclinical hypo functioning of your thyroid may not show up on a blood test, but it may be providing you with some valuable insight as to the functioning of your thyroid.

Fluctuations in body temperature are also very sensitive to your activity level, hormone levels, ovulation, menses, medications, trauma or injury, and specific medical conditions such as hyper or hypothyroidism, rheumatoid arthritis and more. **Body temperature is an excellent measurement tool as it is one of our chief indicators of normal functioning and health.**

Optimal Oral temp: 97.5 F (36.4 C) - 98.6 F (37 C)
(check first morning before getting out of bed and eating or exercising)

Bowel movements

In my opinion it is normal to have one or two soft formed easily passed bowel movements a day, without any effort or straining. This is not the case for most people, some of whom have the best "bathroom libraries" in the world, and some of whom actually reserve this time for reading the daily newspaper-cover to cover. The habit of reading in the bathroom is simply a reflection of inadequate function.

It is not normal to miss having a bowel movement on any given day. It is not normal to solve the problem by taking a laxative. If your bowels move daily, but with difficulty or straining, if your stool is dry or hard, or if you don't move your bowels daily, you need to adjust your diet and lifestyle in order to get things "moving" optimally. A bowel movement should be soft and easy to pass, though some people may have harder or softer stools than others. In general, stool should be brown or golden brown, be formed, have a texture similar to peanut butter, and have a size and shape similar to that of a sausage.

Be aware of changes in your stools or other factors such as blood in the stool, red/maroon colored stool, black tarry stools, pale or clay colored stools, constipation or diarrhea. These issues all indicate that something is not working properly or is out of balance. If through diet and lifestyle modifications you are still not having proper bowel movements, see your primary health care professional to get checked out.

Track number of Bowel Movement's (BM's)/day *(make note if they are constipated, hard, loose, small, sausage shaped etc...)*

Determinants of Health

First Morning Urine pH

**See Top 10 Lab Tests for the essential information regarding this test. First Morning Urine pH is Lab Test #10*

Sleep

The benefits of sleep impact nearly every area of your daily life! Sleep plays an essential role not only in your physical health and longevity, but also in your emotional well-being. Without proper sleep you are likely to feel negative changes in your mood, your judgment, and your ability to learn and retain information. If you have been experiencing chronic sleep deprivation, you are setting yourself up for developing diabetes, heart disease, obesity, increased stress, depression, and early mortality. **When you get 6-8 hours of solid sleep each night and are waking up feeling refreshed, you reap many rewards:**

- ☺ Reducing stress
- ☺ Improving memory
- ☺ Improving heart health
- ☺ Decreasing the risk of acquiring type II Diabetes
- ☺ Controlling appetite and weight gain
- ☺ Decreasing the risk of mood disorders

Sleep is one of the pillars of optimal health. Getting an appropriate amount of good quality undisturbed sleep is absolutely essential to your overall well-being and disease prevention.

“Optimal” sleep means you’re getting 6 - 8 hours per night; it’s easy to fall asleep, and you don’t wake up during the night, or if you do get up to go to the bathroom, for example, you fall back to sleep quickly and easily; you wake up feeling refreshed and ready to start the day and don’t feel the need to hit the snooze button on your alarm clock before getting up.

Track both your hours of sleep per night and the quality of your sleep on a scale of 1 – 10 (1 being very poor sleep and 10 being excellent sleep).

Energy

One of the most common complaints patients have is decreased energy. Energy can fluctuate over the day, but if you are generally feeling fatigued, lack motivation and the overall “get up and go” you used to have, there could be many underlying factors such as diet, lack of exercise, nutritional deficiencies, anemia, low thyroid, chronic stress, chronic disease, and etc. This is an excellent marker to assess changes in your energy as you begin to make the necessary adjustments to your diet and lifestyle.

Measure your general energy level for the day on a scale of 1-10 (1 being the worst energy you have had and 10 being the best energy you have had).

Determinants of Health

Mood

It is always important to do a self-check at the end of the day to see how you feel. Mood can change dramatically throughout the day depending on work, family, relationships, physical discomfort, and a wide array of other stressors and conditions. When your mood is good, you see a big difference in your overall well-being. If you are finding that it is always at the lower end of the spectrum, ask yourself: what can I bring into my life to improve my state of mind?

Measure your mood on a scale of 1 – 10 (1 being worst mood you have been in and 10 being the best mood you have been in).

Exercise

In my opinion exercise is one of those fundamentals that improves everything in your life. The research on all the benefits that come from regular exercise is indisputable. If you are not making time for moving your body in some capacity, start NOW.

Exercise minutes per day: this needs to be sustained exercise, so unfortunately cleaning your house doesn't count. Walk for 15 minutes, dance 20 minutes, ride your bike, go to the gym, etc. The important thing is to move your body for a solid period of time.

Track the number of minutes of consecutive exercise that you do each day.

Stress

Stress management is another pillar of optimal health. Chronic stress is related to just about every detrimental health condition you can think of. The barrage of stress hormones that your body has to deal with on an ongoing basis can be extremely destructive to your body and interfere with many other hormones including estrogen, progesterone, testosterone, thyroid hormones, and insulin, to name a few.

Measure your stress on a level of 1 – 10 (1 being a very low level of stress and 10 being a tremendous amount of stress).

KNOWING

“Knowing” moves you from the important art of listening to your body to the science of discovery, fact and embracing your ability to take action.



DR. JASON LOKEN ND,DOMP, RMT, Ph.D (cand)



“Top 10 Lab Tests”

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Vitamin D

An estimated 85% of people in the U.S. are Vitamin D deficient and many scientists and researchers consider this an unrecognized global epidemic.

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Ferritin - Iron Assessment

Iron deficiency is one of the most common deficiencies in the world. 1 in 5 women of childbearing age and 1/2 of pregnant women are iron deficient!

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Vitamin B12

According to a recent study from Tufts University in Boston almost 40% of the U.S. population is deficient in vitamin B12 and the vast majority of them are completely unaware.

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hs-CRP High Sensitivity C-Reactive Protein **heart health**

High sensitivity CRP is a highly predictive test showing future risk of many imbalances and diseases. Individuals with elevated levels of hs-CRP have a risk about 2 to 3 times higher than the risk of those with low levels.

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Homocysteine **heart health**

Homocysteine has gradually become one of THE MOST IMPORTANT screening examinations for determining your risk of cardiovascular disease.

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Cholesterol Panel **heart health**

Health officials in the U.S. urge everyone over the age of 20 to have their cholesterol tested every 5 years!

More Contents...

“Top 10 Lab Tests”



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Fasting Blood Sugar

heart health

The rate of diabetes has increased by 700% over the past 5 decades!! Checking your fasting blood sugar is the best test for assessing both diabetes and your future risk of diabetes!

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Thyroid Panel

In the United States, more than 10 percent of the general population and 20 percent of women over the age of 60, have subclinical hypothyroidism. Thyroid hormones interacts with an array of other hormones and are intimately involved in every physiological process that goes on in your body, **if it is out of balance...everything is!**

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CBC Complete Blood Count

A CBC is a base line essential lab test that screens for a broad spectrum of disorders such as anemia, infection, and other diseases.

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Acid / Base balance is one of the most tightly regulated systems in our body. Maintaining even a slightly acidic internal environment will create a breeding ground for disease and chronic illness.

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It is estimated that up to 85% of North Americans are deficient in Magnesium.

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Top 10 Lab Tests

Informed, Involved, Inspired

When I see patients I often wish, “If only they knew ahead of time which direction their health was moving, then perhaps they wouldn’t be in this position of poor health right now.”

I noticed a shift in the trend that people didn’t seem as focused on living to the ripe old age of 100... as much as they wanted to enjoy living their lives and years unburdened by the challenges of poor health and celebrate a better quality of life. They wanted to experience life with family and friends, they wanted to travel and have new experiences, go for walks, play with their kids or grandkids or just be able to walk up the stairs without gasping for air or in fear of having a heart attack. The bottom line is that these people wanted a better quality of life yet their biggest obstacle was their current state of health.

Most chronic diseases of our time are very preventable. The key pieces of the puzzle so often overlooked are when people shy away from checking to see where they are along the road or they don’t consider the results seriously enough.

This book was designed to inform and arm you with one of the most effective resources we have in prevention. These are my suggested **“Top 10 Lab Tests”**. On their own or in combination they provide a virtual power house of information **that paint a very clear picture of your current state of health, where your health is heading, and how to prevent chronic disease.**

There are a specific series of blood tests that I highly recommend you run during a physical exam - which enable you to dig a little deeper and reach a little further to bring you so much more.

Time and time again these test results reveal the presence of risk factors to many chronic diseases. In this book I teach you how to look at the results and reference ranges with a preventative eye.

The information in this book “puts you back in the driver’s seat” of your own health. Medicine is all too often kept in the hands of the few. Most of the time when a patient comes in with their blood work they have no idea what any of it means. No one took the time or found the need to review it with them, explain what the results are indicating - and from the majority of my patients I understood, that the common factor was “everything is fine, don’t worry about it”. Yet, upon further review, we uncovered indicators that needed to be considered for effective prevention.

I like to take the time to sit down and bring the awareness to my patients. After all it is your body right? It gives people a stronger sense of awareness and confidence which in turn always supports and magnifies their power to heal. Once we have established the meaning of the results, we can then explore the many possibilities of correcting the challenges. This prevents the onset of bigger problems down the road.

A good way to visualize the purpose and importance of these 10 lab tests is by imagining this: *You find a small leak in a pipe and place a bowl under the drip. For the moment, it’s not a big deal - yet if you leave it long enough, the water starts to overflow and or the pipe bursts.* This is the essential value of prevention.

I have found that when most patients are informed and involved with their lab results, they become inspired, willing and able to take good care of their bodies and lives.

Our health is our power. Think of this book as a friend, a source of support for your quality of life. Be informed, involved and inspired so you can live healthy and young for the years to come!

Normal verses Optimal

My motivation to bring you the Top 10 Lab Tests...

Have you ever been told that you are “fine” and your lab tests are all “normal”, yet you don’t feel “fine” or “normal” at all? On the contrary, you feel like something is wrong or out of balance, and you have no resources or answers to help you understand what’s happening with your body.

This disconnect concerned me and became the driving force behind the essential information I offer in this section of the book.

With lab results, there is a very big difference between being in the **"normal"** range and being in the **"optimal" range**. I have seen countless patients over the years who have been told that they are fine and their labs are all normal. Upon closer inspection, however, it becomes apparent that although they may be "normal", they are far from "optimal".

The reference range for many lab tests can be huge; if you happen to fall closer to the far left or far right of the normal range, you may very well be feeling the ill effects of such a disparity. There is an optimal range for most labs that when achieved may not only significantly affect your current state of health, but can also dramatically improve your health for the future and prevent a host of chronic diseases such as heart disease and cancer.

This book will show you how to choose the tests appropriate for you, reveal why they are important, and how to reach your "optimal" zone, dramatically improving your health!

1. Which lab tests are critical for you?

Each of our Top 10 Lab Tests includes a section called *"This test is critical for you when..."*. Although each of these 10 Lab Tests plays an essential part in determining your current state of health and your potential risk for future disease, this section will provide you with specific signs and symptoms that indicate when a test is critical for you. The more you relate to the symptoms, the more essential this test is for you.

2. How do I have my lab tests performed? There are a few options for your lab tests.

a) Ask your Medical Doctor or Nurse Practitioner to run the tests

If your doctor agrees to run your lab tests for you, there may only be a minimal cost if any at all. I have seen some doctors hesitate running lab tests without the presence of specific signs or symptoms, which is ironic as one of the main purposes for these tests is prevention. These tests assist you in obtaining a “snap shot” of your current health and move you into an "optimal" zone for improved health and disease prevention. Our objective is to discover subtle imbalances that may exist without relying on overt signs and symptoms, or better yet, to help you understand these potential situations and avoid the symptoms all together.

Top 10 Lab Tests



Normal verses Optimal

b) Ask your Naturopathic Doctor (ND) to run the tests

Your Naturopathic Doctor will either be able to perform the labs in his respective clinic or will provide you with a requisition to have them performed at a local lab. Working with your ND along with using this book will help you optimize your success and ultimately get a handle on your health.

Please note that with this option, your lab tests may be covered by your extended health care plan (coverage may vary depending upon your plan), but they are *not* covered by the Canadian Health Care System. You may also offer to pay for any additional testing that you require out of pocket. A complete package of lab tests may cost between \$150-\$250: a small price to pay for investing in your health.

c) A mix of the two options

Combine the two sources of both MD or Nurse Practitioner and Naturopathic Doctor to have all of your tests performed.

3. What do I do with my results?

Once you receive your test results, request a copy for your own files. **You are entitled to a copy of your own results.** Compare your results to the reference ranges and the optimal ranges in the “Solutions” section of this book.

See example below:

Vitamin D3 = 70 nmol/L	/ (75-200 nmol/L)	/ 125-200 nmol/L
your result	reference range	optimal range

The “Solutions” section of this book will provide you with essential information and guidance to assist you in bringing your values into an optimal zone.

4. Next steps

Stay on track by implementing the solutions from this book. Begin filling out the “Determinants of Health” tracking sheets and **Daily Food Journal** at the back of the book in order to observe your continual improvement and note the other areas of your life that you may now choose to address.

Get your lab tests re-checked after 3-6 months of incorporating your solutions. Re-assess your new lab results and see what has improved. Read the “Solutions” section and see what else you may now implement to get you into your optimal zone. You may choose to discuss your results with your ND and work with her in order to fine tune your treatment plan.

Then celebrate the fact that you have just significantly decreased your risk of many chronic diseases, improved the quality of your health, and ultimately bettered your life overall.

In good health,
Dr. Jason Loken

Top 10 Lab Tests





Top 10 Lab Tests

In this section...

Each of the “Top 10 Lab Tests” have been carefully organized into 4 user-friendly sections to optimize your use of this essential information:

4 user-friendly sections per Lab Test:

1. In Conversation with Dr. Loken

Dr. Loken assists you in becoming more personally acquainted with the concepts and background of each lab test by sharing his own personal experiences, research and results.

2. This Test is Critical for you When...

Each of these 10 Lab Tests are an essential factor in determining the state of your health. This section brings special attention to when a Lab Test may be particularly critical for you.

3. Medical Facts

Keeping you informed and up to date on the science and medical data behind each Lab Test

4. Benefits & Prevention

A motivating list of the many advantages and positive results that can be obtained by utilizing each of the “Top 10 Lab Tests”.



Vitamin D

Lab Test

1

In Conversations with Dr. Loken

Given all the hype about vitamin D over the past several years, I decided to start testing people at my clinic to see if they are as insufficient in vitamin D as the research shows.

To my surprise, almost every single person I tested, including myself, was well below the optimal level of 125 nmol/L for 25-hydroxy vitamin D (this is the only blood test that should be done to assess vitamin D deficiency).

I remember one patient, a 16 year old boy who came into my clinic complaining of being fatigued all the time despite getting regular sleep; he was nodding off in class, feeling depressed, and suffered from colds and flus every month.

After running a panel of tests, we discovered that everything was within normal range except for his 25-hydroxy vitamin D, which was at a very low 41 nmol/L. After supplementing based on his current levels, we re-tested his 25-hydroxy vitamin D after three months. His levels had risen to the optimal range and all of his symptoms had disappeared.

An estimated 85% of people in the U.S. are Vitamin D deficient and many scientists and researchers consider this an unrecognized global epidemic.

This Test is Critical for you When...

- If you live in North America
- If you are getting frequent colds and infections
- If you have darker skin
- If you avoid the sun or wear sunscreen
- If you want to prevent chronic diseases such as cancers, heart disease, depression and many more.



Vitamin D

Lab Test

1

Medical Facts

Vitamin D deficiency is one of the most common and preventable nutritional deficiencies I see. That said, vitamin D is fat-soluble; if it is supplemented inappropriately, it can be stored in the fat cells of the body and eventually become toxic. It is recommended you find out your levels and then re-check them in three months.

Test for 25 hydroxy vitamin D3	Reference range
Normal	30-80 ng/mol (75-200 nmol/L)
Insufficient	Below 30 ng/ml (75 nmol/L)
Optimal	50-80 ng/ml (125-200 nmol/L)

There are three different forms of vitamin D:

Cholecalciferol (vitamin D3)

Calcidiol (25-hydroxyvitamin D)

Calcitriol (1.25-dihydroxyvitamin D)

You produce all of these forms of vitamin D naturally in your body. When your skin is directly exposed to the UVB rays of the sun, you produce cholecalciferol, which is then transported to the liver where it is turned into the storage form of vitamin D, calcidiol. Calcidiol then gets transported to your kidneys and other tissues where it is converted into the very powerful steroid hormone calcitriol. Calcitriol is responsible for all of the health benefits referenced above; **the problem is that if calcidiol levels are below 125 nmol/L, you are unable to reap any of these benefits.**

The catch is that the first pathway of calcidiol is to go to the kidneys, where it is converted into calcitriol, which maintains blood calcium and phosphorus levels. Only after this job is completed can any leftover calcidiol go to different body tissues where it can be converted into calcitriol and provide its many healthful benefits to your body. It appears that only when you have sufficient levels of vitamin D (greater than 50 ng/ml or 125 nmol/L) are you able to utilize this secondary and enormously beneficial pathway.

In North America, most of the population is deficient in vitamin D due to decreased UVB exposure in the fall and winter. In the summer months,IIIIIIIIII people have become so fearful of sun exposure, they tend to overuse sun block or avoid the sun altogether. You are also at more risk of deficiency if you are over 50, have darker skin or have difficulties with fat absorption.



Vitamin D

Lab Test

1

Benefits & Prevention

Vitamin D has been coined the “nutrient of the decade” because of its association with a tremendous number of health benefits. It has long been recognized as an essential component in the prevention of Rickets and Osteomalacia, but growing research has shown this powerhouse nutrient to be linked to the prevention of many other ailments:

- At least 17 different cancers
- Heart disease
- Stroke
- Autoimmune diseases such as rheumatoid arthritis, inflammatory bowel disease, and multiple sclerosis
- Diabetes
- Depression
- Chronic pain
- Infections
- Osteoarthritis
- Osteoporosis
- Muscle weakness
- Periodontal disease
- Autism

And many more...

Vitamin D is both a vitamin and a pre-hormone that has the ability to serve multiple gene-regulatory functions in your body. In fact, of the 30,000 genes you have in your body, Vitamin D is able to exert its influence on 2,000 of them. Vitamin D could literally have thousands of health benefits!





Ferritin

Iron Assessment

Lab Test **2**

In Conversations with Dr. Loken

I check ferritin levels routinely on most of my female patients. More and more often are women coming into my clinic telling me that their iron was checked and they are “normal”.

Part of the problem with checking ferritin, the storage form of iron, is there is a huge reference range for what is considered “normal”!

For example, a woman can be considered to have adequate iron stores if her ferritin falls anywhere between 12-150 ng/ml or even 10-291ug/L. It doesn't really make sense that two people can both be within "normal" range when one has 29 times the iron level of the other.

This is a massive divide in value. I regularly find that the majority of women I see in my clinic have far from optimal levels of iron. I think iron is a greatly overlooked nutrient that can make a dramatic impact on people's lives, particularly on those who suffer from chronic fatigue or even just those who feel less than par.

Iron deficiency is one of the most common deficiencies in the world. 1 in 5 women of childbearing age and 1/2 of pregnant women are iron deficient!

This Test is Critical for you When...

- 🕒 If you are a menstruating women
- 🕒 If you are pregnant
- 🕒 If you feel fatigued and lethargic most of the time
- 🕒 If you get dizzy, weakness or headaches
- 🕒 If you bruise easily



Ferritin

Iron Assessment

Lab Test **2**

Medical Facts

Iron is an essential trace mineral that helps to form hemoglobin. Hemoglobin is the protein in red blood cells that transports essential oxygen in your blood and gives it its characteristic dark red color.

Quick reference guide to your optimal levels:

TEST	Reference Range
NORMAL women	15 – 200 ng/ml for women
NORMAL men	20 – 300 ng/ml for men
OPTIMAL	Women: 40 – 75 ng/ml Men: 75-120 ng/ml

Groups who are at the most risk of developing iron deficiency are infants/young children and women. There is an increased need for iron in infants and children in order to ensure proper growth and development. The iron that full term infants have stored in their bodies gets completely used up within the first 4-6 months of life. If that infant was a pre-term baby, her requirements are even higher as she has even less iron stored up in her body.

Intake of cows milk has been a common cause of iron deficiency as well. Cows milk is low in iron, it can impede the absorption of iron, and it can even cause the intestines to lose small amounts of blood, further decreasing iron levels.

It is also important to check for increased levels of lead in the blood of children who are iron deficient. Lead from paint, soil, water, or air can interfere with the body's ability to make hemoglobin, rendering the child iron deficiency anemic.

The primary reason women are at risk is simply due their monthly periods. It has been said that as many as 1 out of every 5 women of childbearing age may have iron-deficiency anemia. During pregnancy, the risk increases even more so as their needs for iron double. It is estimated that up to half of all pregnant women have iron-deficient anemia.

Other risk factors include internal bleeding, diets that exclude meat and fish, diets high in refined foods, problems with nutrient absorption such as celiac disease, low stomach acid, food allergies, and inflammatory bowel disease.



Ferritin

Iron Assessment

Lab Test **2**

More Medical Facts...

However, checking the levels of iron in your blood alone is not an adequate measure of whether or not you are deficient.

The level of iron in your blood can be normal even when the total amount of iron in your body is depleted. For this reason, a serum ferritin test must be done. I like to see ferritin levels at a minimum of 40 ng/ml and optimally between 75 ng/ml - 120 ng/ml. At these levels, I know for certain that a deficiency in iron isn't responsible for a person's symptoms.

Ferritin is a protein found primarily in the liver, spleen, skeletal muscle, and bones. It stores iron so we can use it at a later date when it is needed.

The amount of ferritin in your blood is directly related to the amount of ferritin stored in your body. If your blood levels of ferritin are low- even at the low end of normal- we know your total body stores of iron are also low.

There are other tests to help assess your iron status, including a CBC, serum/iron, TIBC, and % transferrin; however, ferritin is the single best test to determine whether you are at risk of becoming deficient or whether you are already deficient.



Ferritin

Iron Assessment

Lab Test **2**

Benefits & Prevention

Iron deficiency anemia is the most common form of anemia. It is primarily due to a diet low in iron, but it can also be due to inadequate iron absorption, blood loss (bleeding ulcer, menstrual bleeding, uterine fibroids, etc.), and from an increased need such as when pregnant or during growth spurts in the first year of life and in adolescence.

When your iron levels are deficient, you are unable to produce hemoglobin rich blood that is capable of transporting oxygen to your cells, thus creating an iron deficiency anemia. Some of the other ways iron is used in your body include:

- The production of energy by playing a role in the production of ATP energy
- Proper development of the placenta during pregnancy - **up to 58% of pregnant women are iron deficient**
- The prevention of pre-term and low birth weight babies
- Proper brain growth for the first eight months of life; cognitive and developmental delays may result from iron deficiency
- Provision of optimal immune system function and reduction in the risk of infection
- Proper myelination of the spinal cord
- Cofactor in many enzymes involved in the production of neurotransmitters such as serotonin, dopamine, and noradrenalin – thus significantly affecting mood, motivation and drive, immunity, etc.
- DNA synthesis



Ferritin

Iron Assessment

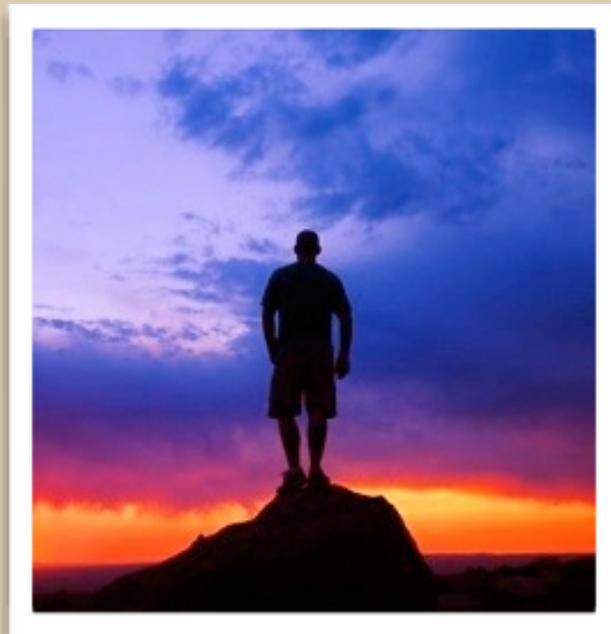
Lab Test **2**

More Benefits & Prevention...

Often, people in the beginning stages of an iron deficiency may not show any symptoms at all, but as the deficiency progresses common symptoms such as low energy, apathy, dizziness, headaches and weakness may start to set in.

Other symptoms of progressing iron deficiency anemia may include:

- Brittle nails
- Cold hands and feet
- Cracks on the side of the mouth
- Swelling or soreness of the tongue
- Frequent infections
- Unusual cravings for non-food items such as paint, dirt, ice or others. This is called Pica
- Restless leg syndrome
- Shortness of breath
- Ringing in the ears
- Chest pain



In Conversations with Dr. Loken

I used to find this condition in vegetarians or patients over 50 years of age due to a lack of B12 in their diet or a gradual decrease in the production of hydrochloric acid in the stomach that is necessary for the release of B12.

Over the past few years, however, I have seen more and more people of all ages with low to low/normal levels of B12. Most of these people are chronically fatigued even with adequate sleep!

The answer to this isn't as simple as just eating more meat high in B12. It seems that people are simply having a harder time absorbing this essential vitamin. Whether the problem is due to a deficiency of stomach hydrochloric acid, poor intake of B12, an overload of "bad" bacteria in the gut, or something else, it is essential to get your levels back up in order to avoid an array of diseases and enjoy all the health benefits that B12 provides.

According to a recent study from Tufts University in Boston **almost 40% of the U.S. population is deficient in vitamin B12** and the vast majority of them are completely unaware.

This Test is Critical for you When...

- If you are a vegetarian or a vegan
- If you are often feeling weak and tired or lightheaded
- If you have digestive problems such as lactose Intolerance, food allergies, irritable bowel syndrome, Crohn's disease or celiac disease
- If you are experiencing numbness or tingling in your extremities
- If you are over 50 years of age



Vitamin B12

Lab Test **3**



Vitamin B12

Lab Test **3**

Medical Facts

B12 is the largest and most structurally complicated vitamin in the human body. It is an essential nutrient for the maintenance of a healthy body that is often taken in conjunction with folic acid and other B vitamins.

Quick reference guide to your optimal levels:

TEST	Reference Range
NORMAL	Between 179-800 pmol/L
OPTIMAL	Above 400 pmol/L

Optimal B12 levels are absolutely necessary in order to avoid disease and ill health. A deficiency in B12 can lead to conditions such as anemia, severe nerve damage, and dementia. **According to research conducted at Saint Louis University, up to 10% of patients with B12 levels between 200-400 pg/L may still be deficient.**

The scientists found that of the 34 patients who had normal levels of B12, 26 had elevated levels of methylmalonic acid (MMA), which indicated a B12 deficiency. Tests that are proving to be more reliable than even a serum B12 for assessing subtle B12 deficiencies are a serum Homocysteine and Methylmalonic acid.

The levels of these substances are high in B12 deficiency and can be helpful if the diagnosis is unclear. The symptoms associated with B12 deficiency are subtle and nonspecific, but when they are present, they are a result of the macrocytic anemia, nerve involvement, and gastrointestinal changes that occur from the deficiency.

If someone is in the early stages of her deficiency, she may experience little to no overt symptoms at all. **Others may experience a variety of mild to severe symptoms that can include:**

- Malabsorption
- Confusion
- Dizziness
- Paranoia
- Paleness
- Fatigue, weakness
- Rapid heart rate
- Shortness of breath
- Tingling and numbness in hands/feet



Vitamin B12

Lab Test **3**

More Medical Facts...

Deficiency in B12 results from either insufficient intake or inadequate absorption. B12 is only found naturally in animal sources such as meat, fish, poultry, dairy, and eggs. It is for this reason that complete vegetarians and their breast-fed babies are often insufficient. The other reason for deficiency is inadequate absorption.

Poor absorption can be due to:

- Low stomach acid necessary to separate the B12 from the protein in meat
- Gastrointestinal problems such as food intolerances, celiac disease, bacterial overgrowth in the intestines and more;
- Anyone with less than optimal digestion likely needs to supplement with B12
- High amounts of *H. pylori*- the bacteria responsible for peptic ulcers- has been linked to pernicious anemia, an autoimmune disease that destroys stomach cells responsible for the absorption of B12
- Medications. Those who take antacids or anti-ulcer medications decrease their stomach acid and inhibit their ability to absorb B12
- Alcoholism
- AIDS

For the vast majority of people, deficiency can be easily avoided through the use of a B12 supplement, multivitamin with B12, or by increasing meats and even breakfast cereals fortified with B12.

If you have your B12 checked and it is suboptimal (below 400), and you are still experiencing symptoms, request a methylmalonic acid test or a homocysteine. Both of these tests are proving to be very reliable and more sensitive markers for assessing B12 levels.



Vitamin B12

Lab Test **3**

Benefits & Prevention

B12 has often been called the “energy” vitamin, but it does far more than just give you an energy boost.

B12 offers the body a wide range of health benefits that extend to numerous systems of the body. Some of the benefits of B12 include:

- Helping your body utilize iron
- Helping folic acid regulate red blood cells
- Proper digestion and absorption
- Metabolism of fats and carbohydrates
- Optimal nerve conduction and communication
- Support male and female reproductive health
- Enhancing your immunity
- Production of adrenal (stress) hormones
- Making millions and millions of healthy red blood cells every day!
- Maintaining a healthy mood, memory, mental clarity and concentration
- Cardiovascular health through the conversion of homocysteine to methionine
- Beneficial sleep through it’s role in melatonin production

B12 is involved in the metabolism of every cell in body and plays a vital role in the synthesis and regulation of both DNA and fatty acids. Like I said, it does much more than just give you energy!



In Conversation with Dr. Loken

I have found Hs-CRP to be an invaluable test in helping me assess my patients' risk of cardiovascular disease. I was routinely running cholesterol panels on patients to get a picture of their overall heart health and risk of heart disease, but once I read about Hs-CRP and its benefits, I began to incorporate it as part of my screen.

This is one of the best tests to measure inflammation in the coronary arteries. To my surprise, I have found many patients with a healthy cholesterol profile to have elevated Hs-CRP. This puts them at risk for heart disease. I would have missed this if I had only looked at their cholesterol panel.

When I see a high Hs-CRP with low HDL "good cholesterol" and high LDL "bad" cholesterol, I know this patient is at significant risk for a heart attack or stroke, and I need to treat him much more aggressively.

High sensitivity CRP is a highly predictive test showing future risk of heart attack, stroke, sudden cardiac death, and the development of peripheral arterial disease. Individuals with elevated levels of hs-CRP have a risk about 2 to 3 times higher than the risk of those with low levels.

This Test is Critical for you When...

- If you have a family history of heart disease or stroke
- If you smoke
- If you are overweight
- If you have high blood pressure and/or high cholesterol
- If you live a very sedentary lifestyle



heart health

High Sensitivity C-Reactive Protein

hs-CRP

Lab Test

4



heart health

High Sensitivity C-Reactive Protein

hs-CRP

Lab Test

4

Medical Facts

C-reactive protein is a protein that is produced in the liver. It is very sensitive to acute reactions, such as inflammation, that occur in the body. Studies investigating the role of CRP as a risk factor for (Coronary Artery Disease) CAD have made use of a high-sensitivity CRP (hsCRP). Hs-CRP detects levels of CRP that had been considered normal in the past but may indicate chronic low levels of inflammation.

Quick reference guide to your optimal levels:

TEST	Reference Range
OPTIMAL - Low risk for cardiovascular disease	Under 1 mg/L of blood
Intermediate risk for cardiovascular disease	Between 1-3 mg/L
High risk for heart cardiovascular disease	Greater than 3 mg/L

Whenever there is inflammation, CRP will be overproduced and levels will elevate. The inflammation can come about by physical trauma, burns, infection or blood vessel injury. The inflammatory process is a vital one for overall health and survival. The problem is that when inflammation becomes excessive and prolonged, it can damage the blood vessels that carry nutrients and oxygen to the entire body. An example of this damage is atherosclerosis, which is an inflammatory disorder of the blood vessels.

The specific link between elevated Hs-CRP and heart disease is a relatively new one, but it is quickly becoming more and more widespread as a powerful and essential predictor for heart health. We all have Hs-CRP, but depending on numerous factors, those levels can differ widely from person to person. Most of the things that we already associate with poor heart health will elevate Hs-CRP. Things such as smoking, lack of exercise, high blood pressure, and obesity all raise Hs-CRP. The hidden factor is a person's genetics. Almost half of the variation in Hs-CRP levels is a result of genetics, which is the specific information directly handed down to each person by his parents and grandparents.

Inflammation is a reality in every stage of heart disease from the initial stages of arterial plaque formation to the end stage of plaque rupture, which leads to heart attack or stroke. Hs-CRP is an easy, inexpensive test that when done in conjunction with other assessments such as a cholesterol panel and homocysteine can be **an extremely powerful indicator of your overall heart health and can predict potential risk.**



heart health

High Sensitivity C-Reactive Protein

hs-CRP

Lab Test

4

Benefits & Prevention

In the United States, approximately 1.5 million people have heart attacks and 600,000 have strokes every year. We are well aware of the risk factors for these conditions, such as obesity, older age, smoking, diabetes, and high blood pressure, but did you know that almost half of these people are healthy with normal to low cholesterol levels? **Hs-CRP is an excellent test for assessing both your risk for heart disease and for preventing future clinical events.**

Generally speaking:

Hs-CRP under 1 mg/L of blood = Low risk for cardiovascular disease

Hs-CRP 1-3 mg/L = Intermediate risk for cardiovascular disease

Hs-CRP greater than 3 mg/L = High risk for cardiovascular disease

The higher your levels of Hs-CRP, the higher your risk of heart disease. It has long been thought that just running a cholesterol panel is the best way to assess your heart health, but it is now being shown that cholesterol is only a part of the heart health picture. Both Hs-CRP and a cholesterol panel can predict risk, but one will not tell you about the other. Running both tests can give you a comprehensive picture of your potential risk. Individuals with the highest risk are those with elevated LDL or “bad” cholesterol and elevated Hs-CRP.

It has been shown that individuals with a high Hs-CRP and a low LDL actually have a greater risk of heart disease than those with low Hs-CRP and high LDL.

This example shows that by running only a cholesterol panel without a Hs-CRP, a valuable piece of the puzzle would be missing, which could cause one’s potential risk to go unnoticed. In conjunction with a cholesterol panel, Hs-CRP can be an extremely powerful predictive tool for health or disease.

Hs-CRP can also tell you about your potential risk for developing Type II diabetes and metabolic syndrome. Your risk for diabetes increases 4-6 times when your Hs-CRP levels are greater than 3 mg/L. All the components of metabolic syndrome: low HDL cholesterol, central obesity, high triglycerides, increased blood sugar levels, and high blood pressure, increase inflammation in the body. Since Hs-CRP and CRP tests measure the same molecule, people with chronic inflammation, such as those with arthritis, should not have hs-CRP levels measured. Their CRP levels will often be too high due to the arthritis to be measured or meaningful using this test. If your hs-CRP level is very high, above 10mg/L, you should have the test repeated after 2-3 weeks, as the high hs-CRP level may reflect an acute infection that you are experiencing at the time. You should therefore have your hs-CRP evaluated only when feeling well. If upon repeat testing your hs-CRP level remains high, then you are most probably in the higher cardiovascular risk group.

Hs-CRP levels rise in response to inflammation; thus, they provide you with excellent prognostic information on your future risk.



heart health

Homocysteine

Lab Test

57

In Conversations with Dr. Loken

Since cardiovascular disease is our nation's number one killer, I am extremely pleased to be able to use any test that helps me see its potential risk factors in patients.

Homocysteine has proven to be a great test for this purpose. If a patient is high normal or above his reference range, I immediately put him on a plan to support his heart health and increase key nutrients that are usually deficient when homocysteine is high.

I have also started screening my female patients who want to get pregnant because high homocysteine levels have been correlated with miscarriage and birth defects.

Once we see the bigger picture and discover what is out of balance, we can put together a plan to correct it. By checking your homocysteine levels in conjunction with a couple of other tests from this package, you will have one of the most complete pictures of your overall risk for cardiovascular disease!

Homocysteine has gradually become one of
THE MOST IMPORTANT screening examinations
for determining your risk of cardiovascular disease

This Test is Critical For you when...

- You have a family history of heart disease or stroke?
- You are overweight, a smoker, or have high blood pressure?
- You have elevated cholesterol and/or high blood sugar
- You are pregnant?
- You a vegetarian or vegan?

Medical Facts

Homocysteine is an amino acid in the body produced from another amino acid, methionine. You can actually create an increase in your homocysteine by over consuming foods high in methionine such as dairy products and meats.

There are two major pathways that metabolize homocysteine: remethylation, which uses folic acid and B12, and transsulfuration, which uses B6. If either of these pathways is impaired due a genetic defect or a deficiency of essential nutrients, homocysteine will begin to elevate. **Quick reference guide to your optimal levels:**

TEST	Reference Range
NORMAL	6.3-15 umol/L
Increased risk of heart attack by 3x	Greater than 15 umol/L
Double your chance of coronary risk	Greater than 12 umol/L
OPTIMAL	Below 8 umol/L

Homocysteine damages blood vessels by injuring the cells that line the arteries. When the inner lining is damaged, there is an increased growth of smooth muscle that can occlude arteries. Having damaged lining also throws a monkey wrench in your normal clotting mechanism as it leads to an increased risk of developing clots that can then lead to heart attack and stroke.

As you can see, it is in your best interest to lower your homocysteine levels. A number of journals have questioned whether elevated homocysteine is a consequence of certain health conditions or the cause of them. It is also interesting that supplementing with B12, folic acid and B6 can help lower homocysteine, but supplementation alone has not been shown conclusively to lower your risk of a heart attack; healthy lifestyle and diet also offer us the opportunity to further prevent coronary problems.

Above all, elevated levels are associated with mortality, and given the number of fatalities from cardiovascular disease each year, this is an important preventative test to get!



heart health

Homocysteine

Lab Test

57



heart health

Homocysteine

Lab Test

5

Benefits & Prevention

For many years, elevated homocysteine levels have been linked to an increased risk of cardiovascular disease. This relationship has been proven over and over again, but more recently, homocysteine has also been associated with a number of other conditions:

- Heart attack
- Stroke
- Peripheral vascular disease
- Miscarriages, birth defects, pregnancy-induced hypertension
- Alzheimer's disease, Parkinson's disease
- Dementia
- Rheumatoid arthritis
- Diabetes
- Chronic fatigue syndrome
- Deficiency of B12, folic acid, B6

The adult reference range for homocysteine is 6.3-15 umol/L. It has been shown that levels of 15 umol/L or higher increase a person's chances of a heart attack three times as compared to individuals with normal levels. Even at 12 umol/L, there is a doubled chance of a coronary problem. One study even suggested that for every 5 uM (micrometer) increase in homocysteine there is an increased risk of coronary disease 60% in men and 80% in women. Therefore it is best to keep your levels as close to the bottom of the reference range as possible.

Homocysteine is intimately tied to our levels of B12, folic acid, and B6.

These key nutrients are essential for the proper function of enzymes that process and break down homocysteine. If these vitamins are deficient, you aren't able to break down homocysteine and your risks start to increase. In fact, homocysteine is often ordered to check for a B12 and folic acid deficiency because homocysteine may be elevated before a B12 or folic acid test shows abnormal. **This is especially important for those who are strict vegetarians or vegans.** It has been shown that homocysteine levels are more than 50% higher in vegans and 30% in vegetarians as B12 can only be derived from animal sources. In the same study, serum B12 levels were found to be 37% lower in vegetarians and 59% lower in vegans as compared to the omnivorous group.

Another factor associated with elevated homocysteine is high insulin levels. It has been found that overweight children with high levels of insulin have high levels of homocysteine as well. Insulin appears to inhibit enzymes involved in homocysteine metabolism. This is a significant finding considering that elevated insulin levels are more or less synonymous with obesity and up to 74% of adults and 25% of children in North America are either overweight or obese.

That said, the findings also imply that homocysteine levels may be improved by reducing cardiovascular risk factors such as body fat and insulin through diet and exercise.



heart health

Cholesterol Panel

Lab Test

6

In Conversations with Dr. Loken

A cholesterol panel is a fairly standard test physicians run on their patients.

The panel has the potential to provide a lot of information about your cardiovascular health and risk factors for a number of diseases including heart disease and stroke; however, the panel has several components and all of them must be used in order to get the whole picture. For example, simply testing your total cholesterol doesn't tell us anything unless the patient's level is extremely high: greater than 330 mg/dl. My own total cholesterol level is a little elevated, but it is because I have a high amount of "good" HDL cholesterol, which is actually cardio-protective.

I have also seen several patients with low total cholesterol who are actually at a higher risk for cardiovascular disease than my other patients with high total cholesterol. It really comes down to a couple of factors: whether or not your ratio of "good" and "bad" cholesterol is off and whether your body has excess inflammation. These two factors together will put you at a high risk for cardiovascular disease.

Cholesterol in general has been given a bad rap over the years.

Health officials in the U.S. urge everyone over the age of 20 to have their cholesterol tested every 5 years!

This Test is Critical for you When...

- If you are over 20 years of age
- If you have a family history of high cholesterol and/or heart disease
- If you have high blood pressure
- If you are overweight, smoke, or live a sedentary lifestyle
- If you have elevated markers for inflammation such as a hs-CRP



heart health

Cholesterol Panel

Lab Test

6

Medical Facts

Cholesterol panel – Total cholesterol, LDL, HDL, Triglycerides, Lipoprotein (a), HDL/total cholesterol ratio, triglycerides/HDL ratio

According to the American Heart Association, *“Cholesterol is a soft, fat-like, waxy substance found in the bloodstream and in all your body's cells. It's normal to have cholesterol. Cholesterol is an important part of a healthy body because it's used for producing cell membranes and some hormones, and serves other needed bodily functions. Too much cholesterol in the blood is a major risk for coronary heart disease (which leads to heart attack) and for stroke.”*

Many people may actually increase their risk of disease through the use of medications that dramatically lower cholesterol levels and deplete the body of other essential heart healthy nutrients!

Quick reference guide to your optimal levels:

TEST	OPTIMAL Range
Total cholesterol	Below 200 mg/dl or 5.17 mmol/L
HDL	60 mg/dL (1.55 mmol/L) or higher
LDL	130 mg/dl (3.36 mmol/L)
TG	Below 150 mg/dl (1.70 mmol/L)
Lipoprotein (a)	Under 20 mg/dl and preferably under 14 mg/dl
TC/HDL	Less than 4 with 2 or 3 being optimal
LDL/HDL	Below 4.4 and in general...the lower the better
TG/HDL	Below 2.0

A complete cholesterol panel is broken down into the following components:

- Total cholesterol (TC):** as you have seen, this measurement by itself doesn't tell us very much unless it is excessively high-greater than 330 mg/dl.
- HDL:** this is our “good” cholesterol. HDL takes cholesterol from our arteries and brings it back to the liver to be recycled. In general, the higher the levels the better. HDL cholesterol below 40 mg/dL (1.03 mmol/L) for men and less than 50 mg/dL (1.30mmol/L) for women indicates a higher risk for heart disease. HDL levels have an inverse relationship with coronary heart disease. The ability of HDL to predict the development of coronary atherosclerosis has been estimated to be four times greater than LDL and eight times greater than TC.

continued next page...



heart health

Cholesterol Panel

Lab Test

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More Medical Facts...

- **LDL:** this is our “bad” cholesterol. It takes cholesterol from the liver to the blood vessels. This is where it is possible for cholesterol to be oxidized, build up and form plaques in the arteries. The “optimal” levels for LDL have been gradually going down over the years. In 2004, the American Heart Association lowered them from 130 mg/dl (3.36 mmol/L) to 100 mg/dl (2.59 mmol/L) and for patients with more risk factors such as diabetes, family history, high blood pressure, etc., the value may be as low as 70 mg/dl (1.8mmol/L). These values start to become near impossible to reach without the use of one or more statin medications. These changes in values are all very interesting considering that in a 2006 article in the Annals of Internal Medicine, the physicians were unable to find sufficient evidence to support these new values. In fact, they weren’t even able to find enough research showing that achieving a specific LDL target level in and of itself was important. However, one thing is for certain: the lower the recommended level of LDL, the greater the number of people who will require medications!
- **Triglycerides (TG):** this is a form of fat that is often elevated in conjunction with high LDL and low HDL levels. Many people have high levels due to smoking, lots of carbohydrates, obesity, excess alcohol, and inactivity. High TG also puts you at risk of heart disease and diabetes.
- **Lipoprotein (a) (Lp(a)):** this is basically a protein joined with LDL cholesterol. It is an exceptional marker for your risk of heart disease especially if in conjunction with an LDL level of greater than 3.0. It has been shown in the research that people with high Lp(a) have a 70% increased risk for heart disease over a 10 year period. The most interesting thing about Lp(a) is that statin medications don’t lower them but in fact may increase them.
- **TC/HDL ratio:** this is a great measurement to assess your risk for heart disease. Each drop in one point equals a 60% decrease in risk. As you get your HDL levels higher, this ratio becomes more and more protective. All you have to do is divide your total cholesterol by your HDL and see where you are.
- **LDL/HDL ratio:** you get this ratio by dividing HDL into LDL. LDL is a measure of bad cholesterol and HDL is a measure of good cholesterol. LDL/HDL is therefore an accurate measure of heart disease.
- **TG/HDL ratio:** this is also a better measurement for heart disease risk than TC or LDL by themselves. Optimally you want your level to be below 2; if it is above, your risk steadily increases.

continued next page...



heart health

Cholesterol Panel

Lab Test

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Even More Medical Facts...

Clearly there is much more to this test than a simple number. For years, we have been told that cholesterol is “bad” and it causes heart disease. We are now learning that this statement isn’t entirely true. Cholesterol itself is both an essential part of life and at the same time, if damaged due to inflammation or falls out of proportion, it can increase the risk of disease. In order to achieve any value from our tests, we need to see the whole picture. TC and LDL levels do not tell us enough by themselves. We need to focus less on just LDL levels and more on our ratios of TC/HDL and TG/HDL. Both of these measurements are better predictors of heart disease. We also need to request our Lp(a) levels since this test is seldom done, and it is an extremely valuable tool for both risk and prevention.

When we combine our cholesterol panel with markers for inflammation like a Hs-CRP and cardiovascular tests like homocysteine, **we decrease our challenges with battling heart disease, the number one killer in North America, as we have within our reach one of the most thorough ways of assessing our risk.**





heart health

Cholesterol Panel

Lab Test

6

Benefits & Prevention

Cholesterol exists in every cell in our bodies. It plays a role in the absorption of dietary nutrients, production of cell membranes, reproduction, hormone production such as estrogen, progesterone and testosterone, stress response, calcium metabolism, vitamin D production, nerve conduction and salt and water balance. In fact, any time a cell is damaged, cholesterol will show up in order to replace the damaged cell. We cannot exist without it.

According to Dr. Malcom Kendrick in the *Great Cholesterol Myth*, "It is a fact that after the age of 50, the lower your cholesterol level is, the lower your life expectancy." Above all, we must be aware that demonizing cholesterol completely is a mistake; the issue isn't as simple as lowering LDL and total cholesterol to lower one's risk for heart disease. The main problem is when you don't produce enough of HDL, and the LDL you are overproducing becomes oxidized due to chronic inflammation. Inflammation is showing up more and more as a cause of chronic disease. How it relates to cholesterol and heart disease is when the arterial wall gets damaged, the inflammatory process creates a plaque and constricts the blood vessel. This process can increase your risk for high blood pressure and heart attacks.

Cholesterol shows up as a byproduct of the damage that was created by the inflammation. Remember that cholesterol is essential in replacing damaged cells. According to Sally Fallon, the president of the Weston A. Price Foundation, and Mary Enig, PhD, an expert in lipid biochemistry, "If you have increased levels of cholesterol, it is at least in part because of the increased inflammation in the body – this is to help the body heal and repair."

So the big question is: why do we only focus on lowering cholesterol and not on lowering inflammation?

Running your cholesterol panel will highlight certain risk factors for heart disease. When these results are combined with other markers for inflammation, they can provide some very valuable information. At the same time, **if you are currently on cholesterol-lowering medication, it is also valuable to get checked to see if your levels are too low.**

When your cholesterol is too low, you may increase your risk of:

- Depressive symptoms
- Suicide
- Violent behavior and aggression
- Cancer
- Parkinson's disease & Dementia

Cholesterol is an essential component of every cell in the body. If the level drops too low, negative issues can arise.



heart health

Fasting Blood Sugar

Lab Test



In Conversations with Dr. Loken

This test is excellent. It is one of the simplest, most inexpensive and powerful tests that we have at our disposal.

Over the past several years, I have seen a tremendous increase in the number of diabetic or pre-diabetic patients. Some experts are calling diabetes an epidemic of epic proportions.

Type II diabetes is a destructive disease when left uncontrolled. By simply checking your fasting blood sugar in-office or by yourself at home with a skin prick, we are able to assess both your current risk and predict your future risk for diabetes up to 10 years into the future.

It doesn't make sense to wait to have this test done. Knowing your levels enables you to take any necessary steps toward prevention!

The rate of diabetes has increased by 700% over the past 5 decades!! Checking your fasting blood sugar is the best test for assessing both diabetes and your future risk of diabetes!

This Test is Critical for you When...

- If you have a family history of Diabetes
- If you eat a diet with many refined grains, carbohydrates and sugars
- If you are feeling weak and fatigued most of the time
- If you find yourself thirsty and hungry all the time
- If you have high blood pressure, high cholesterol and/or are overweight



heart health

Fasting Blood Sugar

Lab Test



Medical Facts

Fasting blood sugar (FBS) measures blood glucose after you have not eaten for at least 8 hours. It is often the first test done to check for prediabetes and diabetes.

Glucose comes from carbohydrates and is the main source of energy used by the body. Insulin is a hormone produced by the pancreas that helps the body's cells use glucose and is released into the blood when the amount of glucose in the blood rises.

Normally, your blood glucose levels increase slightly after you eat. This increase causes your pancreas to release insulin to prevent your blood glucose levels from getting too high. Blood glucose levels that remain high over time can cause damage to your eyes, kidneys, nerves, and blood vessels.

Quick reference guide to your optimal levels:

TEST	Reference Range
NORMAL	Less than 100 mg/dl or 5.5 mmol/L note: some labs suggest less than 6.0 mmol/L is normal
PRE-DIABETIC	110-125 mg/dl or 6.1-6.9 mmol/L
DIABETIC	Greater than 126 mg/dl or 7 mmol/L
OPTIMAL	80 mg/dl or approximately 4.5 mmol/L

Many experts believe that these criteria for a “normal” blood sugar are not strict enough and that to truly avoid potential health problems related to blood sugar it is in your best interest to keep your levels around 80 mg/dl or approximately 4.5 mmol/L. According to the World Health Organization (WHO) diabetes has become one of the leading causes of illness and premature death in most countries. They also emphasize that type II diabetes can be prevented through lifestyle intervention alone!!

A single test showing an elevated fasting blood sugar level is usually not enough to make a diagnosis of diabetes. Physicians often look for two or more abnormal readings for fasting blood sugar before confirming a diagnosis.

The diabetic population and the related costs to care for them are expected to at least double in the next 25 years. Now is the time to get your fasting blood sugar levels checked as an essential step in achieving total health.



heart health

Fasting Blood Sugar

Lab Test

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Benefits & Prevention

1 in 4 Americans has diabetes or prediabetes; it has been estimated that more than 50% of Type II diabetics are not even aware that they have diabetes.

Diabetes is a progressively destructive disease that affects your eyes, nerves, kidneys, and your heart and blood vessels. It can increase your risk in developing heart disease, stroke, peripheral vascular disease, high blood pressure, cancer, obesity, and possibly increase your risk for many other chronic diseases.

Type II diabetes is one of the most avoidable chronic diseases. Not only is Type II diabetes preventable, it can literally be reversed with some simple lifestyle modifications.

Once we assess your fasting blood sugar, we know the degree to which you are at risk for any of the above problems. If you are at risk, it is crucial that you find out sooner rather than later to ensure **you take control of your health and live your healthiest life possible.**





Thyroid Panel

Lab Test

8

In Conversations with Dr. Loken

I can't begin to tell you the number of people that come in to the clinic wondering if they have thyroid issues when their blood work is "Normal."

The good news is that many people are more informed than ever about thyroid symptoms...the bad news is how many of them actually have suboptimal thyroid function. The challenge with your thyroid is that it gets messed up as soon as you have troubles with other hormones. The primary culprits that will throw off your thyroid are stress hormones, sex hormones, and insulin. Now think about the amount of stress most people are under, the typical North American diet, and the sea of estrogen that we seem to be living in due to birth control pills, hormone replacement, and plastics, and it becomes pretty easy to see how your thyroid may be taking a beating. By this point most people end up with a myriad of symptoms representing the slight dysfunction in all four hormones.

In order to get to the bottom of it, we need to first know the degree to which your thyroid is being affected, this is accomplished by running a thorough panel of thyroid hormones... not just a TSH.

In the United States, more than 10 percent of the general population and 20 percent of women over the age of 60, have subclinical hypothyroidism. Thyroid hormones interact with an array of other hormones and are intimately involved in every physiological process that goes on in your body, **if it is out of balance...everything is!!**

This Test is Critical for you When...

- If you have a family history of thyroid problems
- If you are feeling tired, lethargic and/or cold most of the time
- If you have unexpected weight gain or have trouble losing weight despite dietary and exercise interventions.
- If you are going through perimenopause or menopause
- If you have elevated cholesterol



Thyroid Panel

Lab Test **8**

Medical Facts

A thyroid panel is a group of tests ordered together to evaluate the function of your thyroid gland and to diagnose thyroid disorders. The tests included in a thyroid panel measure the amount of thyroid hormones in your blood. These hormones are chemical substances that travel through the bloodstream and control or regulate your body's metabolism, specifically how it functions and uses energy.

Quick reference guide to your optimal levels:

TEST	Reference Range	OPTIMAL LEVELS
TSH	0.5-4.7 mIU/L	Below 2.0 mIU/L
Free T4	0.8-1.8 ng/L 10-23 pmol/L	Mid/upper range
Free T3	3.5-7.2 pmol/L 2.3-4.2 pg/mL.	Mid/upper range
Reverse T3	0.11 - 0.32 ng/ml 0.04 - 0.29 nmol/L	Mid/Lower range
Antithyroid antibodies	Negative	Negative

There isn't one standardized reference range for thyroid hormones. Depending on which lab you use, the reference range values may vary by a few points. For this reason, I recommend being in the mid/upper for free T4, T3 and mid/lower range rT3.

Your thyroid panel should include a TSH, Free T3, and Free T4. These are the most important tests. I also add into this panel your antithyroid antibodies such as thyroid peroxidase antibodies and anti-thyroglobulin antibodies in order to make sure you don't have any antibodies attacking your thyroid.

These tests will provide a thorough examination of your thyroid. There is still the occasional time when I see everything show up normal but the patient still seems to have symptoms of hypothyroid. In these cases I may also run a reverse T3 (rT3). rT3 does not have abundant studies to support its testing, but I have found knowing these levels valuable on more than one occasion.



Thyroid Panel

Lab Test **8**

More Medical Facts...

- **TSH:** Thyroid-stimulating hormone is the standard test for thyroid function and probably the most important, but make sure you look at your values. The reference range is often between 0.5-5.0. This range is much too large, so it is important to remember that if you are above 2.0, you probably have an underactive thyroid.
- **Free T3 and Free T4:** reference ranges for free T4 are 0.8-1.8 ng/dl and for free T3 are 2.3-4.2 pg/ml. I like to see people in the mid/upper ranges for these hormones. It is not unusual to see elevated TSH and low/normal free T3/T4. In this case, you would be suffering from an underactive thyroid.
- **Thyroid antibodies:** Thyroid peroxidase (TPO) antibody tests for antibodies attacking the thyroid hormone producing enzyme thyroid peroxidase. This is often positive in autoimmune disorders such as Hashimoto's disease. Anti-thyroglobulin antibodies attack the thyroid gland itself and are positive after thyroid gland injury or inflammation and can indicate autoimmune diseases similar to TPO antibodies. Normally both of these antibodies should be negative. **Both Antibodies are essential to rule out an autoimmune thyroid condition that can show up well before changes in TSH are noticed.**
- **Reverse T3 (rT3):** As mentioned above, more research still needs to be done for us to fully understand rT3 and its connection with hypothyroidism. Essentially rT3 is an inactive form of T3, a "mirror image" molecule of T3 that is not bioactive. This in and of itself is not a problem; the problem happens when it is present in excess. rT3 can bind T3 receptors and block the action of T3 on the body. This means your body doesn't receive the necessary amounts of T3, which can lead to hypothyroid symptoms despite a normal TSH, T3 and T4 levels in the blood. This is what we refer to as "Tissue Resistance to Thyroid Hormone." It has been shown that increased stress can lead to a decrease in the conversion of T4 to T3 and increase the conversion of T4 to rT3 leading to subclinical hypothyroidism, known as Wilson's Reverse T3 Dominance Syndrome.

By running this complete thyroid panel and understanding the optimal reference ranges, you will have an excellent picture of your overall thyroid function. Subclinical thyroid issues are very common yet are often under diagnosed. If left untreated, these issues will trigger or aggravate other autoimmune conditions and chronic diseases. If you are experiencing any of the symptoms above, I highly suggest that you see your primary health care physician and check your levels to see where you stand. **This is a condition that can be treated very effectively with complementary medicine, diet, and lifestyle. Get checked and then get on track!**



Thyroid Panel

Lab Test 8

Benefits & Prevention

There are many people walking around with subclinical hypothyroidism who have no idea they have it. It has been estimated in fact that half of all people with hypothyroidism are never diagnosed and thus never receive treatment.

This is due in large part to inadequate testing. It is standard to have your TSH (Thyroid stimulating hormone) checked if your physician suspects a low functioning thyroid. The problem is that the reference range for “normal” is much too large. The reference range is 0.5-5.0, which will only catch the most obvious cases of hypothyroidism.

It is now suggested by many physicians who focus on thyroid health that any value above 1.5 is indicative of an underactive thyroid. *In my experience values below 2.0 are acceptable.* Those most at risk are women and the elderly. Women are up to 8 times more likely to be diagnosed with hypothyroidism than men.

A possible reason for this may be due to the interaction between estrogen and thyroid hormones. After the age of 60, up to 9% of men are diagnosed with hypothyroidism and up to 17% of women. Low thyroid functioning can lead to a vast number of symptoms and susceptibilities such as:

- Dry skin
- Weight gain and difficulty losing weight
- Cold hands and feet and general feeling of cold
- Course hair and nails, hair loss
- Constipation
- Fatigue and lethargy, poor stamina
- Low libido
- Infertility
- High cholesterol
- Irregular menstruation
- Poor memory
- Water retention
- Skin problems such as acne, eczema
- Diabetes
- Arthritis
- Anemia



Thyroid Panel

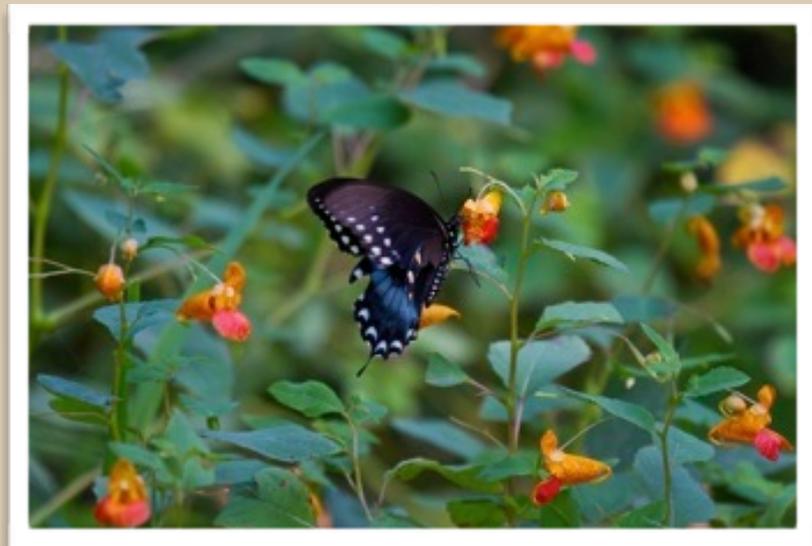
Lab Test 8

More Benefits & Prevention

Factors that increase your risk for subclinical hypothyroidism are autoimmune thyroid disease, infectious, silent, or postpartum thyroiditis and various medications.

Other factors that you may not normally think of are stress, processed foods and sugars, toxins from the environment, iodine deficiency, obesity, gluten sensitivity, food allergies, menopause and poor exercise. These can cause alterations in our stress hormones, sex hormones, and insulin levels.

Thyroid dysfunction is not solely about the thyroid, but more importantly, it is about finding balance within the whole body.



In Conversations with Dr. Loken

*Recently, I came across a book called **Blood Doesn't Lie**. I couldn't agree with the title more; for this reason, I provide my patients with information regarding the **CBC test**. I know this test helps provide a huge puzzle piece in the picture of their overall health.*

I run a CBC as a standard evaluation of a patient's health. When a CBC comes back normal, it helps me rule out a great number of potential causes for my patient's symptoms. When a CBC comes back positive, showing certain cell populations as high or low, it helps me make sense of my patient's symptoms as it reveals underlying problems that need to be addressed.

These results can be a great support for me when I fine tune my choices for further testing, which can best reveal underlying causes and lead the way to total wellness.

A CBC is a base line essential lab test that screens for a broad spectrum of disorders such as anemia, infection, and other diseases.

This Test is Critical for you When...

- If you are feeling weak and fatigued most of the time
- If you bruise or bleed easily
- If you are getting frequent colds and infections
- If you have inflammation
- If you are seeing your doctor for a routine check up this test should be done



complete blood count

CBC

Lab Test

9



complete blood count

CBC

Lab Test 9

Medical Facts

A CBC tells you detailed information about three different kinds of cells in your blood: red blood cells (RBC), white blood cells (WBC), and platelets. Each one of these cells plays a vital role in the normal functioning of your body.

Quick reference guide to your optimal levels:

TEST	OPTIMAL Range
White Blood Cells	4.0-10.5
Red Blood Cells	4.2-5.4
Hemoglobin	125-160
Hematocrit	0.370-0.470
Platelets	150-450
MCV	78-100
MCH	27-34

In general, I prefer to be somewhere in the mid range of these reference values.

A CBC includes five major measurements:

🕒 **White blood cell (WBC)**

WBCs help us fight infections. They get further broken down into five different types of WBCs: neutrophils, basophils, eosinophils, lymphocytes, and monocytes. Looking at all of these together helps us narrow down a diagnosis. WBC changes can be indicative of infection, various medications, bone marrow failure, some autoimmune conditions and more. If your WBC count is low, particularly your neutrophils, which are the most numerous WBC, then you are at an increased risk for getting infections and may have a difficult time warding off infections.

🕒 **Red blood cell (RBC)**

RBCs are responsible for carrying oxygen to body tissues and removing waste like carbon dioxide away from body tissues. RBCs contain hemoglobin, the iron-containing oxygen transport aspect of a RBC. RBCs are low with anemia, and can be increased with conditions that either produce too many RBCs or that create fluid loss such as burns, dehydration and diarrhea. Some signs of low RBC can include dizziness, ringing in your ears, shortness of breath, heart palpitations, and a sensation of pounding in your



complete blood count

CBC

Lab Test

9

More Medical Facts...

● Hemoglobin (Hb)

Hemoglobin carries oxygen from your lungs to your body tissues and removes carbon dioxide waste from your body tissues and brings them to your lungs. Hb gives RBCs their red color. For the most part these results mirror the RBC results.

● Hematocrit (HCT)

Hematocrit is the percentage of RBCs in relation to your total blood volume. These values also mirror your RBC results.

● Platelet Count

Platelets are the cells that clot blood and stop us from bleeding to death. They can be increased or decreased by conditions that affect platelet production. They can be decreased, termed "thrombocytopenia", particularly with certain inherited disorders, systemic lupus erythematosus, pernicious anemia, hypersplenism, leukemia, chemotherapy, and whenever greater numbers are being used as with bleeding. Some signs of low platelets may include bruising easily, nose bleeds, prolonged bleeding from a cut, bleeding gums, increased vaginal bleeding, and bloody stool (can appear black and tarry).

Two other measurements that can help us specifically with anemia are:

Mean Corpuscular Volume (MCV) and Mean Corpuscular Hemoglobin (MCH)

Both are decreased with iron deficient anemia and increased with B12 and folate deficiency.

The CBC is an essential, extremely valuable test that is low cost and provides a wealth of information regarding your general health status as well as helping to rule in or out many potential causes for your symptoms.



complete blood count

CBC

Lab Test

9

Benefits & Prevention

The CBC is a common test that is ordered to assess a patient's general health status. Often when a patient is healthy and his CBC reveals normal cell populations and sizes, it is not usually necessary to run another one until the patient's health changes or his primary health care practitioner deems it necessary.

A CBC helps us diagnose the cause of many different symptoms such as fatigue, weakness, inflammation, bruising, bleeding, or if the patient has an infection. It also suggests to us when we need to order further testing to identify the underlying cause. For example, changes in the number or size of your RBC, WBC (red or white blood cells) or platelets- all of which can be seen on a CBC- can cause significant problems to your health. A decrease in the number of RBCs would indicate an anemia, and by evaluating the size and shape of the RBC, we can determine the reason for the anemia.

An increase or a decrease in WBC may help us to determine that an infection or a host of other potential pathologies is present. Platelets will give us information around the causes for excessive bleeding or clotting and bone marrow disorders such as leukemia.

There can be many different reasons for fluctuations in the number or size of these cells. **CBC is our key to unlocking relevant information that helps us take essential steps toward total wellness.**

A CBC helps us to diagnose the cause of many different symptoms such as:

- Fatigue
- Weakness
- Inflammation
- Bruising
- Bleeding
- Infection



complete blood count

CBC

Lab Test

9

More Benefits & Prevention...

The CBC also suggests to us when we need to order further testing to identify the underlying cause. For example:

- A decrease in the number of RBC would indicate an anemia. By evaluating the size and shape of the RBC, we would be able to determine whether the anemia is due to an increased loss, an increased destruction, or a decreased production of RBC.
- An increase or a decrease in WBC may help us to determine that an infection or a host of other potential pathologies is present.
- Platelets will give us information about the causes for excessive bleeding or clotting and bone marrow disorders such as leukemia.

There can be many different reasons for fluctuations in the number or size of these cells. Cancer, medications, radiation, infections, and nutritional deficiencies can all be underlying factors.





pH of Urine

Lab Test **10**

In Conversation with Dr. Loken

Only a few cents a day would pay for this important test. Acid / Base or acid/alkaline balance is a cornerstone for optimal health.

Tracking urine pH with inexpensive hydrion (pH indicator) paper is a part of my patients' home care. Having patients track their first morning urine pH is a great way for them to stay on track, make adjustments when necessary, and validate their progress. It is seldom that a patient's pH doesn't move towards a healthier balance once she makes the appropriate diet, lifestyle and/or supplemental changes. Primarily due to our North American diet and lifestyle, the vast majority of people is far too acidic and as a consequence the people are setting themselves up for a number of chronic diseases.

Tracking your pH could be one of the cheapest and simplest ways for you to start making what could possibly be the most profound impact on your overall health.

Acid / Base balance is one of the most tightly regulated systems in our body. Maintaining even a slightly acidic internal environment will create a breeding ground for disease and chronic illness.

This Test is Critical for you When...

EVERYONE!

Everyone should get their pH checked regularly. It is extremely inexpensive and will provide you with a phenomenal tool to dramatically improve your health.



pH of Urine

Lab Test **10**

Medical Facts

pH actually means “the potential for hydrogen” because it indicates the concentration of hydrogen ions in a solution. The more hydrogen ions there are in a solution, the more acidic that solution is. pH is measured on a scale of 0-14, 0 being the most acidic, 14 being the most alkaline or basic, and 7 being neutral.

Quick reference guide to your optimal levels:

TEST - Urine pH	Reference Range
NORMAL	5.0-8.0
TOO ACIDIC	Below 6.5
TOO ALKALINE	Above 7.5
OPTIMAL	6.5-7.5

Your body is constantly working to keep your blood pH balanced. It does this by filtering out and neutralizing acids through buffers such as your kidneys, lungs, and skin. These organs do a great job at this, but like any machinery, if it is over used, it will eventually get run down or be unable to keep up with the demands placed on it.

These organs are only able to eliminate a certain amount of acids per day; constantly burdening them with excess acids from foods will deplete your essential alkalizing salts (calcium, magnesium, potassium) and thus make them less efficient in neutralizing the acids. This leads to an acidic environment and ill health.

One of the best ways for you to measure your pH is through a first morning urine using hydriion paper that you can usually pick up at your local pharmacy, health food store, or medical supply shop. Your pH will fluctuate all day long depending on your activity, stress, and diet, so in order to get an accurate measurement, it is best to check urine first thing in the morning.

It is necessary to have at least six hours between urinations in order to give the kidneys a chance to buffer the acids and not simply reflect the temporary diet-induced fluctuations.



pH of Urine

Lab Test **10**

More Medical Facts...

Being too alkaline is quite rare nowadays, but when it occurs, it can be due to medications such as antacids. What is more likely is that you are having a “false alkalinity” reading. You might get this if you deplete your alkali mineral reserves such as calcium, magnesium, and potassium and your body begins breaking down muscle in order to liberate an amino acid called glutamine. Glutamine helps create ammonia, a powerful base that significantly alkalizes the urine.

This is potentially the reason for the false alkalinity. For the most part, however, unless you are eating a very alkaline diet and balancing your stress, you are likely more acidic than is optimal.

For every one point change in pH, there is a tenfold increase or decrease in hydrogen ions. For example, a shift from a pH of 7 to a pH of 6 means that you have increased your hydrogen ions 10 times. To make matters worse, according to Dr. Russell Jaffe, MD, PhD, there is a tenfold decrease in the activity of your body’s enzymes with every 1/10th of a decrease of one pH point. This is hugely significant considering that every function in the body is dependant on enzymes to work properly. When we look at it this way, you can see just how vital it is to maintain a healthy optimal acid/alkaline balance.

I think Dr. William Howard Hay said it best back in 1933 in his book, *A New Health Era*, “Now we depart from health in just the proportion to which we have allowed our alkalies to be dissipated by introduction of acid-forming food in too great amount... It may seem strange to say that all disease is the same thing, no matter what its myriad of expression, but it is verily so.”



pH of Urine

Lab Test **10**

Benefits & Prevention

Our body has specific ranges inside which it likes to live and function. As soon as we fall outside of those optimal ranges, our bodies make every effort possible to restore that balance.

Unfortunately if we stay in these suboptimal ranges for a prolonged period of time, the consequences can be devastating to our long-term health. pH is one of these ranges that our bodies likes to keep tight to, much like internal temperature. Normal temperature ranges from 36.4-37.1 C (97.5-98.8 F); if it shifts even by one point Celsius, we feel the effects significantly. pH is very similar to this.

Our normal blood pH ranges between a slightly alkaline 7.365 to 7.45. A shift on either end of this range will result in significant disease or even death. For the most part, you have control over your pH by addressing the smaller, subtle changes in pH that come from an acidic or an alkaline diet. These smaller diet and lifestyle-induced shifts in pH will not alter your blood pH enough to kill you, but they will definitely move you out of your optimal range. Over time, they make you much more susceptible to ill health and chronic disease.

Our body naturally likes to be in a more alkaline environment as this is where it functions optimally. When we over-consume acidic foods such as sugars, refined carbohydrates, alcohol, coffee, meats, sodas, fried foods, etc., we create an overly acidic environment in the body. In an acidic environment, our body has a much more difficult time distributing oxygen and nutrients to our cells and removing waste products from our cells. This gradual decrease of oxygen and nutrition and build up of waste material at a cellular level is the reason for all of the devastating effects that result from a long term low grade acidic environment, also known as a low grade metabolic acidosis.



pH of Urine

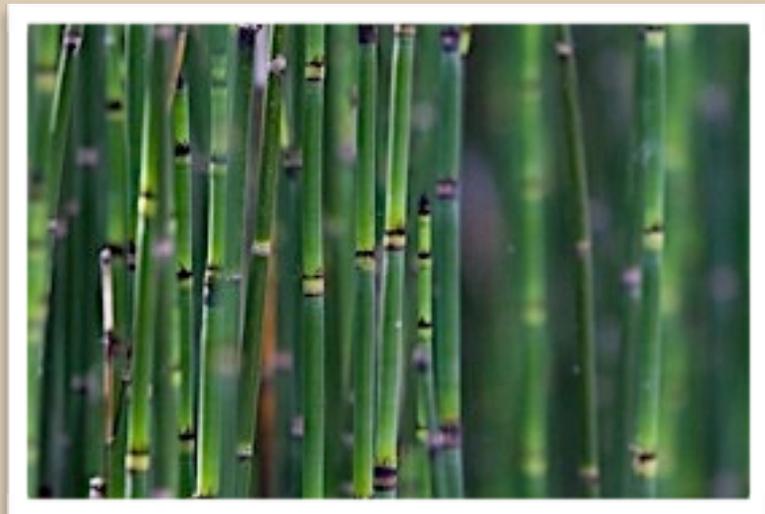
Lab Test

10

Benefits & Prevention

By testing your pH regularly and keeping yourself in an optimal range you will be protecting yourself from this laundry list of potential health problems related to an acidic state:

- Fatigue – impaired production of ATP
- Osteoporosis
- Arthritis,
- Hypertension
- Inflammation and pain
- Urinary track infections
- Multi-hormone dysfunction
- Premature aging
- Poor immunity
- Increased free radical damage
- Bacterial overgrowth – many bacteria and viruses, and yeast prefer an acidic environment to live
- Water retention
- Weight gain and difficulty losing weight
- Kidney stones
- Dental decay
- Mild hypothyroidism
- Impaired liver detoxification
- Muscle weakness and decreased exercise intensity and performance





Bonus - RBC Magnesium

BONUS

In Conversations with Dr. Loken

For the past decade or more, I have seen many patients benefit significantly from the oral or transdermal (topical) supplementation of magnesium. It has become a mainstay supplement in my tool belt to improve the overall health of my patients. The vast majority of these prescriptions, however, have been solely based on my patient's symptoms. I would routinely find complaints such as: constipation, anxiety, hypertension, PMS and many others improve substantially by simply increasing one's magnesium levels. The good news is that there is a specific test called Red Blood Cell Magnesium or RBC magnesium that allows us to get a fairly accurate measurement of the magnesium levels inside our actual cells...and this, as you will soon learn...is where all the magic happens.

"It is estimated that up to 85% of North Americans are deficient in magnesium."

This Test is Critical for you When...

- If you suffer from constipation
- If you have high blood pressure
- If you suffer from anxiety, restlessness or depression
- If you have trouble sleeping
- If your energy levels are lower than you feel they should be
- If you suffer from headaches, muscle pains or fibro myalgia



Bonus - RBC Magnesium

BONUS

Medical Facts

Magnesium sits at the heart of chlorophyll in plants, much like iron sits at the heart of our red blood cells. Magnesium is literally at the center of life. Chlorophyll is an extremely important biomolecule, critical in photosynthesis. Without it, life as we know it would cease to exist. Interestingly enough, as magnesium levels diminish living organisms begin to die. We literally require adequate levels of magnesium in our cells in order to move a muscle, take a breath, or even think.

Magnesium is the fourth most abundant cation (positive ion) in the human body. Approximately 50-60% of it is in our bones, while the remainder exists inside the cells of our muscles and soft tissue, leaving only 1% to circulate in the blood. This is interesting because for years the medical profession has recognized that SERUM magnesium levels less than 1.7mg/dl (1.32mEq/L or 0.7mmol/L) was diagnostic of magnesium deficiency. This is true in that if your serum magnesium levels are below normal then you have a pretty severe magnesium deficiency. The problem is that it is virtually impossible to accurately assess the levels of magnesium in other body tissues, namely, soft tissues through this test. Not only is it impossible, it can actually be very misleading.

According to Dr. Carolyn Dean, author of "The Magnesium Miracle", your body will automatically dump magnesium from the cells into the blood during times of stress and under certain illnesses making your magnesium status mistakenly appear normal when in fact you are becoming increasingly more deficient.

"A serum test for magnesium is actually worse than ineffective, because a test result that is within normal limits lends a false sense of security about the status of the mineral in the body. It also explains why doctors don't recognize magnesium deficiency; they assume serum magnesium levels are an accurate measure of all the magnesium in the body."

Although there are other tests that are very accurate such as the buccal cell smear test (EXATest), and the blood ionized magnesium test, these are not the most convenient due to cost and availability. For the general public, the test I recommend is called a Red Blood Cell magnesium test. It is considerably more accurate than serum magnesium and will often show the true picture of magnesium deficiency when serum levels are showing the opposite.



Bonus - RBC Magnesium

BONUS

More Medical Facts...

So the question remains... "Why is everyone so deficient in magnesium?" Well, as many of you have probably guessed, it largely has to do with our current diet and lifestyle. First off, due to topsoil depletion from improper farming practices, most of the population is magnesium deficient. On top of this, we have moved from freshly prepared home cooked meals to more processed, fast foods. These changes have caused our magnesium content in foods to take a nosedive. The refining process of foods significantly depletes magnesium levels. For example: there is an 82% loss of magnesium when wheat is converted into flour, 83% loss for rice into polished rice, and corn into cornstarch reaps a loss of 98%. Overall it is estimated that the refining process of food results in a >70% loss of magnesium (along with many other vitamins and minerals). Not only is our actual food low in magnesium, the magnesium that we do get may not be adequately absorbed. Low stomach acidity, leaky gut syndrome and malabsorption syndrome are common among much of the population today, preventing proper absorption of this vital nutrient. The high levels of phosphates and sodium that are rampant in processed and fast foods bind to magnesium and prevent you from absorbing it in your gut. When we take into consideration that the majority of the population is consuming less than the RDA for magnesium, yet they are consuming an estimated 2-3X the RDA for phosphates, you begin to see how this imbalance has come to pass.

TEST	Reference Range
NORMAL	4.2-6.8 mg/dl 1.7-2.7 Mmol/L
OPTIMAL	6.0-6.5 mg/dl Anything below 6.0 is too low OR 2.47 - 2.67Mmol/L
Conversions: because some labs will measure in Mmol/L multiply the number by 2.433 in order to get mg/dl	Mmol/L x 2.433 = mg/dl OR Mg/dl divided by 2.433 = Mmol/L



Bonus - RBC Magnesium

BONUS

Benefits & Prevention

Over the past several years, magnesium has gained considerable attention as a powerhouse mineral that can improve a myriad of health concerns. It is actually quite difficult to find a condition that magnesium, in some way, will not help...or that a deficiency of it will not exacerbate. Magnesium is involved in a large number of basic body processes and functions including:

- Activation of amino acids
- Cofactor for over 300 different body enzymes
- Immune function interactions with many different nutrients including (potassium, calcium, B6, and boron)
- Oxidation of fatty acids
- Neurotransmission
- Synthesis and breakdown of DNA

The short list of ailments that magnesium has been shown to aid includes:

- ADHD and hyperactivity
- Anxiety/depression & panic attacks
- Alzheimer's and memory loss
- Asthma
- Constipation
- Diabetes
- Fibromyalgia and chronic fatigue syndrome
- High cholesterol and high blood pressure, palpitations
- Heart disease
- Infertility
- Kidney stones
- Migraine headaches
- Muscle cramps and spasm
- Obesity
- Osteoporosis
- PMS
- Polycystic Ovary Syndrome (PCOS). One study showed that women with low magnesium were 19 times more likely to have PCOS.
- For more information on the numerous conditions and supportive research showing the benefits of magnesium, please visit the nonprofit Nutritional Magnesium Association (NMA) at www.nutritionalmagnesium.org



Bonus - RBC Magnesium

BONUS

Benefits & Prevention

Stress, anxiety, depression...

Magnesium can help all of these conditions because it is a cofactor in the smooth running of countless enzymatic reactions that are taking place in your body every second. **If magnesium levels are LOW the reactions that require it to run smoothly...DON'T run as smoothly.** For example: if you look at how it relates to anxiety and depression, it makes sense once you understand that magnesium is necessary to make both serotonin (our “feel good” hormone) and support our adrenal glands which regulate our fight or flight response. If we cannot make adequate serotonin, we simply will not feel very good. This is the premise for the use of the vast majority of antidepressant medications on the market right now. Every time we get stressed we use up magnesium. Increases in adrenalin lead to decreases in magnesium. This is a scary thought when you consider the amount of chronic stress in most people’s lives.

Anti-anxiety, anti-depressant, and anti-hypertensive medications are among the most prescribed medications in North America. It would be interesting to see how many people taking these medications are suffering from an underlying magnesium deficiency. In-fact in one study by Drs. Cox and Shealy, found that of the 500 depressed participants in their study, the majority were all magnesium deficient. In the book *No Child Left Different*, Dr. Olfman states that over 10 million children and adolescents are on anti-depressants and 5 million on ADHD medications, such as Ritalin. All of these symptoms may be attributed to magnesium deficiency.

Cardiovascular health, weight management and diabetes...

Magnesium has long been a big player in cardiovascular health. If you recall, almost ½ of your body’s magnesium stores are in soft tissue, including skeletal and smooth muscle. Magnesium is responsible for muscle relaxation. As your levels deplete, you become more prone to muscle spasm and cramping...not only in the muscles that you can feel like your feet and calves but also in the smooth muscle walls of your arteries. Increasing the TENSION in your arteries leads to “hyperTENSION” aka high blood pressure and increases your risk for cardiovascular disease. This relaxation of the smooth muscle is also why magnesium can be helpful in patients with asthma, along with countless other conditions.

Magnesium continues to support heart health and overall wellbeing by improving insulin sensitivity; insulin secretion; glucose homeostasis; decreasing central obesity; increasing beneficial HDL and lowering C-reactive protein, an excellent marker for inflammation. These benefits are HUGE when it comes to cardiovascular health, not to mention all chronic illness (see cardiovascular health sections of this book and related chapters). Other studies measuring magnesium intake and risk of type II diabetes in men and women found that there was a significant inverse association between magnesium intake and diabetes risk. The authors recommended the increased consumption of magnesium rich foods such as whole grains, nuts, and green leafy vegetables.



Bonus - RBC Magnesium

BONUS

Benefits & Prevention

Alzheimer Disease, memory loss & brain health...

Magnesium supplementation has shown promising results in both memory and learning. Researchers at the Massachusetts Institute of Technology found that magnesium played a key role in the regulation of several enzymes within brain cells that control memory functions and the release of various neurotransmitters. They proposed that maintaining optimal levels of magnesium in the cerebrospinal fluid was essential for the maintenance of synaptic plasticity, a key feature for the brain's ability to change itself allowing us to deal with changing environments, cope with stress, and recover from trauma. In a study from China, Guosong Liu, director of the Center for Learning and Memory at Tsinghua University in Beijing, found that higher brain magnesium levels improved brain health through synaptic plasticity. The researchers of this study concluded that increasing ones magnesium may prove to be a beneficial strategy for enhancing cognitive abilities. This may also contribute to reductions or prevention in age-dependent memory decline.

PMS, PCOS, Infertility

I have seen many patients find relief from their PMS symptoms, including cramping, anxiety, mood swings, headaches, and breast tenderness simply through the oral supplementation of magnesium. Studies have shown that for many women RBC magnesium levels drop significantly the week before menses commences. In a 1995 study posted in the *Townsend Letter for Doctors* oral magnesium supplementation of 400mg/day was found to ease many symptoms of PMS including headaches, breast tenderness, weight gain and nervous tension. It appears that magnesium has an inverse relationship to the female hormones estrogen and progesterone. Increases in the concentration of estrogen and progesterone lead to decreases in magnesium. Dr. Carolyn Dean, author of *The Magnesium Miracle*, suggests that this depletion may cause a reduction in cerebral blood flow via spasm of the cerebral vessels, which in turn may lead to PMS and migraine headaches.

A gynecological endocrinology study done in 2012, stated that women with magnesium deficiency were 19 times more at risk for developing Polycystic Ovary Syndrome (PCOS) than those with normal magnesium levels. The mechanism for this is not completely clear as normally PCOS is closely related to insulin resistance yet this study did not find any specific correlation between magnesium deficiency, insulin resistance and PCOS. More studies are still needed in this area.

Benefits & Prevention

When it comes to fertility, both men and women can benefit from increasing their magnesium levels. Low levels of magnesium may be responsible for smooth muscle spasms in the fallopian tubes. This could lead to infertility, in much the same way that spasms in arteries of the brain may lead to migraines. For men, zinc is not the only nutrient good for fertility. One study shows that infertile men, as well as those with chronic prostatitis, have much lower levels of magnesium than those without these conditions.

As you can see, magnesium plays a significant role in overall health and wellness. Given the percentage of people that are likely suboptimal or outright deficient in this vital nutrient, it is time to stop guessing and find out for sure where you stand. Get your RBC magnesium levels checked and start getting back on track.



Bonus - RBC Magnesium

BONUS

QUICK REFERENCE GUIDE FOR YOUR RESULTS

This section allows you to quickly reference each of the lab test results and keep track of your own personal results and progress.

Vitamin D

TEST - 25-hydroxy vitamin D	Reference Range
NORMAL	30-80ng/mol (75-200 nmol/L)
INSUFFICIENT	Below 30 ng/ml (75 nmol/L)
OPTIMAL	50–80 ng/mL (or 125–200 nmol/L)

Lab Test Date	Vitamin D - Your Results

Ferritin - Iron Assessment

TEST	Reference Range
NORMAL women NORMAL Men	15 – 200 ng/ml for women 20 – 300 ng/ml for men
OPTIMAL	Optimal ranges for men and women are 40 – 75 ng/ml.

Lab Test Date	Serum Ferritin - Your Results

YOUR RESULTS

LAB TESTS



YOUR RESULTS

LAB TESTS

B12

TEST	Reference Range
NORMAL	Between 179-800 pmol/L
OPTIMAL	Above 400 pmol/L
Lab Test Date	B12 - Your Results

hs-CRP High Sensitivity C-Reactive Protein

TEST	Reference Range
OPTIMAL - Low risk for cardiovascular disease	Under 1mg/L of blood
Intermediate risk for cardiovascular disease	Between 1-3mg/L
High risk for heart cardiovascular disease	Greater than 3 mg/L
Lab Test Date	hs-CRP - Your Results

Homocysteine

TEST	Reference Range
NORMAL	6.3-15 umol/L
Increased risk of heart attack by 3x	Greater than 15
Double your chance of coronary risk	Greater than 12
OPTIMAL	Below 8
Lab Test Date	Homocysteine - Your Results



YOUR RESULTS

LAB TESTS

Cholesterol Panel

TEST	OPTIMAL Range
Total cholesterol	Below 200mg/dl or 5.17 mmol/L
HDL	60 mg/dL (1.55mmol/L) or higher
LDL	130mg/dl (3.36mmol/L)
TG	Below 150mg/dl (1.70mmol/L)
Lipoprotein (a)	Under 20 mg/dl and preferably under 14 mg/dl
TC/HDL	Less than 4 with 2 or 3 being optimal
LDL/HDL	Below 4.4 and in general...the lower the better
TG/HDL	Below 2.0

Lab Test Date	Cholesterol - Your Results

Fasting Blood Sugar p-26

TEST	Reference Range
NORMAL	Less than 100 mg/dl or 5.5 mmol/l
PRE-DIABETIC	110-125 mg/dl or 6.1-6.9 mmol/l
DIABETIC	Greater than 126 mg/dl or 7 mmol/l
OPTIMAL	80 mg/dl or approximately 4.5 mmol/l.

Lab Test Date	Fasting Blood Sugar - Your Results



YOUR RESULTS

LAB TESTS

Thyroid Panel

TEST	Reference Range	OPTIMAL LEVELS
TSH	0.5-4.7 mIU/L	Below 1.5 mIU/L
Free T4	0.8-1.8 ng/L 10-23 pmol/L	Mid/upper range
Free T3	3.5-7.2 pmol/L 2.3-4.2 pg/mL.	Mid/upper range
Reverse T3	0.11 - 0.32 ng/ml 0.04 - 0.29 nmol/L	Mid/Lower range
Antithyroid antibodies	Negative	Negative

Lab Test Date	Thyroid - Your Results

CBC Complete Blood Count

TEST	OPTIMAL Range
White Blood Cells	4.0-10 x 10 ⁹ / L
Red Blood Cells	4.2 - 5.4 x 10 / L (Women) 4.4 - 5.7 x 10 / L (Men)
Hemoglobin	125 -160 g/L (Women) 140 -174 g/L (Men)
Hematocrit	0.370-0.470 (Women) 0.420-0.520 (Men)
Platelets	130-400 10 ⁹ /L
MCV	80-100 fL
MCH	27-32 pg
White Blood Cells	4.0-10 x 10 ⁹ / L

Lab Test Date	CBC Complete Blood Count



YOUR RESULTS

pH for Urine

TEST - Urine pH	Reference Range
NORMAL	5.0-8.0
TOO ACIDIC	Below 6.5
TOO ALKALINE	Above 7.5
OPTIMAL	6.5-7.5

Lab Test Date	pH for Urine

RBC - Magnesium

TEST	OPTIMAL Range
NORMAL	4.2-6.8 mg/dl 1.7-2.7 Mmol/L
OPTIMAL	6.0-6.5 mg/dl Anything below 6.0 is too low OR 2.47 - 2.67Mmol/L

Lab Test Date	RBC-Magnesium Your Results



TOP 10 LAB TESTS

Solutions

Welcome to Solutions!

One of the greatest factors that can ease your journey is to know that others have traveled this road with success before you.

We like to call this the section of “**HERO's**”.
How **E**xperiences **R**eflect on **O**thers.

In this section we look at some of the most frequently asked questions and answers with regards to the “Top 10 Lab Test Results”

It has been my experience that when patients follow this program along with the guidelines in this section, it has been a recipe for success in many different areas.

Your health is in your hands, therefore it seems only appropriate to give you as many choices and options as we can to best support and inspire your process keeping you up to date and informed.



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Vitamin D

Solution

Solutions

Essential Q&A's...About Vitamin D

1. What are my options for increasing my Vitamin D?
2. How much sun do I need to increase my Vitamin D?
3. Am I increasing my risk of skin cancer if I stay in the sun?
4. What is the recommended daily intake of Vitamin D?
5. Are tanning beds a safe way to increase my vitamin D?
6. What are some safe ways to increase my sun exposure?
7. How should I supplement with vitamin D?
8. What is the likelihood of me overdosing on vitamin D?
9. What are vitamin D side effects and are there any other nutrients I should take with my vitamin D to minimize side effects?
10. Are there any Contraindications to Vitamin D Supplementation?



Essential Q&A's...



Vitamin D

Solution

1. What are my options for increasing my Vitamin D?

For most people, there are really only two options for optimizing your vitamin D levels: increase your sun exposure or start supplementing. Increasing your intake of vitamin D rich foods is also beneficial, but it is nearly impossible to optimize your levels through food alone.

2. How much sun do I need to increase my vitamin D?

Knowing how much time to spend in the sun to get enough vitamin D is tricky. Things like age, skin color, what part of the country you live in, your body's sensitivity to the sun, cloud cover, time of the year, time of day, amount of clothing covering the skin, and other factors play a role in how much vitamin D your body is able to manufacture from your having spent a period of time outdoors.

Most of the time, you have reached your optimal daily amount of sun when your skin turns a very light shade of pink, often within 20 minutes for light-skinned people. Those with darker complexions may need three to six times that amount to gain the same benefits. Any longer and you're only increasing your chances of getting sunburn, and sunburn has been clearly related to an increased risk of skin cancer.

3. Am I increasing my risk of skin cancer if I stay in the sun?

Ultraviolet exposure beyond the minimal dose does not increase your vitamin D production any further and could increase your risk of non-melanoma skin cancer. By avoiding sunburn and getting regular sun exposure, your risk of getting melanoma and non-melanoma cancers are decreased. Optimizing your sun exposure in this way also reduces your risk of 16 other common cancers- especially colon and breast cancer!

It's well documented that chronic, excessive exposure to sunlight will increase your risk of non-melanoma skin cancer, but there's very little evidence showing that sensible, moderate sun exposure increases your risk of any cancer. In fact, there's strong evidence that suggests it may actually *decrease* your risk.

4. What is the recommended daily intake of Vitamin D?

The US government recommends that we receive 600 IU/day of vitamin D, but by just getting 20-30 minutes of summer sun exposure, Caucasian skin can produce up to 10,000 IU/day- over 16 times more than government recommendations. This makes a mere 600 IU/day seem pretty minimal. It is also suggested by many experts that we require considerably more than 600 IU/day. Some authorities recommend up to 5,000 IU/day for most adults. Before you begin supplementing your vitamin D intake, however, I feel it is important to get your levels tested so a qualified health care provider can ensure you take the proper dose.



Vitamin D

Solution

More Q&A's...

5. Are tanning beds a safe way to increase my vitamin D?

The sun emits three types of ultraviolet radiation: ultraviolet A (UVA), ultraviolet B (UVB) and ultraviolet C (UVC). Only UVA and UVB reach the earth's surface. Vitamin D is made in the body when UVB penetrates the surface of the skin. Most tanning beds consist of both UVA and UVB. Some tanning salons offer UVB tanning beds that use medium pressure lamps to maximize your vitamin D production. This is by far your best option. Others use combined high pressure lamps for UVA and medium pressure lamps for UVB. If you are going to use a tanning bed, make sure that you ask for a bed with a stronger UVB bulb. It is recommended to use the beds for just 30%-50% of the normal time recommended for tanning over the fall and winter.

Please note... UVB will burn you if exposed for a prolonged period of time. Begin slowly and make sure you do not go past the point of slight pinkish tone to skin, this is when your vitamin D production has been maximized.

6. What are some safe ways to increase my sun exposure?

- ☉ Progressively increase your exposure as you build up your tolerance to the sun
- ☉ Expose large areas of your body to the sun, more than just your face and hands
- ☉ Start building your tolerance early in the year such as in spring and early summer
- ☉ Tan early (before noon) or later (after 3pm)
- ☉ Tan when the temperature is below 64 degrees Fahrenheit or 18 degrees Celsius
- ☉ Do at least three 20 minute tans/week to optimize your vitamin D3 levels. If you have a darker complexion, live in a Northern latitude, or are overweight, you will likely need to increase this amount from anywhere between 20 minutes–2 hours.
- ☉ Remember: for lighter skin, once your skin turns light pink you have optimized your vitamin D levels, and there is no more need to remain in the sun.



Vitamin D

Solution

More Q&A's...

7. How should I supplement with vitamin D?

According to the vitamin D council, if you have **some** sun exposure, you should take an average of 5,000 IU/day, year-round. If you have **little or no** sun exposure, you will need to take at least 5,000 IU/day. How much more you might need depends on factors such as where you live, skin pigmentation, and body weight. In general, the further you live away from the equator, the darker your skin, and/or the more you weigh, the more you will likely need to supplement. The following chart outlines your correct dosage:

Vitamin D Dose Recommendations

Age	Dosage
Below 5	35 units per pound per day
Age 5 - 10	2500 units
Adults	5000 units
Pregnant Women	5000 units

WARNING:

The **ONLY** way to know if these dosages are safe for you is to test your blood. You might need 4-5 times the amount recommended above. Ideally your blood level of 25 OH D should be about 50 ng/ml or 125 nmol/L. It is also recommended to re-check your levels in three months to see if they are optimal.





Vitamin D

Solution

More Q&A's...

8. What is the likelihood of me overdosing on vitamin D?

Overall there are very few side effects to vitamin D supplementation and most are easily corrected when you know what to do. The most important thing to know is that there is a big difference between vitamin D toxicity or overdose, and vitamin D side effects. A vitamin D toxicity although possible is extremely unlikely. I have never seen a case of vitamin D toxicity in over a decade of practicing as a Naturopathic Doctor and it will never occur naturally from sun exposure or through food consumption. The majority of documented vitamin D overdose are from:

- Elderly incorrectly taking massive doses
- Children who's parents have mistakenly given them massive doses
- Adults who have been taking over 10,000iu's /day for long periods of time
- Industrial accidents where massive amounts of vitamin D were accidentally put into fortified foods.

If you have been taking very high levels of Vitamin D > 10,000iu's/day for an extended period of time without re-checking your blood work and are experiencing any of the following symptoms: abdominal cramping, nausea, frequent urination, and weakness. Then you should stop taking vitamin D and go to your Doctor to get it checked out ASAP.

9. What are vitamin D side effects - and are there any other nutrients I should take with my vitamin D to minimize side effects?

Vitamin D side effects are an entirely different scenario then vitamin D toxicity. First off, there have been thousands of studies showing remarkably low incidences of vitamin D side effects. This being said there is always a chance that someone will have undesirable symptoms when supplementing with anything. Of the side effects that one may encounter, these are the most common:

- Constipation
- Heart Palpitations
- Anxiety
- Muscle Pain
- Bone Pain



Vitamin D

Solution

Even More Q&A's...

Vitamin D Side Effects Continued...

The vast majority of these side effects are due to the fact that **YOU MUST have adequate Magnesium levels in order to process vitamin D**. These symptoms above are actually symptoms of a magnesium deficiency rather than a vitamin D side effect. In fact Dr. Carolyn Dean, author of *The Magnesium Miracle*, explains that high doses of vitamin D (5,000 iu's – 50,000 iu's/day) can cause some peoples magnesium levels to completely plummet... causing any number of the side effects listed above. Magnesium plays a crucial role in transforming vitamin D from its storage to its active form, so high doses of vitamin D will require large amounts of magnesium to make it all work. This is also one of the reasons that RBC magnesium is one of the tests covered in this book. Please read this section to further understand the importance of magnesium and how to get into your optimal zone.

Vitamin K is the other primary nutrient required to help vitamin D do its job and thus minimize side effects. Vitamin D helps with the absorption of calcium but vitamin K is necessary for directing that calcium into your bone and not undesirable places such as your arteries, joints, and organs. Anywhere between 150-300mcg of vitamin K/day is necessary. You can also increase leafy greens and fermented foods like Natto and raw milk cheeses to increase your levels naturally. It is also common to find vitamin D + K supplements on the market.

10. Are there any Contraindications to Vitamin D Supplementation?

Any condition that involves elevated calcium levels are considered relative contraindications for vitamin D supplementation and should be consulted with your doctor. These conditions include:

- ☉ High Calcium Levels
- ☉ Sarcoidosis
- ☉ Tuberculosis
- ☉ Parathyroid Disease
- ☉ Having an organ transplant



Ferritin - Iron Assessment

Solution

Solutions

Essential Q&A's about **Serum Ferritin (Iron)**

1. What is the difference between Heme and non-Heme iron?
2. What is the recommended daily allowance (RDA) for iron?
3. What are some food sources high in iron?
4. What is the best form of Iron to supplement?
5. What can decrease my absorption of iron?
6. Is there anyway to enhance my absorption of iron?
7. Are there any possible side effects from taking an iron supplement?



Essential Q&A's...

1. What is the difference between Heme and non-Heme iron?

The two forms of dietary iron we consume are heme and non-heme. Heme iron is more easily absorbed and comes from hemoglobin, the protein in red blood cells that delivers oxygen to cells. Thus heme iron is only found in animal foods such as red meats, fish, and poultry. Non-heme iron comes from plants such as lentils and beans. This is the form of iron added to iron-enriched and iron-fortified foods.

2. What is the recommended daily allowance (RDA) for iron?

Age	Males (mg/day)	Females (mg/day)	Pregnancy (mg/day)	Lactation (mg/day)
7 to 12 months	11	11	N/A	N/A
1 to 3 years	7	7	N/A	N/A
4 to 8 years	10	10	N/A	N/A
9 to 13 years	8	8	N/A	N/A
14 to 18 years	11	15	27	10
19 to 50 years	8	18	27	9
51+ years	8	8	N/A	N/A

3. What are some food sources high in iron?

Food	Milligrams per serving	% Daily Value (DV)
Chicken liver, cooked, 3½ ounces	12.8	70
Oysters, breaded and fried, 6 pieces	4.5	25
Beef, chuck, lean only, braised, 3 ounces	3.2	20
Clams, breaded, fried, ¾ cup	3.0	15
Beef, tenderloin, roasted, 3 ounces	3.0	15
Turkey, dark meat, roasted, 3½ ounces	2.3	10
Beef, eye of round, roasted, 3 ounces	2.2	10
Turkey, light meat, roasted, 3½ ounces	1.6	8
Chicken, leg, meat only, roasted, 3½ ounces	1.3	6
Tuna, fresh bluefin, cooked, dry heat, 3 ounces	1.1	6
Chicken, breast, roasted, 3 ounces	1.1	6
Halibut, cooked, dry heat, 3 ounces	0.9	6
Crab, blue crab, cooked, moist heat, 3 ounces	0.8	4
Pork, loin, broiled, 3 ounces	0.8	4
Tuna, white, canned in water, 3 ounces	0.8	4
Shrimp, mixed species, cooked, moist heat, 4 large.	0.7	4



Ferritin - Iron Assessment

Solution



Ferritin - Iron Assessment

Solution

More Q&A's...

Selected Food Sources of “Nonheme” Iron

Food	Milligrams per serving	% Daily Value (DV)
Ready-to-eat cereal, 100% iron fortified, 3/4 cup	18	100
Oatmeal, instant, fortified, prepared with water, 1 cup	10	60
Soybeans, mature, boiled, 1 cup	8.8	50
Lentils, boiled, 1 cup	6.6	35
Beans, kidney, mature, boiled, 1 cup	5.2	25
Beans, lima, large, mature, boiled, 1 cup	4.5	25
Beans, navy, mature, boiled, 1 cup	4.5	25
Ready-to-eat cereal, 25% iron fortified, 3/4 cup	4.5	25
Beans, black, mature, boiled, 1 cup	3.6	20
Beans, pinto, mature, boiled, 1 cup	3.6	20
Molasses, blackstrap, 1 tablespoon	3.5	20
Tofu, raw, firm, 1/2 cup	3.4	20
Spinach, boiled, drained, 1/2 cup	3.2	20
Spinach, canned, drained solids 1/2 cup	2.5	10
Black-eyed peas (cowpeas), boiled, 1 cup	1.8	10

For the most part, the daily value, or the recommended daily intake for women, is 18 mg of iron/day. Thus when you are looking at your food options, any food that has a % DV of 10 or higher becomes a good source of iron. Look over your serving sizes and add up your mg/serving until you get to your recommended amount. If you have already done your lab tests and found that you are below your optimal range, start first by adding in more of these food groups to see if you are able to raise your ferritin levels through diet. If after a couple months of incorporating these foods you are still unable to bring your levels up significantly, then you will likely have to start taking an iron supplement. If you have been diagnosed with iron deficient anemia, you should start taking a supplement immediately. ***Take into account that there is a difference between your iron “intake” and the amount of iron that is actually absorbed.***



Ferritin - Iron Assessment

Solution

More Q&A's...

4. What is the best form of Iron to supplement?

Non-heme iron supplements can contain either the ferric form of iron or the ferrous form of iron. Supplements that contain ferrous iron are better absorbed by the body. The forms of ferrous iron include ferrous fumarate, ferrous sulfate and ferrous gluconate. Ferrous sulfate is the best absorbed of the three, but it also causes the most gastrointestinal side effects. The fumarate and gluconate are easier on the stomach but are not absorbed quite as well. Heme iron supplements like Proferrin are absorbed the best but may be harder on the stomach.

There are also numerous ways to take iron: capsules, liquid, timed release, etc. Try different forms and see which one is tolerated best, easiest to take and improves your symptoms. You will often see on your supplement bottle an amount of “elemental iron” that is different from the total amount of iron in the pill. Elemental iron is the amount of iron that is expected to be absorbed from the supplement.

The CDC recommends taking **50-60 mg of elemental iron (provided by approximately 300 mg of any of the above forms of iron) 1 – 2 times/day** depending on your level of deficiency.

5. What can decrease my absorption of iron?

Iron can be a difficult nutrient to absorb. For example, Heme iron can be absorbed anywhere from 15%-35% while non-heme iron is only absorbed between 2%-20%. Absorption of heme iron is NOT affected by the presence of other foods such as tannins (found in tea), calcium, phytates (found in legumes and whole grains) and some soy proteins, whereas absorption of non-heme iron can be greatly affected by the presence of these foods.

6. How can I enhance my absorption of iron?

- ☞ Take 1,000 mg of vitamin C with your iron supplement or food source
- ☞ Add meat protein with your non-heme iron food sources
- ☞ Take an iron supplement with 1,000 mg of vitamin C on an empty stomach (for example, 1 hour before a meal or 2 hours after a meal)
- ☞ Take your supplement regularly until your lab test shows that you are in your **optimal range of 40-75 ng/ml for women and 70-120 for men.**



Ferritin - Iron Assessment

Solution

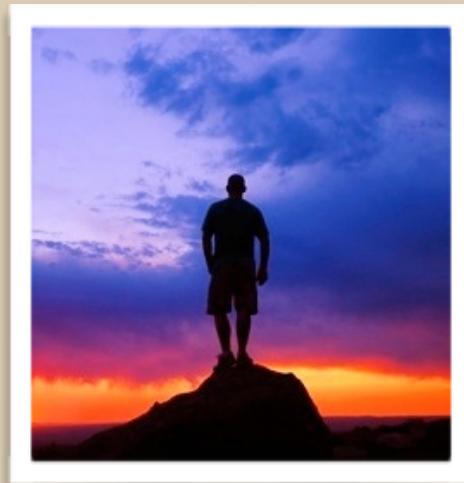
Even More Q&A's...

7. Are there any possible side effects from taking an iron supplement?

Some of the more common side effects can include:

- ☹️ Constipation
- ☹️ Diarrhea
- ☹️ Dark colored stools and/or abdominal distress

If you are experiencing any of these side effects, try taking half the recommended dose and gradually increase to the full dose. Taking the supplement in divided doses and with food may also help limit these symptoms although this could also decrease your absorption. Enteric coated or delayed-release preparations may have fewer side effects, but they are not as well absorbed and for this reason are not usually recommended.





Solutions

Essential Q&A's about **Vitamin B12**

1. Why is B12 so difficult to absorb?
2. How much do we need?
3. What are some foods that are high in B12?
4. What is the best way for me to supplement with B12?
5. What is the best form of B12 for me to supplement with?
6. How can I optimize my Absorption?



Solution

Essential Q&A's...

1. Why is B12 so difficult to absorb?

In animal foods, the B12 is bound to a protein. When this protein-B12 complex reaches the stomach, the stomach secretes acids and enzymes that detach the B12 from the protein. At this point another protein binds with B12 and carries it through the stomach and into the small intestine. In the small intestine, this new protein-B12 complex is broken apart by pancreatic enzymes, liberating the B12 once again. From here the B12 joins with intrinsic factor (originally produced in the stomach by parietal cells). When vitamin B12 binds to intrinsic factor, it can then be absorbed in the last part of the small intestine and utilized by the body.

Pernicious Anemia develops when the stomach is unable to make enough intrinsic factor. This makes it impossible for the intestine to properly absorb vitamin B12 and results in decreased red blood cell production. The disease is usually diagnosed around 60 years of age, but it can also be genetic and show up in children. The most common causes for pernicious anemia are due to:

- Weakened and inflamed stomach lining (atrophic gastritis)
- An autoimmune reaction to parietal cells or intrinsic factor itself

As you can see, if your digestive ability is compromised, the potential to significantly decrease your body's ability to break down these protein-B12 complexes, thus hindering the absorption process, is far greater. Conditions such as low stomach acidity, food allergies, peptic ulcers, many medications, leaky gut syndrome, and others, can all decrease your ability to absorb adequate B12.

2. How much do we need?

U.S. Dietary Reference Intake:	
Age	Minimum mcg
0-5 Months	0.4
6-11 Months	0.5
1-3 Years	0.9
4-8 Years	1.2
9-13 Years	1.8
14-50 Years	2.4
50+ Years	2.4
Pregnancy	2.6
Lactation	2.8

Note: **Weekly and or monthly supplementation may be as effective as the IM injections-and less uncomfortable. See Question #4**



Vitamin B12

Solution

More Q&A's...

3. What are some foods that are high in B12?

Food Sources of Vitamin B12

Food	Micrograms (mcg) per serving	Percent DV*
Liver, beef, braised, 1 slice	48.0	800
Clams, cooked, breaded and fried, 3 ounces	34.2	570
Breakfast cereals, fortified with 100% of the DV for vitamin B12, 1 serving	6.0	100
Trout, rainbow, wild, cooked, 3 ounces	5.4	90
Salmon, sockeye, cooked, 3 ounces	4.9	80
Trout, rainbow, farmed, cooked, 3 ounces	4.2	50
Beef, top sirloin, broiled, 3 ounces	2.4	40
Cheeseburger, double patty and bun, 1 sandwich	1.9	30
Breakfast cereals, fortified with 25% of the DV for vitamin B12, 1 serving	1.5	25
Yogurt, plain, 1 cup	1.4	25
Haddock, cooked, 3 ounces	1.2	20
Tuna, white, 3 ounces	1.0	15
Milk, 1 cup	0.9	15
Cheese, Swiss, 1 ounce	0.9	15
Beef taco, 1 taco	0.8	13
Ham, cured, roasted, 3 ounces	0.6	10
Egg, large, 1 whole	0.6	10
Chicken, roasted, ½ breast	0.3	6

Office of Dietary Supplements: National Institutes of Health

Evidence from the Framingham Offspring Study suggests that individuals who have trouble absorbing vitamin B12 from foods, as well as vegetarians and vegans who don't consume animal foods, will likely benefit from vitamin B12-fortified foods, oral vitamin B12 supplements, or vitamin B12 injections.

This study also found that individuals who took a supplement containing vitamin B12 or consumed fortified cereal more than four times/ week were much less likely to have a vitamin B12 deficiency.



Vitamin B12

Solution

Even More Q&A's...

4. What is the best way for me to supplement with B12?

Supplementation comes down to two choices, often depending on how well you are able to absorb B12. You will either receive intramuscular (IM) injections by your qualified health care provider or take an oral dose of B12. *It has been shown that for most people, taking approximately 2,000 mcg of oral vitamin B12 daily, followed by a decreased daily dose of 1,000 mcg, then 1,000 mcg weekly and finally, 1,000 mcg monthly, may be as effective as the IM injections-and less uncomfortable.*

Administration	Form	Dose
IM injection	Methylcobalamin or Hydroxocobalamin	1000 mcg injected intramuscularly each month
Oral or sublingual	Methylcobalamin or Hydroxocobalamin	1000-2000 mcg orally on a daily basis for 120 days.

In supplements, B12 is not bound to protein and therefore does not need digestive enzymes or stomach acid to be detached from a protein. Stomach acid is needed to dissolve some B12 supplements that are in the tablet form, especially if they are not chewed. When taken in large enough doses, unbound B12 can overcome intrinsic factor defects because so much can be absorbed through passive diffusion.

It has been shown in a number of studies that B12 deficient patients who held 2,000 mcg of B12 under their tongues and allowed it to dissolve completely (sublingual B12), all normalized their B12 levels in 7-12 days. I would recommend first trying sublingual B12 at 1,000-2,000 mcg/day for a month or two and then re-testing your levels to see if you are in the optimal range. If this method doesn't work for you, I would find a doctor or naturopathic doctor who can administer B12 injections.

5. What is the best form of B12 for me to supplement with?

It is in your best interest to supplement with an effective form of B12. It is not only important to intake the proper amount, it is important to intake the "correct kind" of B12:

There are 3 forms of Vitamin B12 commercially available:

- 1. Methylcobalamin** - this is your number one choice. It's the form found in foods and has the highest bioavailability.
- 2. Hydroxocobalamin** - A good alternative if Methylcobalamin is not



Vitamin B12

Solution



Vitamin B12

Solution

Even More Q&A's...

6. How can I optimize my Absorption?

- ☉ Calcium is necessary for the absorption of B12. Adequate calcium can be obtained from collard greens, kale, turnip greens, mustard greens, radish greens and broccoli. It may also be obtained from fortified almond and rice milks, goat milk and regular dairy if you do not have a sensitivity. If calcium supplements are necessary, use calcium citrate, lactate, or gluconate. Calcium carbonate cannot be absorbed very well if you are low in stomach hydrochloric acid.
- ☉ Vitamin C taken at 500 mg or more with a meal or within one hour after eating has been shown to diminish B12 absorption and actually destroy the B12 obtained from the food.
- ☉ Avoid microwaves; microwaves can lower the B12 levels in your food by as much as 30%-40%.
- ☉ Limit alcohol; alcohol can reduce your B12 levels.
- ☉ Check for bacterial overgrowth such as H. Pylor (the bacteria responsible for peptic ulcers), which can also decrease your ability to absorb B12.
- ☉ **Check for low stomach acidity (hypochlorhydria)**, which makes it very difficult to absorb B12. Chronic use of antacid medications will lower your acid levels and decrease B12 absorption
- ☉ Remove food allergies; heal your gut lining.



Original Photograph by Ed Franks Photography

Solutions

Why did I bundle these together?

Cardiovascular health: Cholesterol panel, hs-CRP, homocysteine, and fasting blood sugar

Cardiovascular disease is one of the biggest killers in North America and in many other countries. For this reason, I suggest this powerhouse lab combo of getting your superior cholesterol panel, hs-CRP, homocysteine and fasting blood sugar checked. These four tests when looked at together and in relation to each other can give you a very clear picture of your cardiovascular risk and help you predict a cardiovascular problem from up to ten years before it may occur.

This gives you ample time to do what is necessary to get things back on track and steer clear of any impending danger. The part I love most about this section is even though cardiovascular disease may take more lives than any other disease each year, **it is one of the most preventable diseases!** By following the suggestions in this book, you will see your cardiovascular labs improve and your risks decrease. Your overall health will dramatically increase, your energy will be abundant, and you will regain the quality of life that you have been looking for.



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution

Solutions

Essential Q&A's about Cardiovascular Health

1. Why is cardiovascular disease so prominent in our society?
2. Why is it so important for me to reduce my weight?
3. What are the major components that I need to address in order to optimize my weight and improve my cardiovascular health?
4. What is the best diet to improve my cardiovascular health and reduce my weight?
5. There is so much information on how to exercise, but what is going to give me the best results without my having to spend the whole day at the gym?
6. Why is High Intensity Interval training (HIIT) so effective? (includes exertion scale and 20 minute workout sample)
7. What hormones are complicating my cardiovascular health? (includes the affects of insulin, blood sugar and stress hormones on your weight and cardiovascular health)

Essential Q&A's...

1. Why is cardiovascular disease so prominent in our society?

Cardiovascular disease is very much a disease of lifestyle: too much of “what doesn’t” work for you and not enough of “what does” work for you. There is a general lack of exercise, healthy foods, water, and down time, and too much stress, refined/artificial/fast foods, sedentary behavior, alcohol, coffee, and other damaging factors. Our bodies can only take so much of this lifestyle before they start to break down. The equation is quite simple:

Increase what works and decrease what doesn’t work = improved cardiovascular health.

So how do we do this without getting overwhelmed? Simple: go step by step and start to implement each section as you are able. If your lab markers are really off and you are at significant risk, receive this advice as a gift and feel fortunate that you have found out how to heal yourself before your lifestyle caused you to have a heart attack or stroke. Use this opportunity to love and appreciate yourself and heal your body. The great thing about this section is that by doing what is necessary to improve one of these laboratory markers, you will in effect be improving all of them. They all work together to give you an overall picture of your cardiovascular health. The key is to start working on them as soon as possible.

2. Why is it so important for me to reduce my weight?

Weight gain, especially around the abdomen, can increase levels of immune system proteins called cytokines. Certain cytokines cause an inflammatory response that can contribute to the formation of fatty deposits in the arteries known as atherosclerosis. It has been shown over and over again that by **reducing your weight by only 5%-10%, you can dramatically affect your cardiovascular health.** For example, in one study, obese or overweight women with even slightly high blood sugars lowered their body weight by 20 pounds and decreased hs-CRP (mentioned earlier) by 30%, which significantly decreased their cardiovascular risk. In this example, weight loss was proven to return cytokine levels towards normal, down regulating the inflammatory state in the blood vessels of these women.

The bottom line is that if you are overweight, your cardiovascular risk is elevated: you must work on decreasing your weight. Maintaining a healthy weight is an essential component of improving your cardiovascular health and improving your quality of life.

To put this into perspective, if you currently weigh 200 lbs, you only need to reduce your weight by 10-20 lbs in order to reap huge benefits in the heart health department.



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution

More Q&A's...

3. What are the major components that I need to address in order to optimize my weight and improve my cardiovascular health?

There are three major physical components I feel are necessary to address when it comes to any weight management program and one's cardiovascular health.

- 🕒 Diet
- 🕒 Exercise
- 🕒 Hormones / Stress

4. What is the best diet to improve my cardiovascular health and reduce my weight?

I like to combine benefits whenever possible. The following diet is a prime example of that philosophy as it **is designed to both decrease total cholesterol and LDL, and increase HDL**. Further, if you follow this diet properly, you will also decrease your weight and balance out your blood sugar.

Cholesterol Normalizing Diet

Originally I was shown this diet by Dr. Philip Rouchotas, a good friend of mine who teaches nutrition at the Canadian College of Naturopathic Medicine. Since then I have used it clinically on all of my patients who have had cholesterol concerns with great success. In general, diets that consist of less grains (especially wheat) and lower glycemic index foods is a great benefit to normalizing your cholesterol. I have modified his program just slightly based on my own experience. The diet is broken down as follows:

Foods to avoid:

- 🕒 Red meat (you may include chicken breast; boneless, skinless turkey and fish). GRASS FED beef is acceptable in moderation from 1 to 2 times per week
- 🕒 Cheese, cream, yogurt and milk
- 🕒 Espresso, cappuccino, French press coffee, instant coffee, etc. (paper filtered coffee is OK, in moderation 1-2 cups per day)
- 🕒 Sweets, white breads and pastas, refined foods, artificial sugars
- 🕒 Fried foods



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution

More Q&A's...

Cholesterol Normalizing Diet Continued...

Foods to include:

- At **least** ¼ cup (200 kcal) raw almonds or walnuts per day. ½ cup is preferred (raw nuts are best). Avoid nuts covered in artificial flavors or sugars; they may actually aggravate the problem
- At **least** 2 tablespoons olive oil (RAW, not heated) per day (250 kcal). I use this oil as a salad dressing or drizzle it on vegetables
- The most desirable breakfast is the oat bran recipe (provided below). Ideally, this will be consumed every day(400 kcal)
- It would be of added benefit to include eggplant and or okra every day
- Incorporate 1-2 cloves/day of fresh finely chopped or minced garlic (cooked or raw) into your diet
- Increase green leafy and multicolored vegetables

Additional supplements:

- Fish oil. Minimum of 1 g EPA/ DHA combined per day has been shown to decrease the risk of heart disease by over 40% in adults. It also increases “good” cholesterol and decreases “triglycerides”, which is one type of “bad” cholesterol
- Plant sterols. Specifically for the purpose of lowering cholesterol. This comes from various oils (rice bran oil is the most typical source). It alone should lower “bad” cholesterol by 10%-12%. 1500 mg total sterols/day. Product should deliver “mixed” sterols and stanols

Breakfast oat bran recipe (= approx 400 kcal)

½ cup oat bran, ½ cup vanilla rice milk, ½ cup water, ¼ tsp of cinnamon, and strawberries/ blueberries (optional). Combine all ingredients in a pot. Bring to boil under medium - high heat. Immediately reduce heat to low- medium, and let simmer 7-12 minutes until it has reached desired consistency. Enjoy!

n.b. Oat Bran is preferred to whole rolled oats for the purpose of lowering cholesterol. Do not use quick oats, they don't work the same way. If you use oats they should be steel cut oats.

MODEST WEIGHT REDUCTION (1 LB/ WEEK) PLUS LOW INTENSITY EXERCISE (15 MINUTE WALK/ DAY) DRAMATICALLY IMPROVES MAGNITUDE OF BENEFIT OF THE PROGRAM.



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution

More Q&A's...

Cholesterol Normalizing Diet Continued...

What I have found in clinic is that people tend to naturally lose weight when they follow this nutritional program. Not everyone needs to be overly strict with the “what to avoid” part of this program. Many people can get away with following 50% and still do quite well, while others must be extra vigilant to get the results they are looking for. I often suggest to patients to try the diet as it is written out for the first month or two just to see how good they can feel. By then, many people will have gotten into the new routine and are finding they're very much enjoying their new bodies. Most people have no idea how much of an impact diet actually plays on their health and the way they feel.

When all the components of this program are running together: diet, supplements, and exercise, the results are often excellent. Most patients are able to decrease or come off of their statin medications in substitute for this lifestyle change. Their cardiovascular risk factors drop and their overall health soars.

But remember: natural supplements take time to build up and change the body's chemistry. You must take your supplements regularly to achieve the intended results. Also treat almonds, olive oil, and oat bran the same as supplements. BE REGULAR with these daily for best results, but remember that more is not always better; if consumed in excess, these foods will increase your daily caloric intake and cause weight gain.

5. There is so much information on how to exercise, but what is going to give me the best results without my having to spend the whole day at the gym?

To be truly successful in managing your weight and improving your health, exercise is a must. Let me start by saying that almost any exercise is better than no exercise. If you are currently lacking in the exercise department and are serious about changing the shape of your body and improving your health, START MOVING YOUR BODY! Go for a walk, dance, ride a bike, play sports, etc. All of these activities will help to improve your health and burn fat. The question is: what is the most effective way to exercise to maximize fat burning and still have a life outside of the gym? Before I explain how to exercise effectively, it is important that you are in the right frame of mind. The first step in moving your body is to create the space in your schedule for exercise. This means you must realistically look at your schedule for the week and plan out times for exercise. Commit to keeping these times! If something changes and you have to re-schedule your exercise, find a new time for it in your schedule.



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution

More Q&A's...

Most of us are aware of the benefit exercise has not just on our ability to burn fat but on our overall health, yet nevertheless we often don't exercise regularly. Why? I believe most people would like to exercise more, but they don't make it a high enough priority to carve out the time for it. This is why it is crucial to schedule time for exercise. I'm also seeing how many people are confused as to how to exercise in order to maximize their results.

The minimum amount required is 15-20 minutes of sustained exercise.

You could go for a walk, ride a bike, or turn on some music and dance around the house with your kids. Doing any of these activities will help you burn more calories and improve your cardiovascular health. If you have been inactive for a long time, or exercise is completely new to you, then start with gentle movement such as walking and slowly build up as your body allows. **Jumping right into intense exercise can actually be harmful and cause injury, so ease into it, listen to your body, and consult with your doctor if you have any concerns.**

My personal favorite way to exercise, and I truly believe it to be **the most effective way to improve cardiovascular health and burn fat, is high intensity interval training (HIIT)**. Interval training is a type of exercise that incorporates mixed bursts of high intensity exercise with low intensity recovery periods for moderate durations. This type of exercise incorporates the benefits from both anaerobic and aerobic exercise.

What are some of the benefits of anaerobic and aerobic exercise? Benefits of anaerobic exercise

- Supercharges your metabolism and burns extra calories for many hours after you exercise while you rest
- Spikes your metabolism
- Breaks through plateaus that limit your fat loss
- Increases growth hormone, which burns fat, and increases lean muscle mass
- Decreases your appetite for a prolonged period of time
- Improves aerobic endurance and muscular strength
- Lowers total cholesterol and LDL "bad" cholesterol
- Increases "good" HDL cholesterol
- Improves your cardiovascular conditioning
- Regulates blood sugar and improves insulin sensitivity
- Builds more fast twitch muscle fibers than slow twitch muscle fibers. Fast twitch muscle fibers have a higher natural metabolism that allows you to burn a higher number of calories each day, even when you're sleeping.



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution

More Q&A's...

Benefits of aerobic exercise

- Decreases your risk of coronary heart disease
- Decreases your risk of developing high blood pressure
- Lowers “bad” cholesterol and increases “good” cholesterol
- Reduces your risk of developing many cancers and diabetes
- Reduces your blood sugar levels if you have diabetes
- Strengthens your immune system and wards off viral infections
- Strengthens your heart, bones, and improves your mood
- Relieves chronic pain and fibromyalgia
- Manages your weight
- Improves your sex life
- Improves your overall vitality and lengthens your life span

6. Why is High Intensity Interval training (HIIT) so effective?

Interval training is a way of combining the benefits of both aerobic and anaerobic exercise simultaneously. The bottom line is that aerobic exercise, or low intensity exercise, alone is not adequate for many people to achieve their weight goals, and it can take a long time to perform, and anaerobic exercise, or high intensity exercise, is difficult to sustain. Interval training alternates between bursts of high intensity exercise (anaerobic) with short periods of low intensity exercise (aerobic), known as “recovery periods”. In order to move your workout into the anaerobic range, you must create an “oxygen debt” by exercising at a pace that you can sustain only for a short period of time. If this is done correctly, you will be panting to recover your oxygen debt and should feel a lactic acid burn. An example of oxygen debt is sprinting or pedaling a bike as hard as you can for 15 seconds. This is very different from the traditional low to moderate intensity aerobic workout that lasts 45 minutes. During HIIT the rate of metabolism may rise to 15 times your normal basal metabolic rate (BMR). Lactic acid will build up (this is the burn we feel), which will stimulate the production of growth hormone. You will also utilize a greater percentage of your muscle mass and increase the demands on your cardiovascular, respiratory and nervous systems. In order to meet this increased energy demand, you burn more fat and glycogen (carbohydrate) during and after the HIIT.

All that is required are high intensity intervals lasting 30-60 seconds to burn significantly more fat/calories than any other aerobic exercise you have tried!



Cardiovascular Health

hs-CRP / Homocysteine / Cholesterol Panel / Fasting Blood Sugar

Solution



Cardiovascular Health

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More Q&A's...

How do I do it?

The beauty of this type of exercise is that almost anyone can do it, and any exercise works because all you have to do is periodically bump up your intensity for short bursts. Any typical aerobic machine will work: the stairmaster, bike, stationary bike, elliptical machine, treadmill, rowing machine, or plain old walking, among other types of exercise. My personal favorite is the stationary bike because I can easily control my intensity levels. It is low impact, which protects my joints, and I always get a great workout. The key to success is the level of intensity and the time intervals, regardless of the machine or type of exercise you use. For those of you who are new to exercise, you may only have to go for a light walk and then increase it to a light jog to hit your intensity peaks during the intervals. Remember, panting is the sign that you have hit your anaerobic state- this is what we want.

How do I know if I am working hard enough?

The easiest way to monitor your intensity levels is to rate your perceived exertion. Becoming familiar with the rate of perceived exertion (RPE) scale will allow you to continually modify your intensity to ensure you stay in the appropriate zone. As you start exercising regularly, you will find it requires more work to reach the same level of intensity. This is a good thing; it means your overall health and fitness are improving. For example, cycling at 65 RPM on level 10 may initially bring you to a perceived exertion of 8, but after two weeks on the program, it may only bring you to a 6. When this happens, you must increase your intensity either by cycling faster or increasing the resistance. Either one will increase your perceived exertion.

What are the benefits of using the Rate of Perceived Exertion scale?

- It can be used in conjunction with heart rate monitoring to help establish appropriate intensity levels
- It can be performed without your having to stop your exercise
- You don't need to buy a machine that will describe your perceived exertion
- It can help you modify the intensity level of your exercise as your health improves to ensure you are in your optimal zone

see next page for Exertion Scale sample...



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More Q&A's...

How does the Perceived Exertion scale look?

LEVEL	Perceived Exertion
1	Sitting in a comfortable chair listening to music
2	Comfortable and could maintain this pace all day
3	Comfortable but breathing a little heavier
4	Feel good and can carry on a conversation effortlessly, starting to sweat
5	Just above comfortable, sweating more, can still carry on a conversation
6	Slightly breathless but can still talk
7	Can talk but don't want to, sweating significantly
8	Can keep this pace for a short period of time and grunt to questions
9	Very intense
10	Full out maximal exertion



More Q&A's...

Can you give me an example of a typical 20 minute interval workout including warm up and cool down?

Time Elapsed in minutes	Intensity (1-10)
0-1	3-4
1-2	3-4
2-3	4-5
3-4	4-5
4-5	8-10
5-6	4-5
6-7	4-5
7-8	8-10
8-9	4-5
9-10	4-5
10-11	8-10
11-12	4-5
12-13	4-5
13-14	8-10
14-15	4-5
15-16	4-5
16-17	8-10
17-18	2
18-19	2
19-20	2

In this 20-minute workout, you will be **warming up** for the first four minutes at a moderate intensity. Next you will begin your **first interval**. In this example, you increase your intensity considerably for up to one minute. If you are doing the interval correctly, you will feel a lactic acid burn and start to pant; this is perfect as you have just significantly increased your metabolism and spiked your fat burning hormones. After the interval minute is completed, decrease your intensity back to the level of your warm up and continue pedaling for two more minutes. You are now about to begin your **second interval**. Again bump up your intensity and go hard for one minute, feel the burn and start to pant. Go hard for the entire minute. After the interval minute is completed, go back to your warm up pace for two minutes. Continue this process until you have **finished your fifth interval**. Once your fifth interval is completed, drop your pace down to a very low intensity and **cool down** for 3 minutes.

The durations can vary anywhere from 15 seconds to 60 seconds for the intense period and from 30 seconds to 2 minutes or so for the rest depending on what works best for you. The key is when you go hard...GO HARD!!

Incorporate this type of exercise into your routine 3x/week. On the other days, do your minimum of 15-20 minutes of light exercise: walking, biking, dancing, or any other activity that inspires you.



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More Q&A's...

7. What hormones are complicating my cardiovascular health?

Many different hormones can throw a HUGE monkey wrench into your weight reduction goals and wreak havoc on your cardiovascular health. Some of the main culprits are stress hormones, thyroid hormones, and insulin (blood sugar regulation). The good news is that by following the diet and exercise information above, you will have already dramatically improved the state of these hormones and will have started to create balance in your body. First of all, you should already have the results to your thyroid test. If not, get your thyroid checked. If the numbers are low, go to the thyroid section of this book to see what you need to do in order to get them back on track. Otherwise if you incorporate these above principles, you will already be on track. Here are some more suggestions to balance out these hormones.

How do my insulin and blood sugar affect my weight and cardiovascular health?

Insulin resistance means the body cannot use insulin effectively to control the amount of sugar in your blood. Insulin resistance and extra weight around the middle of the body (apple-shaped) are two of the most important risk factors in developing metabolic syndrome. Metabolic syndrome is the name for a group of risk factors that occur together and increase the risk for coronary artery disease, stroke, and Type 2 diabetes. Insulin resistance is also connected to an unhealthy cholesterol panel, elevated homocysteine, poor blood sugar regulation and elevated hs-CRP. Fast and processed foods, stress, and a sedentary lifestyle have made insulin resistance an epidemic, possibly one of the biggest underlying causes for chronic disease. It is ABSOLUTELY ESSENTIAL to balance your blood sugar and decrease insulin resistance if you want to improve your cardiovascular health and the quality of your life.

How do I normalize my blood sugar and insulin levels?

It is important to understand the glycemic index of foods. The Glycemic Index (GI) rates foods based on their effect on the rise of blood sugar. It represents how quickly the food is converted into blood sugar.

Foods that have a high glycemic index cause a sudden increase in blood sugar and insulin followed by a sharp decrease. This rapid increase then decrease of blood sugar actually encourages hunger and can increase your body's tendency to convert calories into fat. The high insulin levels your body produces to counteract the significant and abrupt increase in blood sugar from high GI foods actually reduces your ability to burn calories and stores extra energy as fat.

Therefore choosing low GI foods (the ones that produce only small fluctuations in blood sugar and insulin levels) keeps your energy levels more balanced and helps you feel fuller for longer periods of time between meals.

More Q&A's...

What are the benefits of a low glycemic index diet?

- Supports normal blood sugar levels and an optimal insulin response
- Reduces the risk of heart disease, diabetes, and general obesity
- Helps reduce high blood pressure and cholesterol
- Increases energy and improves metabolism and concentration
- Essential to weight loss/management
- Prevents overeating and reduces hunger and cravings
- Prevents cancer
- Improves immunity

What are some strategies to help me normalize my blood sugar?

- Emphasize intake of low GI foods and avoid high GI foods
- Eat at least three meals per day – optimal is to eat three small meals per day plus two snacks. Aim to eat something every three hours whether you are hungry or not. Typically the larger the meal = the greater the insulin response
- Focus on portion size and not calories – eat small portions of the highest quality foods. Cup your hands together in front of you; that's how big your stomach is. Don't eat more than this at any one meal
- Eat protein with each meal: fish, legumes, lean meats, poultry, eggs, soy, tofu, etc.
- Eat good fats with meals: olive oil, coconut oil, avocado, nuts and seeds, etc.
- Cut down on refined carbohydrates: processed foods, white bread, white rice, sugar, candy, soda, baked goods, etc. The greater the quantity of simple sugars consumed, the larger the insulin response. Choose sprouted grain bread over white or brown bread, and choose whole grain pasta over white
- Consume grains with caution; many carbohydrate-sensitive people find that grains can trigger binge eating. Carbohydrate sensitivity can be exacerbated during peri-menopause
- Eat a wide variety of fresh fruits and vegetables daily
- Eat healthy fats each day – Essential Fatty Acids from unheated olive oil, fish oil, or nuts and seeds
- Decrease coffee and other caffeinated beverages
- Drink 1.5 – 2.0 liters of water each day
- Incorporate higher fiber foods into your diet such as vegetables, oat bran, inulin, legumes and psyllium. Fiber also helps to slow the release of sugar into your blood
- Avoid fruit juices



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More Q&A's...

Normalizing my blood sugar continued...

- Avoid too much dairy. Most dairy products such as milk, cheese, and yogurt have a low glycemic index but they have a high insulin response. Dairy foods can spike insulin even though their glycemic index would suggest otherwise. One form of dairy that doesn't raise insulin levels is cottage cheese.
- Slow down when you eat. Take 25-30 minutes to eat your meals. Eating slowly slows the release of sugar into your blood
- If you eat high GI foods, make sure they are nutrient-rich and keep portions small. Combine them with low GI foods so that you are able to lower the overall GI of the meal (e.g., rice with legumes or almonds with dried fruit)

What is the glycemic index of different foods?

High Glycemic Index Foods (GI more than 70)

Intermediate Glycemic Index Foods (GI between 55 and 70)

Low Glycemic Index Foods (GI less than 55)

	High	Intermediate	Low
Fruits 1-2 servings daily 1 serving equals: -1 medium sized fruit -1/2 cup small fruit -1/2 cup dried fruit	Dates, dried (103)	Pineapple (66)	Banana (53)
	Watermelon (72)	Raisins (64)	Kiwi Fruit (53)
		Figs (61)	Grapes (52)
		Apricots (57)	Canned Peach (47)
		Mangoes (56)	Grapes (46)
		Fruit Cocktail (55)	Orange (43)
			Peaches (42)
			Plums (39)
			Pear (36)
			Apple (36)
			Dried Apricots (30)
			Dried Apples (29)
			Prunes, Pitted (29)
			Grapefruit (25)
		Cherries (22)	



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More Q&A's...

What is the glycemic index of different foods?

	High	Intermediate	Low
Vegetables 5-7 servings daily 1 serving equals: -1 cup of raw leafy greens -1/2 cup of raw/cooked non leafy vegetables -1/2 cup of fresh vegetable juice	Parsnips (97)	Beets (64)	Sweet Potatoes (54)
	Baked potatoes (83)	Boiled Potatoes (56)	Yams (51)
	Pumpkin, peeled (75)	Sweet Corn (55)	Carrots, cooked (48)
	Mashed potatoes (73)		Low glycemic vegetables (all 20) Artichokes Asparagus Bean sprouts Bell peppers Celery Cucumber Fennel Mushrooms Okra Onions Peas (fresh or frozen) Radishes Rhubarb String beans (green or yellow) Summer squash Tomatoes/tomato sauce /tomato juice Zucchini

	High	Intermediate	Low
Lentils 2-3 servings daily (4-5 if vegetarian) 1 serving equals: -1/2 cup of cooked dried beans, lentils, peas			Baked Beans (48)
			Peas, Green (48)
			Pinto Beans (45)
			Black-eyed Peas (42)
			Chickpeas, tinned (42)
			White Navy Beans (38)
			Haricot Beans (38)
			Chickpeas(33)
			Butter Beans (31)
			Lentils (29)
		Kidney Beans (27)	
		Soy Beans (18)	



Cardiovascular Health

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Solution

More Q&A's...

What is the glycemic index of different foods?

Dairy	High	Intermediate	Low
1-2 servings per day (optional) 1 serving equals: 1 cup	Ice cream (61)		Milk, semi-skim (34)
			Chocolate Milk (34)
			Fruit Yogurt (33)
			Milk, skim (32)
			Soy Milk (31)
			Milk, full fat (27)
			Yogurt, low fat (14)

Beverages	High	Intermediate	Low
	Gatorade (78)	Soft Drinks (68)	Grapefruit Juice (48)
		Cranberry Juice cocktail (68)	Pineapple Juice (46)
		Orange Juice (57)	Apple Juice, unsweetened (41)

Bread, Grains, and Pasta	High	Intermediate	Low
3-5 servings daily 1 serving equals: bread- 1 slice cereal- 1/2 cup pasta- 1/2 cup rice/grains- 1/2 cup	French Baguette (95)	Whole Wheat Bread (69)	Linguine (50)
	Rice Pasta, brown (92)	Croissant (67)	Multigrain Bread (48)
	Instant Rice (91)	Couscous (65)	Bulgur (48)
	Kaiser Roll (73)	Rye flour Bread (64)	Converted Rice (47)
	Millet (71)	Macaroni and Cheese (64)	Macaroni (45)
	Bagel (72)	Oatmeal (61)	Spaghetti, white (41)
	White Rice (72)	Hamburger Bun (61)	Rice noodles (40)
	White Bread (70)	Basmati Rice, white (58)	Ravioli, meat filled (39)
	Tapioca (70)	Pita Bread (57)	Spaghetti, whole wheat (37)
		Oatbran (55)	Vermicelli (35)
		Buckwheat (54)	Fettuccini (32)
		Sourdough Bread (52)	Spaghetti, protein enriched (27)
		Brown Rice (51)	Barley, pearled (25)
			Rice Bran (19)



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More Q&A's...

	High	Intermediate	Low
Sugars	Maltose (105)	Sucrose (65)	Lactose (46)
	Glucose (100)	Table Sugar (65)	
	Honey (73)	Jam (55)	

	High	Intermediate	Low
Snacks	Rice cakes (82)	Wheat crackers (67)	Potato chips/crisps (54)
	Pretzels (81)	Rye Crisp bread (63)	Chocolate (49)
	Jelly beans (80)	Power Bar (57)	Banana Cake (47)
	Waffles (76)	Popcorn (55)	Peanuts (14)
	Doughnuts (76)	Oatmeal cookies (55)	
	Soda Crackers (74)		
	Corn Chips (72)		

How are my stress hormones involved?

Stress hormones such as adrenaline and cortisol cause more problems than just about any others. Stress hormones are designed to help us deal with stressful events; our modern lifestyles are too full of stressful events and our modern day diet only aggravates our stress hormones. When we eat too much sugar, refined grains, chips, sodas, crackers, cookies, caffeine, etc., our blood sugar spikes, then crashes shortly thereafter. In order for us to recover from this crash in blood sugar, our adrenal glands release stress hormones to raise it for us. The problem is that too much stress hormone is detrimental to our health and starts to set the stage for a host of problems such as insulin resistance, thyroid problems, and cardiovascular disease, to name a few. By balancing our blood sugar, we are off to a great start in balancing our stress hormones. Below are some other suggestions to balance stress hormones on your own.

Normalize your stress hormones:

- Balance insulin levels and blood sugar (see above suggestions on regulating blood sugar)
- Move your body and exercise
- Take five minute "stress relief" breaks throughout the day
- Remember to breathe! When we get stressed, our breathing tends to be shallow and in our chests. Breathe deeply into your belly for one minute and increase the flow of oxygen and relax your body
- Reduce your stress load by breaking things down into manageable pieces. Determine what you can resolve immediately and attend to those things first. This will reduce your body's overall stress load.
- Listen, draw, journal or move. Try a therapy like emotional freedom technique, Psych K or Neuro emotional technique to resolve your emotional burden.
- Journal out your thoughts then burn them or shred them



Cardiovascular Health

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Solution

Even More Q&A's...

What are some key supplements I can take to support my cardiovascular health?

Remember that supplements by themselves are not magic bullets that will take care of everything for you. Supplements simply supplement the real work you need to do for yourself through diet and lifestyle. In conjunction with the diet and lifestyle modifications mentioned above, the following supplements can play a vital role in enhancing your health and significantly decreasing your risk of cardiovascular disease:

- **Fish oils:** a minimum of 1 g/day of mixed EPA and DHA
- **Phytosterols:** mentioned above in the cholesterol normalizing diet. You only need this supplement if your cholesterol panel is “off” with elevated LDL and total cholesterol.
- **B12, B6 and folic acid:** this combination will help to lower homocysteine. You can often get these in combination for this purpose. You need approximately 1,000 mcg of folic acid, 400 mcg of B12, and 10 mg of B6 to reduce homocysteine.
- **Coenzyme Q10 as Ubiquinol:** 100-300 mg/day. CoQ10 has been shown to benefit all of the following conditions: heart disease, heart failure, high blood pressure, high cholesterol, diabetes, breast cancer and periodontal disease. Coenzyme Q10 (CoQ10) is a compound found naturally in the energy-producing center of the cell known as the mitochondria. CoQ10 is involved in making an important molecule known as adenosine triphosphate (ATP), which serves as the cell's major energy source and drives countless biological processes.
- **Organic unprocessed virgin coconut oil or MCT oil** dosed around 3 tablespoons per day is the optimal amount for adults. These medium chain fatty acids (MCT's) are extremely beneficial for heart health and weight management. Use coconut oil three times a day at meal times. Substitute it wherever you would use butter, margarine or other unhealthy oils. Many patients also enjoy it right off the spoon.
- **Vitamin D:** optimize your levels if they are low. Low levels of vitamin D have been shown to nearly double the risk of cardiovascular disease in patients with diabetes. This occurs because diabetics deficient in vitamin D can't process cholesterol normally, so it builds up in their blood vessels, which increases the risk of heart attack and stroke. Vitamin D and sunlight exposure have been shown to fight heart disease by:
 - Producing anti-inflammatory cytokines
 - Suppressing calcification of arteries
 - Inhibiting vascular smooth muscle growth

These supplements combined can decrease your risk of a cardiovascular incident. They help reduce inflammation, optimize cholesterol levels, lower levels of homocysteine and hs-CRP, they strengthen the heart, and decrease plaque build up in your arteries. With supplements, a regulated diet, an exercise plan and lifestyle changes, you are well on your way to having an exceptional quality of life.



Cardiovascular Health

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Solution



Solutions

pH of Urine

Solutions

Something to Note...

As I mentioned in the “Top 10 Lab Tests”, I feel that achieving acid alkaline balance is an essential, easy and inexpensive way to give your health a complete overhaul. pH imbalance plays into so many symptoms and diseases, it only makes sense to get this system under control first before seeking other solutions. I have many patients who come into the clinic presenting such a wide array of symptoms and conditions they have no idea where to start! Having them optimize their pH is a perfect place for them to begin their healing. Most patients find that as they continue to balance their pH, many of their “stubborn” and “annoying” symptoms just start to disappear without our having to treat every single symptom on its own. When you treat the body systems like pH, you can profoundly affect many areas all at the same time.

Essential Q&A's about **pH of Urine** (Optimizing your pH)

1. How does acid alkaline balance affect my health?
2. How can I alkalinize my diet?
3. What are some Acid/alkaline foods?
(includes Food Charts, Chemical Effects on body chemistry balance)



pH of Urine

Solution

Essential Q&A's...

1. How does acid alkaline balance affect my health?

The body fluids of the healthy are alkaline (high pH) whereas the body fluids of the sick are often acidic (low pH). Acidosis is a common denominator in over 150 degenerative diseases. Most degenerative diseases attributed to aging such as cancer, osteoporosis, and heart disease, as well as other disorders such as allergies, kidney stones and gallstones have all been scientifically linked to calcium and other mineral deficiencies that result in the body's fluids becoming acidic.

Once foods are eaten, they are broken down and oxidized in the body, which results in the formation of a residue. Depending on the type of food you eat, this breakdown residue will be alkaline or acidic. Therefore the goal is to consume foods and drinks that have a more alkaline effect on the body.

2. How can I alkalize my diet?

- Unless directed differently by your practitioner, consume 80% of alkaline foods and 20% of acidic foods in each meal. During the summer, increase the amount of alkaline food you consume and in the winter slightly decrease the amount of alkaline food
- Avoid fatty meats, dairy (including cheese), sweets and chocolate, alcohol, and tobacco
- Choose salads, fresh vegetables and healthy nuts and oils
- Packaged and microwavable foods are often full of hidden offending agents and are full of sugars and salts. These are VERY ACIDIC
- Eat a lot of vegetables and fruits as most are alkalizing. Consume raw or steamed if possible; over cooking can reduce the overall nutrition
- Drink at least 2-3 liters of clean, pure filtered water or alkalized water daily.
- Drink the juice of half a lemon or lime in water as a beverage
- Eat 1 cup of alkalizing greens daily (kale, collards, mustard greens, rapini)
- Consume millet and quinoa as an option to the acid forming grains (wheat)
- Learn to make a miso broth (1 tsp of miso dissolved in one cup of hot, not boiling, water)
- Make blender drinks using alkaline juices, green powdered supplements, green leafy vegetables and low GI fruits
- Choose fish and lamb over beef and chicken as they are less acid forming
- If you eat beef have GRASS fed beef
- Use olive oil as it is less acid forming than other vegetable oils
- Avoid coffee, caffeine, sugar, alcohol and other strongly acidic foods and beverages
- It is also important to remember that emotions, thoughts and habits have an effect on your body chemistry as well. Rest, relaxation, exercise, oxygen, pleasure, laughter and love are alkalizing on the body. Worry, fear, anger, resentment and the feeling of a lack of love have an acid effect.

More Q&A's...

3. What are some Acid/alkaline foods?

Do the best you can to incorporate more alkaline foods and limit your acidic foods. This doesn't mean that all acidic foods are bad; in fact, there are loads of beneficial qualities to many acid foods such as walnuts, carrots, oat bran, and chick peas. The problem is that by and large as a population we over consume many of the most acidic foods such as refined carbohydrates, sugar, coffee, processed and fast foods, fatty meats, etc. The key is to incorporate more alkaline foods into your diet. If you enjoy some acid foods, try to find a more alkaline alternative or buffer the acidity by increasing more alkaline foods throughout your day. Below is a list of the most to least alkaline and acid foods to help guide you on your road to a better quality of life.

Food and Chemical Effects on Acid/Alkaline Body Chemistry Balance

ALKALINE			
Most Alkaline	More Alkaline	Low Alkaline	Lowest Alkaline
Baking soda Sea salt Mineral water Umeboshi plums	Spices Cinnamon Molasses Soy sauce	Herbs (most) Green tea Rice syrup Apple cider vinegar	Ginger tea Sucanat Umeboshi vinegar Ghee Mother's milk
			Oats Grain coffee Quinoa Wild Rice
Pumpkin seeds	Poppy seeds Chestnuts Pepper	Primrose oil Sesame seeds Cod liver oil Almonds Sprouts	Avocado oil Flaxseed oil Coconut oil Olive oil Other seeds
Lentils Onion Daikon taro root Sea vegetables Burdock lotus root Sweet potato/yam	Kohlrabi Parsnip Garlic Kale Endive Mustard greens Ginger root Broccoli	Potato Bell pepper Mushrooms Cauliflower Salsify Ginseng Eggplant Pumpkin Collard greens	Brussels sprouts Beets Chives/cilantro Okra Squashes Lettuce Jicama
Limes Nectarines Persimmons Raspberries Watermelon Tangerines	Grapefruit Cantaloupe Honeydew Citrus Olives Loganberries Mangoes	Lemons Pears Avocado Pineapple Apples Blackberries Cherries Peaches Papaya	Oranges Apricots Bananas Blueberries Currants Raisins Grapes Strawberries

pH of Urine

Solution



pH of Urine

Solution

More Q&A's...

Food and Chemical Effects on Acid/Alkaline Body Chemistry Balance

ACID			
Lowest Acid	Low Acid	More Acid	Most Acid
Curry Honey Maple syrup Rice vinegar	Vanilla Black tea Alcohol Balsamic vinegar	Nutmeg Coffee Saccharin	Jam/jelly Table salt Yeast (hops/malt) Sugar Cocoa White vinegar
Cream Yogurt Goat/sheep cheese	Cow's milk Aged cheese Soy cheese Goat milk	Casein (milk protein) 30-day cheeses Soy milk	Processed cheese Ice cream
Eggs Gelatin Organ meats Venison Fish Wild duck	Lamb/mutton Boar/elk Shellfish Goose/turkey	Pork/veal Squid Lobster Chicken	Beef Pheasant
Triticale Millet Kasha Amaranth Brown rice	Buckwheat Wheat/Kamut Spelt/Teff Farina/semolina White rice	Maize Barley groats Corn Rye Oat bran	Barley
Pumpkin seed oil Grapes seed oil Sunflower oil Pine nuts Canola oil	Almond oil Sesame oil Safflower oil Tapioca Seitan	Pistachio seeds Chestnut oil Pecans Palm kernel oil	Hazelnuts Walnuts Brazil nuts Fried foods
Spinach Fava beans Kidney beans String beans Chutney Rhubarb	Tofu Pinto beans White/red beans Azuki beans Lima beans Chard	Green peas Peanuts Snow peas Carrots Chickpeas	Soybeans Carob
Guava Pineapple (dry) Figs Persimmon Cherimoya Dates	Plums Prunes Tomatoes	Cranberries Pomegranates	
	Antihistamines	Psychotropics	Antibiotics



Thyroid Panel

Solution

Solutions

This is a big one!

Thyroid hormones control the metabolism of every cell in your body. The delicate balance of your thyroid hormones can be disrupted by a wide array of factors such as nutritional imbalances, toxins, allergens, infections, stress, and many hormones including insulin, cortisol, estrogen, progesterone, and testosterone. Any one of these factors can lead to an imbalance that will interfere with the proper function of your thyroid, significantly affecting your quality of life. To make matters worse, hypothyroidism or subclinical hypothyroidism is able to trigger and aggravate many different chronic diseases, including autoimmune diseases. So not only could you experience all of the symptoms of a low functioning thyroid, you could also simultaneously experience the effects of subsequent chronic disease states as well. What a mess! In my opinion, anyone suffering from any chronic disease should have his/her thyroid assessed and work towards getting it functioning optimally. The good news is many of the treatments for getting things back on track and removing thyroid roadblocks are completely within your control: you just need to know the details.





Thyroid Panel

Solutions

Essential Q&A's about Thyroid

Solutions are broken down into the following sections

Diet

1. What nutrients are beneficial for me to consume if I have a low functioning thyroid?
2. Are iodine supplements safe for me?
3. Are food allergies aggravating my thyroid?
4. What are "goitrogenic" foods and should I avoid them?

Exercise

1. How do I exercise to best stimulate my thyroid?

Detoxification

6. Do toxins, environmental pollution and medications affect my thyroid?

Hormonal Balance

7. What hormones interact with my thyroid?

Supplementation

8. What are the most beneficial supplements for my thyroid?

Solution

Essential Q&A's...

DIET

1. What nutrients are beneficial for me to consume if I have a low functioning thyroid?

It has been estimated through a recent national survey that approximately 11% of the total U.S population is iodine deficient. 7% of pregnant women and 17% of reproductive-aged women are deficient in iodine. Some of the main reasons for this deficiency are due to:

- ☉ Vegan and vegetarian diets
- ☉ Diets low in fish and seaweeds and other sea vegetables
- ☉ Decreased use of iodized salt
- ☉ Increases in fluoridation and chlorination of water that compete with iodine
- ☉ Increases in toxic bromides in commercial foods, over the counter medications, and personal care products. Bromides compete with iodine
- ☉ Decreased use of iodine in the food and agriculture industries
- ☉ Increased use of radioactive iodine in medical procedures which competes with natural iodine

As you can see, even if you are taking in adequate iodine from your diet, you may not be absorbing it due to many of these other factors.

Other essential thyroid minerals are **selenium** and **zinc**. Selenium is crucial in both the production of T4 thyroid hormone (thyroxine) in the thyroid gland as well as in the conversion of T4 to T3 (the active hormone). Zinc is used in the manufacture of thyroid hormone and the conversion from T4 to T3. One of the easiest ways to test for a zinc deficiency is by doing a zinc taste test. Take about a teaspoon of zinc mixed into water and taste it for about 10 seconds. If it has a strong metallic taste, you don't need zinc. If there is no taste at all, or it tastes good, then there is a need for zinc. This is also called a "zinc tally test".

Vitamin D is another key nutrient in the proper functioning of your thyroid. Adequate Vitamin D is necessary for that final metabolic step that takes place inside the nucleus of the cell where the thyroid hormone actually works. Vitamin D needs to be present at sufficient levels in the cell in order for the thyroid hormone to actually affect that cell. This is just one more reason as to why vitamin D is so crucial.

Solution

continued next page...





Thyroid Panel

Solution

Essential Q&A's...

DIET

2. Are iodine supplements safe for me?

If you never consume fast food, avoid table salt, don't eat seafood or sea vegetables, and live more than 100 miles from any coast, then you are likely deficient in iodine. That said, I don't recommend to most of my patients that they start supplementing with it directly. Iodine is a tricky mineral in that too little of it can aggravate your thyroid, but too much of it will also aggravate your thyroid. Therefore I typically suggest to most patients who are deficient that they incorporate plenty of iodine rich foods into their diets to help their thyroids but not enough to harm them if their iodine levels are fine. This dosage appears to be approximately 200 mcg/day. I often recommend that people get their iodine through the regular use of organic sea vegetables such as kelp, wakame, dulse, sea lettuce, kombu, bladderwack, hijiki, and nori. Most sea vegetables have approximately 100-200 mcg of iodine per gram. Aside from bumping up your iodine, sea vegetables are also extremely alkaline and provide tremendous benefits to your overall health.

3. Are food allergies aggravating my thyroid?

YES, they absolutely could be wreaking havoc on your thyroid. One of the biggest culprits could be gluten. It has actually been shown that up to 30% of those with Hashimoto's thyroiditis (an autoimmune thyroid condition) have a co-existing autoimmune reaction to gluten. Gluten is the most common food allergy, but you could be allergic or sensitive to just about any food. Some of the most prevalent are gluten, dairy, soy, eggs, yeast, and sugar, among others. Food sensitivities create inflammation in your gut, which can lead to something called "leaky gut syndrome" (LGS). In a nutshell, leaky gut syndrome is a disorder in which the digestive system isn't breaking down foods as well as it should and the gut lining itself becomes more permeable due to the inflammation. This is a dangerous mix! The stage is now set for undigested proteins to be absorbed through your extra permeable gut lining and into the blood. Normally, proteins should be broken down into amino acids before they should cross into the blood. Our bodies know what to do with amino acids. But proteins or partial proteins are a whole different story. Our bodies tag them as foreign and produce antibodies to protect themselves from them. Whenever you eat the offending food, your body attacks it with antibodies, which creates a whole array of symptoms from migraines or diarrhea to depression and anxiety. **This problem is exaggerated when many of these food antigens (proteins) that your body is attacking look very similar to your thyroid gland! In this case, your body accidentally starts to attack your thyroid gland.**



Thyroid Panel

Solution

Essential Q&A's...

How do I find out what my food allergies are?

I often tell people that they have two options: the difficult/inexpensive option or the easy/expensive option. The first one is to do an elimination diet that I will outline in a moment. This diet removes most of the major food sensitivities from your diet for a minimum of two weeks then slowly re-introduces them one at a time. It can be challenging to undertake, but I think it is an extremely effective therapy to give your body a break from many over consumed foods and go back to a clean diet for a period of time. Most people notice a significant improvement in their symptoms during this time followed by an aggravation every time they re-introduce a new food.

The easy/expensive option is to get a food allergy/sensitivity test done. This test is different than the standard pin prick test on your arm or back administered by an allergist. The pin prick test only checks for an IgE antibody reaction. This is the antibody that reacts to a true allergy, like what we picture when we hear people say they have an allergy to peanuts or shellfish. The problem is that most foods don't react with an IgE antibody, rather they react with an IgG or IgA antibody and thus will not show up with this type of test. In order to find food sensitivities, we must do a test that assesses for the IgG and IgA antibodies. These tests often run anywhere from \$200-\$500 or more depending on what is being checked. In general, the test checks for approximately 100 different foods and shows you to what degree you are reacting to them. This test is easy in that you just have to remove the foods that you react to rather than undergo the entire food elimination diet. Food allergy testing is not always 100% accurate but it definitely helps to narrow down the biggest potential problems first. Always listen to your body and if a food seems to be aggravating you in any way that does not show up on your food allergy test...then do a trial elimination of it for a few weeks and then reintroduce and see if you notice any symptoms.

In this next section we explore Food Elimination Diets and Programs for you to follow with ease.



Thyroid Panel

Solution

Essential Q&A's...

Food Elimination Program

Food allergies and intolerances indicate that your body has a difficult time digesting, metabolizing or using certain foods. Food allergies/intolerances contribute to many health concerns and impact your ability to achieve optimum health.

A food elimination program is a series of steps designed to remove foods that are troublesome; once they are identified, you can then take steps to repair and rebuild the health of your digestive system.

General Instructions:

- The goal of this program is to remove the foods that are the most common cause of food allergies and intolerances and to remove those that most commonly contribute to inflammation in the body.
- During this program, eat whenever you are hungry, and as often as you like, from the foods outlined below. This provides all the nutrition that you will need while your body cleanses and heals itself. While on this diet, you may experience some weight loss as you remove foods that are contributing to inflammation.
- Eat until you feel full but not engorged. It is better to eat several small meals per day rather than three large ones. During the first two weeks of the program, do not introduce any foods you have never eaten before.
- Drink liquids 30 minutes before or after eating. Drinking with your meals dilutes the stomach enzymes needed to properly digest the foods you have eaten.
- It is best to consume organic produce whenever possible. Buy in season and locally grown fruits and vegetables, and wash them thoroughly before eating. If purchasing vegetable or fruit juices, purchase those with no additives, sugar, chemicals, and little or no salt (found in health food stores).
- Absolutely no shellfish (i.e. shrimp, oysters, scallops, clams, lobster, etc.), catfish, or red meat.
- Track everything you eat and drink, and track the symptoms or changes that you experience.



Thyroid Panel

Solution

Essential Q&A's...

Step I: Food Elimination Program

The first step in the food elimination program is to eat foods that the body finds easy to digest for a period of 14 days. This period of transition gives your digestive tract a rest allowing it to decrease inflammation, eliminate toxins and function with ease.

For the first 14 days eat as much as you would like of the following foods:

1. Grains – organic brown rice
2. Vegetables - all (except avocados, corn and mushrooms). They can be eaten raw, steamed, juiced or baked. No frozen, canned or jarred vegetables should be eaten. Onions, garlic and ginger are especially good for cleansing. If arthritis is a health concern, you may also want to avoid the nightshades (white potatoes, tomatoes, bell peppers, eggplant and the spice paprika)
3. Fruits - all (except oranges, orange juice, pineapple, bananas, melons and dried fruit). Eat fruit raw or juiced.
4. Other foods - lentils, rice cakes, ocean-going fish and organic chicken as well as small amounts of grass fed beef.
5. Spices - cayenne pepper and/ or non-salt herbal seasoning (e.g. "Vegit")
6. Condiments - olive oil, lemon, and herbs and spices containing no salt or MSG.
7. Beverages – filtered, distilled or spring water, herbal teas such as chamomile, mint, lemon, etc.
8. Other recommendations:

In general the big ones to avoid are the following:

- Gluten
- Dairy
- Eggs
- Soy
- Sugar
- Coffee
- Alcohol
- Chocolate



Thyroid Panel

Solution

Essential Q&A's...

Step 2: Identifying Offending Foods

After the digestive system has had an opportunity to regenerate after you've eliminated all possible food allergies/intolerances, it is important to add foods back into your diet gradually in order to identify the offending foods.

- It is essential to do Step 2 slowly and methodically to ensure that you are aware of the troublesome foods. Step 2 may take one to three months to complete.
- Introduce only one new food every three days and ensure that you eat the food to be introduced in at least two meals during the day.
- After you find that a food agrees with you, it may be eaten on an ongoing basis, as desired.
- If a new food that you introduced causes a return of your symptoms, or you experience gas, bloating, diarrhea, constipation, headaches, skin reactions or any other adverse symptoms, stop that food and go back to the previous list of foods that you knew you could tolerate for at least three days.
- The foods are arranged by groups. Group A represents those foods that are the least probable to cause food intolerance/allergy symptoms.
- In each food group you only have to introduce those foods that you intend to consume on an ongoing basis.
- As you go from Group A to Group K, add foods that are increasingly more likely to cause symptoms as they are often the foods that mostly commonly cause food intolerances/allergies and are the most difficult for the body to handle.
- Keep a detailed food diary with associated symptoms so you can easily track those foods you don't tolerate well.



Thyroid Panel

Solution

Essential Q&A's...

Step 3: Rebuilding and Repairing the Digestive Tract

There are times when the digestive tract has been impaired due to significant exposure to food allergies/intolerances. As part of the food elimination program, it is necessary to rebuild and repair the digestive tract and to address functional or structural damage. Work with your Naturopathic Doctor to identify what additional steps need to be taken.

4. What are “goitrogenic” foods and should I avoid them?

Some types of foods are reputed to be goitrogenic, meaning they can suppress your thyroid hormones, induce hypothyroidism, and stimulate the growth of a goiter. Common foods with this reputation are members of the brassica family and soy foods. Members of the Brassica family include cauliflower, brussels sprouts, cabbage, broccoli, mustard greens, turnips, rapeseed (canola oil) and kale. More than four cups per week of these foods eaten raw could potentially interfere with your thyroid gland function (you can eat as much of these foods cooked as you want without any problem). The brassica family decreases the thyroid’s ability to utilize iodine, thus causing the gland to produce less thyroid hormone.

It is important to note that brassica family vegetables are not “bad” in any way. They are actually some of the most beneficial vegetables we can eat. They have huge anti-cancer and cardioprotective phytochemicals such as isothiocyanates, dithiolthiones and indole-3-carbinol. But if you are struggling with a low functioning thyroid, it is best to decrease your consumption of these foods in their raw form and just enjoy them cooked.

The isoflavones in soy products, such as genistein, can reduce thyroid hormone by blocking the activity of thyroid peroxidase (TPO), an enzyme necessary for the production of T4 and T3. It may also be involved in a soy allergy that can cross react with the thyroid, setting the stage for an autoimmune reaction. Autoimmune thyroid disease has been linked to use of infant soy formulas. If your thyroid is healthy and your hormone panel is fine, you can consume soy products in moderation without any likely problems. If you are suffering from subclinical hypothyroidism or are on medications for hypothyroidism however, it would be best to eliminate soy products from your diet or just stick to modest amounts of fermented soy products such as tempeh, miso or natto as these will not aggravate your thyroid.



Thyroid Panel

Solution

More Q&A's...

EXERCISE

5. How do I exercise to best stimulate my thyroid?

The best way to boost your metabolism and stimulate your thyroid is to do the 20-minute interval training workout mentioned in the cardiovascular powerhouse section of this book. (For details on this exercise, go to the chapter on cardiovascular health solutions and see the exercise component). Do this workout at least 3x/week for best results. Incorporating a weight training regime is also very beneficial as lean muscle mass will increase your metabolism, help to balance insulin levels and decrease strain on your thyroid. There are many different programs out there that incorporate both of these types of exercises. The “body for life” program by Bill Phillips is an excellent option for people of all fitness levels to begin improving their health.

DETOXIFICATION

6. Do toxins, environmental pollution and medications affect my thyroid?

Many different pollutants and toxins from your environment can act as thyroid disruptors. Petrochemicals and industrial toxins as well as fluoride, chlorine or bromide have been proven to decrease the production and conversion of thyroid hormone, leading to symptoms of hypothyroidism. Dioxins and PCBs have also been shown to interfere with the action of thyroid hormone. Therefore, even if you have the right amount of active T3, toxins may prevent the T3 from doing anything. This may produce symptoms of hypothyroidism as well, even if you have perfect thyroid hormone levels. Heavy metals such as mercury and cadmium are direct antagonists to essential thyroid minerals such as selenium and zinc. Without proper amounts of zinc and selenium, you will down regulate the deiodinase enzyme necessary to convert T4 to T3. Other toxins that will make hypothyroidism worse include:

- Cigarette smoke
- Chlorine and fluoride from tap water may interfere with iodine
- Psychiatric and anti-psychotic medications such as amitriptyline and phenothiazine
- Estrogen drugs such as BCP, HRT, and tamoxifen increase binding of thyroid to carrier proteins rendering it inactive
- Steroid drugs (prednisone and other corticosteroids) that are similar to our body's stress hormones will down regulate thyroid
- Anticonvulsant medications such as phenytoin and carbamazepine and the manic depression drug lithium.

If you are on any medications, it is important to check them out yourself as well as consult your doctor to learn whether they could be affecting your thyroid.

More Q&A's...

How do I detoxify my body?

It is always a good idea to check your levels of heavy metals through a toxic metal/urinary challenge test. This is a relatively inexpensive test (approximately \$100-\$150) and is the most accurate way to assess the level of heavy metals in your body. From here it is best to work with your Naturopathic Doctor in order to begin a specific program aimed at assisting you in removing the metals that are elevated.

Every one of us has some degree of pollutants and toxins in our body. How “clean” you have been living will often give you a pretty good estimate as to your level of “toxic burden”. For example, if you have been eating clean whole foods and drinking filtered water, breathing clean air, getting plenty of exercise, are within your healthy weight, don’t have a mouth full of metal fillings or consume a lot of high mercury fish such as tuna, you are probably doing pretty well. If on the other hand you haven’t been quite so diligent, then you will likely have a much larger “toxic burden.”

Detoxification programs are also an excellent way to rid the body of excess estrogens. Synthetic plastics and other chemicals are powerful fake estrogens, which are much stronger than the real estrogen your body makes. An increase in these estrogens will decrease the function of your thyroid hormones. **The liver is also responsible for most of the conversion of T4 to T3...if it’s sluggish you will not make as much active T3 hormone.**

Either way everyone can benefit from doing some internal house cleaning. In my opinion, the best way to begin detoxifying your body is to follow the elimination diet as mentioned above. This is a great start as it focuses on clean whole foods and gives your body many nutrient dense foods. You can also add:

- Fresh squeezed lemon and lime to your water
- Drink 8 glasses of water each day
- Take 2 tablespoons of lecithin per day (great antioxidant for your liver)
- And follow all the guidelines outlined in the elimination diet

You can add many different supplements and “cure alls” to any program, but what I have learned is there is never any substitute for the basics. In order to detoxify, it is very important to get clean essential nutrition from whole foods and get ample water. It is essential to remove all of the foods and substances that are making you toxic (alcohol, sugar, cigarettes, refined and fast foods, etc.) And lastly it is **important to maintain a moderate weight as most of your toxins are fat soluble** and will remain in your fat tissue. As you lose weight, you will mobilize toxins. By following the elimination diet, you will be cleaning out your liver and kidneys, allowing them to support your detoxification process. See your Naturopathic Doctor should you require more specific detoxification of heavy metals.

The best times to detoxify are generally in spring and summer. It is optimal to detoxify 2 – 3 times per year for 2 -4 weeks at a time. The key is to not return to a toxic lifestyle but continue to incorporate clean foods and water and eliminate “toxic” elements from your life.

Thyroid Panel

Solution



Thyroid Panel

Solution

Even More Q&A's...

HORMONES

7. What hormones interact with my thyroid?

Thyroid seems to get the short end of the stick when it comes to hormonal interactions. Many different hormones will interfere with the proper functioning of your thyroid. For example, the big ones I usually see are stress hormones, insulin (blood/sugar regulation), and sex hormones (estrogen, progesterone and testosterone). When stress hormones are elevated, they can decrease thyroid hormones and the conversion of T4 to T3. When estrogen is elevated, it can increase the binding of thyroid hormone to thyroid binding protein, thus decreasing the amount of “free” useable hormone. The three main reasons for higher levels of estrogens in people are due to:

- Poor liver function (decreasing your ability to detoxify estrogen from your body) as well as decreasing T4 to T3 conversion.
- Weight gain (an enzyme called aromatase converts testosterone to estrogen: the fatter we get, the more estrogen we create and the less testosterone we have.
- Xeno-estrogens (synthetic chemicals like plastics that act as potent estrogens) and medications such as the birth control pill (BCP) and hormone replacement therapy (HRT).

When blood sugar rises excessively, usually from eating refined, fast, or sugary foods, your insulin surges in order to lower the blood sugar. But in order to not have your blood sugar decrease too much, your body also increases cortisol. This rise in cortisol then interferes with thyroid function. **In my opinion, the two biggest systems to get on track first in order to treat a thyroid dysfunction are your blood sugar regulation and your cortisol levels.** If you first balance these out, you are already going to have a profound effect on your sex hormones. By balancing blood sugar, you will likely improve your liver function and lose weight. Balancing out cortisol will also aid in weight management and decrease other aggravating factors that cortisol can have on estrogen and testosterone.



Thyroid Panel

Solution

Even More Q&A's...

HORMONES continued...

How do I balance my blood sugar and my cortisol levels?

Go back to the cardiovascular section on strategies for normalizing blood sugar and stress. By balancing out your blood sugar and your cortisol levels, you will be amazed by the difference in your body. These two systems can mess up almost every other system in your body, so before working on other areas, start here and see what clears up. You may not need to treat anything else.

SUPPLEMENTS

8. What are the most beneficial supplements for my thyroid?

- **Zinc:** 10-25 mg. You need to balance zinc with 1 mg of copper for the optimal zinc-copper ratio. Therefore a good product would contain 1-2 mg of copper in addition to the zinc. But first get your plasma zinc and serum copper blood tests run first. Zinc and copper need to be balanced at a 1:1 ratio optimally and most people I find have too much copper. If you have more copper than zinc then you don't likely need to supplement with copper...just the zinc.
- **Selenium** 200 mcg/day in the form of Selenomethionine. (Do not consume more than 400 mcg/day unless otherwise recommended by your Naturopathic Doctor or Physician).
- **Vitamin D:** go to vitamin D section of this book.
- **L-tyrosine:** 500 mg 2-3x/day. The thyroid gland combines tyrosine and iodine to make thyroid hormone. If you are taking prescription thyroid hormone medication, you should never take L-tyrosine without direction from your doctor. Do not take L-tyrosine if you have high blood pressure or symptoms of mania.
- **Iodine:** Approximately 100 - 200 mcg/day from sea vegetables or iodine supplements if your current intake is insufficient. (Do not take if diagnosed with Hashimoto's Disease unless otherwise recommended by your Naturopathic Doctor or Physician).
- It is also suggested that in addition to the diet recommendations, take a good quality **liver support** supplement to aid detoxification pathways and a **betaine HCL or apple cider vinegar** to make sure digestion is optimized.

Solutions

Essential Q&A's about...

RBC MAGNESIUM

AGE	Approximate RDI
ADULT	400mg/day
9-13 year old	240mg/day
4-8 years old	130mg/day
1-3 years old	80mg/day

1. How much Magnesium do I actually need each day?

The current adult recommended daily intake (RDI) for magnesium is 400mg/day. For children the values vary according to age as seen in the table above. This being said, the average North American diet consists of only about 175-225mg/day of dietary magnesium. The World Health Organization (WHO) suggests that $\frac{3}{4}$ of the population is magnesium deficient. Many medical researchers find the RDA figures inadequate to prevent deficiencies of magnesium and chronic disease.

According to the *Real Vitamin and Mineral Book*, **the optimal daily intake (ODI) of magnesium for adults should be 500-750mg/day.** This value is more closely related to the RDI of North Americans prior to the industrial age when farming and agriculture practices changed considerably. I suggest following the ODI of 500-750mg/day, sometimes even higher doses are recommended. This should be further discussed with your Naturopathic Doctor to optimize your levels.

Solution

Bonus - RBC Magnesium



Solutions

Essential Q&A's...RBC MAGNESIUM

Bonus - RBC Magnesium

Solution

2. How do I get magnesium in my diet?

Although there are many foods that are high in magnesium it is often suggested that supplementing with magnesium may still be indicated. Take into consideration that about 50% of magnesium from food and water is absorbed (less if you have digestive concerns). If I find patients that are low in magnesium I often begin with oral supplementation to get them on the right track while introducing more magnesium rich foods to their diet. If they are able to maintain their levels through diet then that is optimal. If they are unable to maintain optimal levels then continued supplementation is required, or some combination of the two.

Magnesium Rich foods Chart

FOOD SOURCE	Mg of Magnesium	SERVING SIZE
Avocado	58mg	1 avocado
Brazil nuts	250mg	½ cup
Dark Chocolate	95mg	1 square (29g)
Flax seeds	39mg	1 Tbls
Kale	29mg	½ cup
Mackerel	82mg	3 oz
Molasses	48mg	1 Tbls
Pumpkin/squash seeds	606mg	½ cup
Rice Bran	922mg	1 cup
Soy beans	86mg	1 cup cooked
Spinach	157mg	1 cup cooked
Wheat germ	360mg	1 cup

Solutions

Essential Q&A's...RBC MAGNESIUM

Bonus - RBC Magnesium

Solution

3. What is the best form of magnesium to supplement with?

There are any number of different forms of magnesium on the market. The key factor is that not all forms of magnesium are created equally. For example, only about 5% of magnesium oxide is absorbed, it is for this reason it is useful for constipation. I typically use a more absorbable form of magnesium such as magnesium glycinate, taurate, or orotate if someone is deficient but does not require the laxative effect of magnesium. These forms are generally much more gentle on the digestive tract. I use a citrate or citramate form for other patients that require more of a laxative effect, my favorite being magnesium citramate for this purpose. It seems to be effective in restoring their magnesium stores, but also acts as a gentle laxative for those patients suffering from constipation. A newer form of magnesium and probably the most therapeutic is called picometer magnesium. It is a 100% absorbed, non-laxative forming liquid magnesium supplement. This will likely not help initially with constipation.

4. Are there any side effects to taking magnesium?

Magnesium has an extremely low number of side effects and an exceptionally good safety profile. Virtually, the only people ever reporting magnesium overdose are those with kidney problems or those who have received inappropriate dosing by the intravenous route in hospitals. Other than this, the most common side effect of taking too much magnesium is loose stool or diarrhea that disappears once you decrease your magnesium dose. It is also possible for constipated individuals to experience a little bit of increased gas or bloating for the first few days after starting their magnesium supplementation, but for the most part their bowel movements improve and they soon feel less bloating and gas.

5. Don't I need to take calcium with my magnesium?

Calcium and magnesium have been paired together for as long as I can remember. Essentially their relationship is more antagonistic than it is reciprocal. Too much of either one will potentially jeopardize the function of the other. Magnesium is necessary for helping calcium dissolve and become water-soluble so it can be properly absorbed. For example, if you have too much calcium and not enough magnesium to dissolve it you will accumulate calcium in your soft tissue increasing risk of calcification in your arteries, muscle spasms, kidney/bladder stones, migraines and a host of other undesirable symptoms.

Originally, our diet consisted of a 1:1 or a 1.5:1.0 ratio of calcium to magnesium. Today, due to excess calcium supplementation and dairy consumption our ratio is more like 5:1 or as high as 15:1. This gross imbalance plays a considerable roll in the magnesium deficient population we see today.

Solutions

Essential Q&A's...RBC MAGNESIUM

6. When can I expect to start feeling better?

I often find that symptoms such as constipation and muscle spasms clear up very quickly, sometimes within a day or two of beginning to supplement with magnesium. Other concerns can take longer depending on your level of deficiency and your overall state of health. In general it can take between 4-6 months to adequately restore your RBC magnesium levels, so supplementation must be daily and regular in order to reap the full benefits. If you find that you actually start feeling worse once you begin supplementing, chances are you are taking too much for your body at this time. Decrease your dose by $\frac{1}{2}$ and see how you feel at that amount. Give your body a few weeks of gradually building up magnesium levels and then begin to slowly increase your dose. Remember that even though these doses have generally been found to be safe and effective, you still have to listen to your own body to find out what ultimately feels best for you.



Bonus - RBC Magnesium

Solution

Personal Notes

My notes for Natural
Healing...



Personal Notes

More notes for Natural
Healing...



Personal Notes

More notes for Natural
Healing...



Personal Notes

More notes for Natural
Healing...



Personal Notes

More notes for Natural
Healing...



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With Gratitude
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Dr. Jason Loken graduated from the Canadian College of Naturopathic Medicine (CCNM), as a Naturopathic Doctor in May of 2002. He holds his license as an Osteopathic Manual Practitioner from the Canadian College of Osteopathy with a Diploma in Osteopathic Manual Practice (2012). Dr. Loken has also been a Registered Massage Therapist since 1995 and is currently completing his Ph.D in Integrative Medicine. He is a member in good standing with the Canadian Association of Naturopathic Doctors, the Ontario Association of Naturopathic Doctors, and the Ontario Association of Osteopathic Manual Practitioners.



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In his expanding efforts to bring care and ease into peoples lives and ultimately this world Dr. Loken co-created "personal shifts" and "Global Shifts". He is the author of two books including the inspirational book, "Letters that Move the World; intentional acts of gratitude". The vision of this book is to create a focused moment for positive change in our world. His most recent book, the "From Understanding to Knowing" assists individuals back into the drivers seat of their own health and offers practical solutions to a myriad of health problems. You don't have to settle for "normal" when optimal is an option. To learn more about Dr. Loken and these essential publications please join us at:

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