LifeExtension®

Get Ready for Summer

9 Pillars of Successful Weight Loss

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Why Can't I Lose Weight?

When it comes to *weight loss,* mainstream medicine has recommended "diet and exercise" for so long that this phrase has become more of a cliché than any kind of momentous scientific communication.

The fact is that aging people need to do a lot more than reduce calorie intake and increase physical activity if they are going to lose and keep off excess body fat. Just think about all of the diet programs available today. Why are there so many?

Well, for starters, one size doesn't fit all. Some dieters do well with a low carbohydrate approach, while others succeed by reducing fat intake. Some dieters can simply just add fiber and lose a little weight, but others can't lose a single pound no matter the approach they try.

And here's another reason for so many available diet plans … diets fail! If dieting by itself worked, we wouldn't need so many different diets and could stick with only one diet approach — *The Eat Less Diet!* Coupled with exercise, we really shouldn't need anything else.

But what we find is that dieting and exercise rarely lead to substantial and sustained weight loss. Why? Because until you address the underlying mechanisms causing you to gain weight in the first place, you won't be as successful on any diet plan as you could be.

Nine Mechanisms of Weight Gain

If we want to be successful at losing weight and keeping it off, then we need to ask this question: *Why do we gain weight in the first place?*

On one level, the answer is simple. If you eat more calories than you burn, you'll gain weight. Following a meal, extra calories that were not burned as energy will be stored, mostly as fat, for future energy requirements.

However, if too many calories were the only reason we gained weight, then simply reversing it — burning more calories for energy than the amount we consume — should result in weight loss. Now for some, it does. But for many others, manipulating calories rarely results in sustained weight loss.

There are underlying physiological, and in some cases pathological, mechanisms driving weight gain. So far, research has identified nine weight gaining mechanisms. If we are going to achieve any significant degree of sustained weight loss, these nine mechanisms must be corrected.

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The 9 mechanisms of weight gain are

1. **Insulin Resistance**
2. **Hormone Imbalance**
3. **Excessive Carbohydrate and Starch Absorption**
4. **Muscle Loss from Low Physical Activity**
5. **Low Brain Serotonin**
6. **Slow Resting Metabolism**
7. **Abnormal Fat Cell Signaling**
8. **Low AMPK Activity**
9. **Diet Imbalances**

These nine mechanisms act as strong *pillars*, holding up an overweight frame, burdened with too much body fat.

Losing Weight and Keeping it Off

It's important to succinctly address the nine mechanisms or pillars of weight gain, in order to lose pounds and keep them off.

A successful approach will include a diet plan, an exercise regimen, and specific nutrients for correcting the pillars of weight.

These pillars are your best hope for successful weight loss — think of them as the *Nine Pillars of Successful Weight Loss*!

Those seeking to lose weight should consider making many of these *Nine Pillars of Successful Weight Loss* a regular part of their health-maintenance program.

By completing the nine quizzes provided in this booklet, you'll be able to:

- **Identify which pillars are likely driving your weight gain.**
- **Initiate lifestyle suggestions for correcting the pillars affecting your weight.**
- **Begin supplementing with specific nutrients shown in research to target your pillars.**

With each quiz question, you'll just answer: "Yes, I have that sign or symptom or lifestyle," or "No, I don't have it." The more questions you answer with "yes," the more likely that particular pillar is causing you to gain weight.

Remember, by addressing the pillars or mechanisms driving your weight gain, you'll be in the best possible position to succeed in your weight loss efforts!

But before you get started with the quizzes, let's discuss the importance of a core group of foundational supplements essential for a vibrant, healthy life.

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Are You Taking the Foundational Supplements?

No matter who you are or what you're going through, you need the same foundational supplements as everybody else. Think of them as the essential nutrients for living well as a human.

They include four building blocks:

1. **An ideally dosed multivitamin**
2. **Omega-3 fatty acids**
3. **Coenzyme Q10 (as ubiquinol)**
4. **Probiotics**

Let's briefly take a look at each one. For a more detailed review of the foundational products, read *The Supplement Pyramid: How to Build Your Personalized Nutritional Regimen*,[1] by Michael A. Smith, M.D., co-author of this booklet.

An Ideally Dosed Multivitamin

The very first and most important supplement of your foundation is an ideally dosed daily multivitamin. Never think of the basic vitamins and minerals as outdated. From vitamin A to the mineral zinc, your body is totally dependent on these nutrients for optimal weight and health.

Now, not all multivitamins are the same. There are your basic, bare-bones multivitamins that provide minimal doses of some essential nutrients. And then there are your robust multivitamins that deliver ideal doses of a full spectrum of essential nutrients.

What is the main difference between these multiples? Dosage. The first type is based on the government's "recommended dietary allowance," or RDA, and the second reflects what is called the "ideal daily intake," or IDI.

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Dosing vitamins and minerals at this "ideal" level goes way beyond protection against deficiencies. It enters the world of optimizing energy levels, hormonal balance, cardiovascular wellness, bone strength, digestive ease, visual acuity, cognitive agility, emotional stability, joint integrity, and maintaining a healthy weight.

The chart, taken from page 65 of *The Supplement Pyramid: How to Build Your Personalized Nutritional Regimen*,[1] compares the archaic RDA and RDI to the optimized IDI — *Ideal Daily Intake*:

VITAMINS, MINERALS, AND ANTIOXIDANTS	AVERAGES OF RDA AND RDI	IDI
Vitamin A (90% beta-carotene)	900-5,000 IU	5,000 IU
Vitamin B1 (Thiamine)	1.5 mg	125 mg
Vitamin B2 (Riboflavin)	1.5 mg	50 mg
Vitamin B3 (Niacin)	20 mg	190 mg
Vitamin B5 (Pantothenic)	10 mg	600 mg
Vitamin B6 (Pyridoxine)	2 mg	100 mg
Vitamin B12 (Cyanocobalamin)	6 mcg	600 mcg
Vitamin C	100 mg	2,000 mg
Vitamin D	400 IU	2,000 IU
Vitamin E	30 IU	100 IU
Biotin	30-300 mcg	3 mg
Boron	None	3 mg
Calcium	1,000 mg	1,000 mg
Choline	100-500 mg	500 mg
Chromium	25 mcg	500 mcg
Copper	900 mcg	1 mg
Folate	400 mcg	400 mcg
Inositol	None	250 mg
Iodine	200 mcg	1 mg
Lipoic acid	None	100 mg
Lutein	None	15 mg
Lycopene	None	3 mg
Magnesium	400 mg	400 mg
Manganese	1 mg	2 mg
Molybdenum	25 mcg	125 mcg
PABA	30 mg	200 mg
Potassium	35-80 mg	35-80 mg
Selenium	25 mcg	200 mcg
Zinc	15 mg	35 mg

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As you can see, the *Ideal Daily Intake*, in most cases, is significantly higher than the government's RDI and RDA. That's because the IDI, based on current research, is all about optimizing health, while the government's dosing recommendations are about preventing diseases of vitamin and mineral deficiencies.

Omega-3 Fatty Acids

The second supplement of your foundation is a high-quality omega-3 fatty acid product. Chances are, you've heard of omega-3 fatty acids because they've had their fair share of media exposure lately.

But if you're like most people, you're not exactly sure what they are or what they do.

In the simplest terms, omega-3 fatty acids are healthy fats. They're sometimes called "essential fatty acids" because, quite simply, they are essential to health — you can't live without them. Yet your body can't make them. So you either have to get them through your diet or through supplementation.

Omega-3 fatty acids are so critical to human health that there's a good chance that within the next decade or two the U.S. government will assign them an RDI, giving them equal status with vitamins and minerals.

An abundance of scientific research substantiates the wide-ranging health benefits of omega-3 fats. Some of these benefits include:

- **Supporting mental health**
- **Promoting cognitive agility**
- **Supporting a healthy cardiovascular system**
- **Easing chronic, systemic inflammation**

The last one on the list, lowering inflammation, is more important than you might realize. Lowering levels of chronic, low-grade inflammation in your body is probably the single most important thing you can do to promote optimal health.

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Ubiquinol CoQ10

The third supplement of your foundation is coenzyme Q10 (CoQ10), in the ubiquinol (not ubiquinone) form. This one supplement can make such a big difference in your health and well-being. Every single American adult could benefit from taking it.

What the heck is a coenzyme? Well, "co" means "with" or "together." And enzymes catalyze all the chemical reactions in your body that sustain life. So coenzymes work together with enzymes to keep you alive. Sounds important, huh?

Coenzyme Q10 specifically works with enzymes inside the mitochondria of your cells to produce energy in the form of ATP — energy your cells need to function. If your CoQ10 levels are low, you won't just feel tired and drained. Every cell, tissue, and organ in your body will suffer because they're all powered by ATP.

CoQ10 is best-known for promoting cardiovascular health. And that makes sense when you think about it because your heart demands more energy than almost any other organ in your body.

But CoQ10 has other benefits too. Scores of human clinical trials have shown that CoQ10:

- **Supports multiple components of the cardiovascular system**
- **Supports healthy nerve and brain cells**
- **Helps maintain healthy blood sugar**
- **Increases feelings of vigor in healthy folks**
- **Supports healthy body fat**

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Probiotics

The fourth and final supplement of your foundation is a probiotic product. Thanks to the success of newer yogurt brands, you've probably heard of probiotics.

They're the good-for-you bacteria that inhabit your gastrointestinal (GI) tract — and occur in fermented foods such as yogurt and raw sauerkraut — where they play a key role in maintaining gut health.

And let's be frank: You are only as healthy as your gut.

Think about it: Your survival is dependent on your gut's ability to extract protein, carbohydrates, fats, vitamins, and minerals from your food. When your gut health is compromised, it doesn't matter how healthy a diet you eat — you won't be able to access all the nutrition it provides.

Not only that, a good portion of your immune system — about 70 percent — is actually located within your GI tract. And the makeup of bacteria in your gut influences how well your immune system works.

Importantly, good bacteria (also known as "friendly flora") aren't the only ones who take up residence in your GI tract. Bad bacteria live there too. Now, as long as you have a healthy balance of good to bad — most experts agree 80 percent to 20 percent is ideal — it's okay and even normal to host some of the bad guys. But if too many bad bacteria are living in your gut, your digestive and immune function can get really out of whack.

In fact, a lot of the rampant problems of the digestive system we're seeing today — from simple indigestion to inflammatory bowel disease — could be due to a lack of beneficial bacteria.

So why are so many of us lacking in these friendly flora? For starters, antibiotics. Of course, antibiotics are lifesaving drugs and many times they're necessary to combat bacterial infections. But they don't just kill harmful bacteria — they wipe out *all* bacteria, including the good guys that keep you healthy. If you've ever taken antibiotics, you've disrupted your bacterial balance.

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Other factors that can lower your levels of beneficial bacteria — and make room for the bad guys to multiply — include alcohol consumption, smoking, stress, and eating a typical, enzyme-deficient American diet. Fortunately, you can control those factors by making better lifestyle choices and by supplementing with high quality probiotic — one that provides billions of beneficial bacteria.

So there you have it … four foundational supplements — an ideally dosed multivitamin, omega-3 fatty acids, ubiquinol CoQ10, and probiotics — all of which provide you the nutrients necessary for a vibrant, healthy life!

Now let's figure out which pillars are causing you to gain weight by taking the quizzes!

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PILLAR 1

Insulin Resistance

Normal aging causes the insulin receptors on cell membranes to lose their youthful sensitivity or functionality.

The result is a pathological condition called "insulin resistance" that impairs the ability of cells to efficiently take up glucose and utilize it for energy production.

Glucose not taken up by energy-producing cells prompts the release of excess insulin. This chronic surge of insulin is called Hyperinsulinemia. High circulating insulin is associated with a higher blood sugar level, greater conversion of sugar into fat, and a significantly increased risk of heart disease.[2]

Take the quiz and see if insulin resistance is one of your weight gaining mechanisms.

Questions to Determine Your Level of Insulin Resistance	YES	NO
Is your waist size 40 inches or more (men) and 35 inches or more (women)?		
Do you have a history of high blood sugar (>110) or have you been diagnosed with pre-diabetes?		
Is your blood pressure 130/80 or higher, or are you taking blood pressure medication?		
Do you have family members who have DM-2 (type 2 diabetes) or Latino, African American, Native American or Asian American ancestry?		
Are you overweight with a body mass index (BMI) of more than 25 (kg/m2)? [Calculate your BMI by taking your weight (in kilograms) and dividing twice by your height (in meters).]		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — Normal insulin sensitivity	Keep up the good work!
1–2 Yes — On the verge of insulin resistance	Lifestyle suggestions
3 Yes — Mild insulin resistance	Chromium*
4 Yes — Moderate insulin resistance	Chromium + Magnesium*
5 Yes — High insulin resistance	Chromium + Magnesium + Green Tea Extract

**The appendix provides descriptions and average doses of each nutrient.*

If you have type 2 diabetes, then by definition you have insulin resistance. In your case, it's important to continue taking your diabetes medication. Speak with your doctor before starting any suggested supplements.

Lifestyle Suggestions

- Eat something every 4 hours to keep your insulin and glucose levels normal.
- Finish eating at least 2 to 3 hours before bed.
- Eat protein for breakfast, such as whole omega-3 eggs, a protein shake or nut butters.
- Eat small protein snacks in the morning and afternoon, such as a handful of almonds.
- Limit simple sugars and stick with complex carbohydrates.

Elevated fasting glucose (blood sugar) and insulin blood levels are potential indicators of insulin resistance. Call **1-800-544-4440** and provide the discount code **SPM501W** to receive a special offer on Life Extension's fasting glucose and insulin test.

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PILLAR 2

Hormone Imbalance

Most overweight people have suffered the agony of calorie restriction when trying to stick to a particular diet but have failed to achieve any kind of sustained weight loss.

While eating less addresses some of the underlying causes of weight gain, the high failure rate of dieting is partially attributable to the severe alteration in hormone levels that occurs as part of normal aging.

A substantial percentage of aging women have less-than-optimal thyroid levels, thus predisposing them to weight gain. For instance, the thyroid hormone is needed to maintain a healthy metabolic rate and subsequently a healthy body weight.

Additionally, as women age there's often an imbalance between estrogen and progesterone. Although levels of both hormones decrease with age, progesterone tends to drop at a much greater rate due to anovulatory cycles (menstrual cycles when no egg is produced). This results in *estrogen dominance,* which can make it *harder to lose weight.*

Take the quiz and see if hormonal imbalance is one of your weight gaining mechanisms.

Questions to Determine Your Level of Hormone Imbalance	YES	NO
Is your skin dry and itchy and/or do you have vaginal dryness?		
Do you have night sweats?		
Do you experience mood swings?		
Is it hard to remember names and where you place things?		
Do you have irregular and/or painful and/or heavy menstrual cycles OR have you not had a cycle in more than one year?		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — No sign of hormone imbalance	Keep up the good work!
1–2 Yes — On the verge of imbalance	Lifestyle suggestions
3 Yes — Mild imbalance	Lignan extract *
4 Yes — Moderate imbalance	Lignan extract + Hops*
5 Yes — High imbalance	Lignan extract + Hops + Licorice*

**The appendix provides descriptions and average doses of each nutrient.*

Blood tests for the following hormones should be completed: total and free testosterone, DHEA, estradiol, pregnenolone, progesterone, and a thyroid panel.

Lifestyle Suggestions

- Eat more cruciferous vegetables like broccoli, kale, and cauliflower, aiming for 1 to 2 servings a day.
- Cook with antioxidant-rich herbs such as oregano, thyme, rosemary, sage, and turmeric.
- Flavone-rich herbs like passionflower and chamomile are also great choices for cooking.

Call **1-800-544-4440** and provide the discount code **SPM501W** to receive a special offer on Life Extension's hormone tests.

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A large percentage of men today suffer from abdominal obesity — the most dangerous kind of body fat. It is often difficult, if not impossible, for aging men to lose inches off their waistline if they are deficient in *free testosterone,* especially in the presence of *excess estrogen.*[3-5]

The loss of testosterone and gain in estrogen lowers the testosterone-to-estrogen ratio. The lower the ratio, the harder it could be to lose weight.

Take the quiz and see if hormonal imbalance is one of your weight gaining mechanisms.

Questions to Determine Your Level of Hormone Imbalance	YES	NO
Do you fatigue easily and/or have trouble sleeping?		
Do you lack motivation or feel depressed?		
Have you lost muscle mass but gained belly fat?		
Do you have low sex drive or suffer from ED?		
Is it hard to remember names and where you place things?		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — No sign of hormone imbalance	Keep up the good work!
1–2 Yes — On the verge of imbalance	Lifestyle suggestions
3 Yes — Mild imbalance	Chrysin or Nettle root*
4 Yes — Moderate imbalance	Chrysin or Nettle root + Lignan extract *
5 Yes — High imbalance	Chrysin or Nettle root + Lignan extract + Muira puama or Maca root*

**The appendix provides descriptions and average doses of each nutrient.*

Blood tests for the following hormones should be completed: total and free testosterone, DHEA, estradiol, pregnenolone, progesterone, PSA, and a thyroid panel.

Lifestyle Suggestions

- Eat more cruciferous vegetables like broccoli, kale, and cauliflower, aiming for 1 to 2 servings a day.
- Cook with antioxidant-rich herbs such as oregano, thyme, rosemary, sage, and turmeric.
- Flavone-rich herbs like passion-flower and chamomile are also great choices for cooking.

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PILLAR 3

Excessive Carbohydrate and Starch Absorption

We already know that too much blood glucose (and the subsequent insulin spike) predisposes people to gaining unwanted fat pounds.

Simple and processed sugars are ubiquitous in our food supply and are causing excessive sugar absorption from the digestive tract into our circulation. This also impacts the first pillar: Insulin Resistance.

Slowing down or minimizing sugar absorption can help to improve sugar metabolism and restore normal insulin sensitivity. The best method for correcting Pillar 3 is to increase your fiber intake.

But some people with chronic weight control problems will need more than fiber to impede carbohydrate *absorption. In those cases,* certain nutrients that interfere with complex and simple carbohydrate breakdown and absorption can be an important part of a weight loss program.

Take the quiz and see if excessive carbohydrate and starch absorption is one of your weight gaining mechanisms.

Questions to Determine Your Carb & Starch Absorption	YES	NO
Do you eat 2 or more servings of white bread and/or white pasta a day?		
Do you consume at least 1 sugary drink every day?		
Do you eat more carbs in a day than protein?		
Do you often feel shaky or have low energy after a meal?		
Do you have a high level of fat in your blood (triglycerides>100)?		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — No signs of an absorption issue	Keep up the good work!
1–2 Yes — On the verge of an absorption issue	Lifestyle suggestions
3 Yes — Mild absorption issue	Arabinose*
4 Yes — Moderate absorption issue	Arabinose + White kidney bean extract*
5 Yes — High absorption issue	Arabinose + White kidney bean extract + Propolmannan*

**The appendix provides descriptions and average doses of each nutrient.*

Lifestyle Suggestions

- Eat more fiber. Plant fiber fills you up quickly, and studies indicate that this results in less snacking and binging later in the day.[6]
- Completely eliminate sugary drinks. Eat less white bread and white pasta, and increase your intake of whole-grain bread and pasta.
- Combine adequate protein, fats, and whole-food carbohydrates from vegetables, legumes, nuts, seeds, and fruit at every meal or snack.
- Exercise! This will raise your resting metabolic rate and will force your body to burn more of the sugar and starchy calories for energy — even while resting.

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PILLAR 4

Muscle Loss from Low Physical Activity

Most people think the only weight loss benefit of exercise is to use up more stored body fat calories. Actually, exercise induces many beneficial changes at the cellular level that contribute to better weight control.

Take, for instance, your total lean muscle mass. Not staying active usually takes a toll on your muscle tissue. This results in a lower rate of metabolism and eventually weight gain. Exercise is the best way to restore a youthful amount of muscle.

Additionally, your resting metabolic rate can increase with exercise. This is the number of calories you burn at rest, keeping the major organ systems fueled with energy. If exercise can raise your resting metabolism, this could mean burning more calories at rest!

Take the quiz and see if muscle loss from low physical activity is one of your weight gaining mechanisms.

Questions to Determine Your Level of Physical Activity	YES	NO
Is it a rare moment for you to walk, jog or swim?		
Has it been several months or years since you last lifted weights?		
Are you losing muscle mass in your arms, chest, and mid-section?		
Is it difficult for you to stretch and touch your toes?		
Are you gaining fat around your midline, chin area or under your arms?		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — Active lifestyle	Keep up the good work!
1–2 Yes — Somewhat active	Lifestyle suggestions
3 Yes — Active on occasion	Whey or pea protein supplement*
4 Yes — Rarely active	Whey or pea protein supplement + Branched chained amino acids*
5 Yes — Not active	Whey or pea protein supplement + Branched chained amino acids* + DHEA*

**The appendix provides descriptions and average doses of each nutrient.*

***Don't start taking hormones like DHEA without having blood work completed and your doctor's approval.*

Lifestyle Suggestions

- Your goal should be to exercise at least 3 times per week, aerobically and with weights.
- Use resistance bands at work or around the house to tone major muscle groups.
- Walk 10,000 steps every day.

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PILLAR 5

Low Brain Serotonin

When the brain is provided with an adequate amount of serotonin, normal satiety (fullness) occurs following a meal. However, if brain serotonin is low, it diminishes a feeling of fullness and is associated with *carbohydrate binging*.

The loss of normal satiety coupled with carb binging can obviously lead to overeating and contribute to the accumulation of body fat.

Interestingly, studies have shown that obese individuals have low blood tryptophan levels, the precursor to brain serotonin. This potentially links overeating with a serotonin deficiency in the brain.[7,8]

Take the quiz and see if low brain serotonin is one of your weight gaining mechanisms.

Questions to Determine Your Level of Brain Serotonin	YES	NO
Do you crave sweets when under stress and/or in the afternoon?		
Do you suffer from depression or feel "blue" and down more days than not?		
Is your sleep restless, with waking up many times throughout the night or not feeling rested after waking up?		
Would you describe your energy level as low?		
Do you eat to feel better?		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — Normal brain serotonin	Keep up the good work!
1–2 Yes — On the verge of low serotonin	Lifestyle suggestions
3 Yes — Mild serotonin deficiency	Tryptophan or 5-HTP*
4 Yes — Moderate serotonin deficiency	Tryptophan or 5-HTP + Saffron extract*
5 Yes — High serotonin deficiency	Tryptophan or 5-HTP + Saffron extract + Hops and/or Pine nut oil*

**The appendix provides descriptions and average doses of each nutrient.*

If you are taking antidepressants, please speak with your doctor before starting supplements that can raise brain serotonin levels.

Lifestyle Suggestions

- Replace sugary snacks with high-protein alternatives. Nuts, seeds, and cheeses are healthy choices.
- If you feel hungry, try drinking water. The water fills your stomach and often can diminish hunger. Chewing gum and brushing your teeth can also help to manage sugar cravings.
- When you feel stressed and want something sweet, take a walk instead. Simply by moving, you can "de-stress" and eliminate the desire for sugar.

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PILLAR 6

Slow Resting Metabolism

It is often challenging for aging humans to lose significant body fat stores, even when following a low-calorie diet, restoring youthful hormone balance, ingesting fiber, and aggressively exercising.

A missing link for successful long-term weight loss is failing to boost *resting energy expenditure,* i.e., **to burn off stored body fat while at rest.**

Resting metabolism by far accounts for the largest total number of calories burned. As a matter of fact, about 70% of your total energy requirement comes from basic life processes within the organs of the body. About 20% of your energy requirement comes from physical activity and another 10% from digestion.

To succeed at sustained weight loss, most of us need to increase our resting metabolism to youthful levels. If we don't, weight loss is definitely an uphill battle.

Take the quiz and see if a slow resting metabolism is one of your weight gaining mechanisms.

Questions to Determine Your Level of Resting Metabolism	YES	NO
Is it difficult for you to lose even a few pounds and/or do you plateau quickly after losing just a few pounds?		
Have you been diagnosed with low thyroid (hypothyroidism)?		
Are you over 50 years old?		
Do you gain weight easily, like 5 pounds or more after just a couple of days of splurging?		
Have you lost muscle mass?		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — Normal metabolism	Keep up the good work!
1–2 Yes — On the verge of slow metabolism	Lifestyle suggestions
3 Yes — Mild case of slow metabolism	7-Keto® DHEA*
4 Yes — Moderate case of slow metabolism	7-Keto® DHEA + Green tea extract*
5 Yes — Severe case of slow metabolism	7-Keto® DHEA + Green tea extract + Cayenne or Fucoxanthin*

**The appendix provides descriptions and average doses of each nutrient.*

Lifestyle Suggestions

- Exercise, exercise, exercise. If it's been a while since you worked up a sweat, start slow. Work toward the goal of walking 10,000 steps every day.
- Resistance exercises that tone and build muscle are probably the best method for raising your resting metabolism.
- Eat several small meals throughout the day. Basically, feed your engine!

7-Keto® brand is a registered trademark of InterHealth N.I. U.S. Patent 7,199,116.

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PILLAR 7

Abnormal Fat Cell Signaling

The fat cell is the primary site for fat storage. Fat cells of obese individuals are bloated with triglycerides, which is the form in which most fat exists in the body. Fat storage and release is tightly regulated by fat cell *command signals.* Weight gain occurs when fat cells enlarge with large amounts of *triglycerides.* They accumulate excess *triglycerides* due to overeating, nutrient deficiencies, excessive stress, and other causes. These factors, however, fail to address the reason why aging individuals put on fat pounds despite eating less, taking dietary supplements, and following other practices that should in theory lead to weight loss.

The aging process adversely affects the fat cell command signal network, which helps explain the difficulty maturing individuals have in controlling their weight. These signals include hormones and enzymes like leptin, adiponectin, and glycerol-3-phosphate dehydrogenase.

Take the quiz and see if abnormal fat cell signaling is one of your weight gaining mechanisms.

Questions to Determine the Status of Your Fat Cell Signaling	YES	NO
Is it rare for you to feel satisfied after eating, or are you always hungry?		
Do you have non-alcoholic fatty liver?		
Do you have diabetes, prediabetes or consistently high blood sugar?		
Do you carry most of your excess body fat around your waist and/or neck?		
Have you ever been told you have high levels of inflammation (elevated CRP and ESR) or cortisol (the stress hormone)?		

IF YOU ANSWERED WITH …	THEN TRY …
0 Yes — Normal fat cell signaling	Keep up the good work!
1–2 Yes — On the verge of abnormal signals	Lifestyle suggestions
3 Yes — Mild case of abnormal signals	Irvingia*
4 Yes — Moderate case of abnormal signals	Irvingia + Meratrim® (Mangosteen and *Sphaeranthus indicus*)*
5 Yes — Severe case of abnormal signals	Irvingia + Meratrim® (Mangosteen and *Sphaeranthus indicus*) + Cyclodextrin*

**The appendix provides descriptions and average doses of each nutrient.*

Lifestyle Suggestions

- Eat more soluble fiber.
- Eat less white bread and pasta and increase your intake of whole-grain bread and pasta.
- Combine adequate protein, fats, and whole-food carbohydrates from vegetables, legumes, nuts, seeds, and fruit at every meal or snack.

Meratrim® is a proprietary ingredient derived from natural plant extracts exclusively distributed by InterHealth N.I.

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PILLAR 8

Low AMPK Activity

If you have problems with a majority of the weight loss pillars, you might consider increasing the activity of a key cellular switch: AMPK (adenosine monophosphate-activated protein kinase).

AMPK is an enzyme that serves as the body's master regulating switch. It inhibits multiple damaging factors by revitalizing aging cells.[9]

Found in every cell, AMPK promotes longevity factors that have been shown to extend life span in numerous organisms.[9,12] Increasing AMPK signaling «turns off» many damaging effects of aging, thus enabling cells to return to their youthful vitality.[10-13]

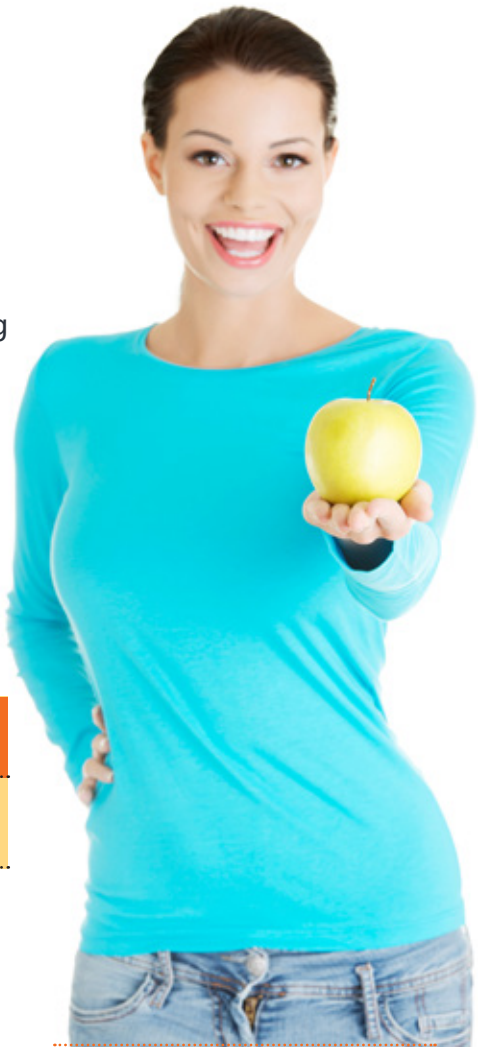
Greater AMPK activation has been shown to help target damaging factors of aging. Studies show increased AMPK activity supports reduced fat storage, new mitochondria production, and the promotion of healthy blood glucose and lipids already within normal range.[12-14]

Take the quiz and see if low AMPK activity is one of your weight gaining mechanisms.

Questions to Determine Your Level of AMPK Activity	YES	NO
Referring to pillars 1–7, did you answer "yes" to 3 or more of the questions for 4 or more of the pillars?		

IF YOU ANSWERED WITH …	THEN TRY …
Yes — Low AMPK Activity	*Gynostemma pentaphyllum and trans-tiliroside derived from rose hip extract**

**The appendix provides descriptions and average doses of each nutrient.*



Lifestyle Suggestions

- Eat less. Try to eat 15% to 20% fewer calories a day.
- Avoid simple sugars and starchy food as much as possible.
- Exercise. Your goal should be 10,000 steps a day, moderate aerobic exercise 3 times a week, and light weight training 2 times a week.

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PILLAR 9

Diet Imbalances

Eat to Live a Long and Healthy Life

No one should embark on a weight loss program by trying to follow a fad diet that cannot be adhered to over the long term.

At the same time, aging individuals have to make choices as to what is more important, like ingesting foods that are known to promote weight gain (and cause horrendous diseases) or selecting healthier foods that facilitate weight loss and protect against illness.

It's never too late to change your lifestyle in a manner that promotes better health while melting away excess body fat.

There's no quiz for this pillar of successful weight loss. Instead, simply try to incorporate the following few suggestions to help eliminate diet imbalances and begin a dietary habit for living a long and healthy life!

Incorporating these suggestions, no matter which diet plan and exercise regimen you choose to follow, can go a long way in helping you achieve your weight loss goals.

Let's review what we've learned and how you might actually utilize the quizzes and suggestions made on a daily basis for sustained weight loss success!

Lifestyle Suggestions

- Eat an 80% plant-based and a 20% lean animal protein-based diet.
- Eat only lean meats. Free-range poultry and grass fed beef are leaner choices than conventional counterparts.
- Use juicing to fill-in the missing servings of fruits and vegetables. A healthy ratio for juicing is 3:1 — that's 3 vegetables for 1 fruit.
- Eat more fiber. Some experts believe that we should consume 40 grams a day. Nuts, fruits, seeds, whole grains and, of course, vegetables are all good sources.
- Add some fermented foods, in small amounts, to your daily diet. This can include yogurt, cheese, fermented soy, and kimchi (fermented vegetables with a variety of seasonings).
- Eat more salads with mixed greens and different types of lettuce. Use creamy dressing sparingly. Basic olive oil and vinegar dressings are healthier choices.
- Choose fresh produce when available. If fresh is not an option, then choose frozen fruits and vegetables over canned varieties.
- Eat what's in season. During the fall, eat more root vegetables and take in lots of ripe berries and white-flesh fruits. If it's springtime, go with Chinese yam, bamboo, and mushrooms. Summer is good for just about anything, but leafy greens, tomatoes, and cruciferous vegetables are at their peak. Lentils and beans are good in any season.
- If you're hungry, eat! Never starve yourself. And never deny yourself a small, healthy snack.

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What You Need to Know

Eating Less and Exercising Often Falls Short

A startling **60% to 75%** of the adult population in the United States is overweight or obese. Around the world, the prevalence of obesity has nearly *doubled* from 1980 to 2008.[15] And this is despite a multi-billion dollar weight loss industry!

For many aging overweight and obese individuals, the struggle to achieve a healthy body weight becomes a veritable battle against biology. A number of metabolic processes promote weight gain despite genuine efforts to decrease food consumption and increase energy expenditure.[16]

Scientific investigations have shed light on the biology of weight loss in recent times. It turns out the battle against the bulge is much more complex than the overly simplistic "eat less food to lose weight" message often promoted by government health agencies.

What You Need to Know

You Can Lose Weight and Keep it Off!

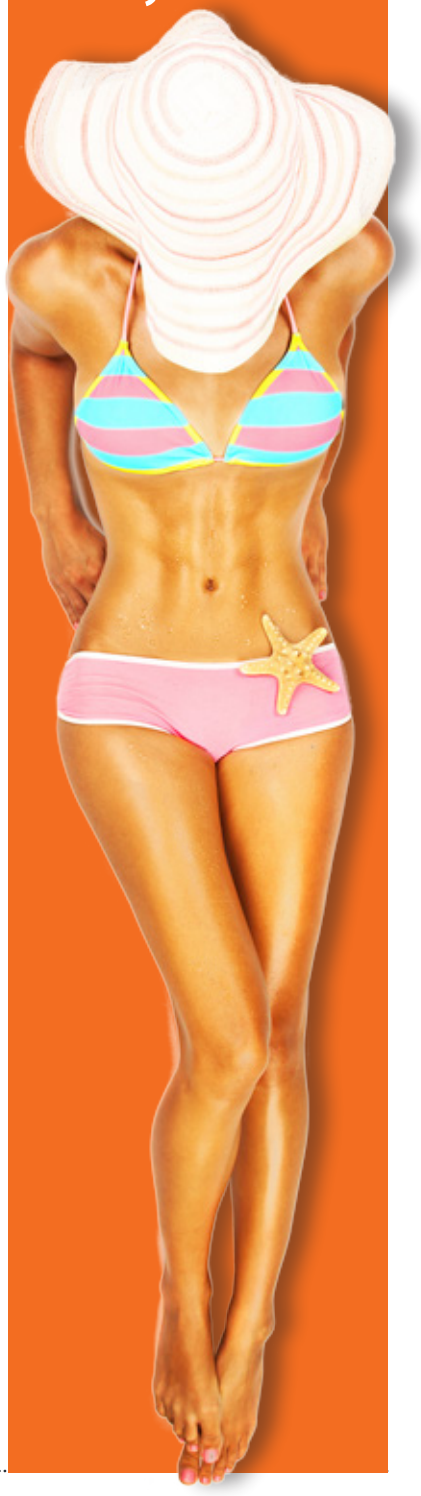
The *Nine Pillars of Successful Weight Loss* represents a fundamental insight into sustainable weight. If any weight loss strategy is to be successful, it must evolve beyond the conventional cliché that weight loss only requires a reduction in food consumption.

Instead, successful weight management requires a paradigm that acknowledges the multifactorial nature of weight gain and obesity. Only a comprehensive approach that corrects the mechanisms of weight gain, while helping you to eat less and exercise more will ever work.

First, complete the quizzes for each pillar. This will help you to identify which pillars or mechanisms are driving your weight gain. By arming yourself with this powerful information and following the lifestyle and supplement suggestions, you can correct and reverse the very reasons for gaining weight.

Second, choose the diet plan and exercise regimen that fits your personality and busy schedule. Your weight loss program, coupled with the supplements and lifestyle suggestions from the quizzes, will finally place you in a winning position to experience significant and lasting weight loss.

Good luck on your new scientific approach to a healthier you!



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Michael A. Smith, M.D.

Senior Health Scientist

"The country doctor with a city education," that's how Dr. Michael A. Smith's many devoted fans describe him. Senior health scientist and online personality for Life Extension® — the world's leading organization dedicated to extending the healthy human life span — Dr. Smith writes blog posts, creates and conducts webinars and appears in informational health and wellness videos.

His engaging ability to present complex medical topics, be it diabetes, migraines, food sensitivity or weight management, in a clear, conversational manner has won him a sizable following of anti-aging and disease-prevention enthusiasts.

Also known as "Dr. Mike," for more than seven years, he has worked at Life Extension in a variety of capacities, including as a health advisor, clinical information trainer and specialist and keynote speaker for the company's monthly lecture series.

Before joining Life Extension, Dr. Smith was in private practices and also worked for the global pharmaceutical company AstraZeneca as a cardiovascular medical science liaison. A spokesman for AstraZeneca's phase-3 clinical trial programs, he traveled throughout the U.S. presenting study results to cardiology groups and university centers.

A graduate of the University of Texas, Southwestern Medical Center in Dallas, Texas, Dr. Smith completed an internship in internal medicine at the University of Utah and a residency in radiology at UT Southwestern Medical Center.

Dr. Smith hosts *Healthy Talk* on *RadioMD.com* and recently released *The Supplement Pyramid – How to Build Your Personalized Nutritional Regimen*.

Dr. Smith was a recurring guest in 2012 on *The Suzanne Show* with Suzanne Somers on the Lifetime Network, appeared on *Gem of the Caribbean*, a television show dedicated to disease prevention and is currently seen in several regional infomercials as an expert guest. He is also heard on numerous syndicated national health radio shows.

Most recently he contributed to Martha Stewart's *Whole Living* website as well as health articles on *Examiner.com*, *About.com*, and in *Amazing Wellness* magazine and *Plastic Surgery Practice*. He has been a guest lecturer for numerous anti-aging organizations in South Florida and in his spare time, Dr. Smith manages several content-based medical websites that reach out to his legion of health-conscious fans.

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Appendix of Nutrients

5-HTP (5-Hydroxytryptophan)

Intermediate metabolite between the amino acid tryptophan and serotonin. It improves sleep, enhances mood, and modulates stress.

Average dose: 50–100 mg/day.

7-Keto DHEA

A natural metabolite of the hormone DHEA that has been shown to safely increase thermogenesis, improve fat loss, and help maintain healthy body weight when combined with a diet and exercise program.

Average dose:100 mg/day.

Arabinose (sometimes listed as L-Arabinose)

Affects sucrose digestion and works synergistically with chromium to support healthy blood sugar and insulin levels already within normal range.

Average dose: 475 mg/day.

Branched Chain Amino Acids (BCAAs)

Special class of amino acids. Provide energy and may serve as fuel sources for skeletal muscles during periods of metabolic stress. BCAAs have been used with success to support liver function. A study in 2008 also showed BCAA supplementation improved insulin resistance and glucose tolerance in certain people. A current mouse study showed restoring brain BCAA concentrations to normal had the effect of reinstating normal brain function by helping brain cells connect to each other and function efficiently.

Average dose: 2 grams/day

Cayenne

A pepper related to bell peppers, jalapeños, paprika, and others spices and peppers. Phytochemicals found in the pepper are believed to improve metabolism and may play a role in maintaining a healthy weight.

Average dose: 600 mg/day.

Chromium Picolinate

A mineral. It plays an important role in maintaining healthy blood sugar levels. Chromium is recognized by the FDA as a treatment for type 2 diabetes.

Average dose: 250–500 mcg/day.

Chrysin

A plant-based antioxidant (bioflavonoid) found in passion-flower (Passiflora coerula), that promotes healthy testosterone levels and lean muscle mass by inhibiting aromatase, the enzyme that converts testosterone to estrogen.

Average dose: 500 mg/day.

Coenzyme Q10 (as ubiquinol)

An essential nutrient your body requires for healthy mitochondrial function, a process that produces body energy at the cellular level.

Average dose: 100 to 200 mg/day.

Cyclodextrin

A patented super-fiber that absorbs fat molecules from your food before they enter your bloodstream.

Average dose: 2,000 mg/day.

DHEA

Considered by many doctors to be the anti-aging hormone. It has been shown that DHEA often declines by 75 to 80 percent from peak levels by age seventy, leading to hormonal imbalances that can affect one's quality of life. The marked decline in serum DHEA with age is believed to play a role in health problems associated with aging. Optimal, youthful levels can help support your immune system, metabolism, and muscle mass.

Average dose: varies based on blood serum testing.

Fucoxanthin

A compound from brown seaweed kelp. It activates the uncoupling protein- 1 in white fat, which results in increased fat burning. It supports healthy body fat composition and weight.

Average dose: 600 mg/day in three divided doses.

Green Tea Extract

This extract has been shown to provide many benefits including the following: reduces oxidative stress; has fluid-stabilizing properties; possibly promotes healthy weight; boosts liver detoxification; helps maintain healthy cell proliferation; helps maintain healthy blood cholesterol, LDL, and triglyceride levels; enhances immune function.

Average dose:725 mg/day.

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Gynostemma pentaphyllum

An extract of the plant *Gynostemma pentaphyllum* was traditionally used in Asian medicine to promote longevity through AMPK activation.

Average dose: 150 to 300 mg/day.

Hops

A plant extract that contains a phytoestrogen (8-prenylnaringenin) that offers natural female support during menopause.

Average dose: 120 mg/day.

Irvingia gabonensis

Plant extract. Helps to maintain healthy weight by decreasing hunger and minimizing sugar's impact on body fat accumulation.

Average dose: 300 mg/day in two divided doses.

Licorice Extract

Clinically shown to reduce the severity and frequency of hot flashes.

Average dose: 450 mg/day.

Maca Root

Provides significant support to women undergoing menopause. Many women report improvements of menopausal discomforts in clinical trials.

Average dose: 1,000 mg/day.

Magnesium Citrate

The form of magnesium most absorbed into your body. Magnesium is used in 350 metabolic reactions and influences many body systems including healthy bone mineralization, muscle contractions, heart rhythm, and nerve function.

Average dose: 250–500 mg/day.

Meratrim®

A combination of *Sphaeranthus indicus* flower and the **Mangosteen** fruit (*Garcinia mangostana*). It targets the mechanisms by which fat-storing cells or **adipocytes** become bloated and metabolically dysfunctional … leading to excess fat accumulations in the belly and throughout your body.

Average dose: 400 mg/day.

Muira Puama

A rainforest herb classified in the Brazilian Pharmacopoeia as an aphrodisiac. It's been shown to improve libido and other sexual issues.

Average dose: 425 to 850 mg/day.

Multivitamin/Multinutrient

Provides all of the vitamins and minerals necessary for humans in one formula.

Average dose: Varies.

Nettle Root

Testosterone converts to estrogen at higher rates as men age. Prostate cells are sensitive to estrogen's growth stimulatory effects. It helps support prostate cells against the excess estrogen levels.

Average dose: 120–240 mg/day.

Omega-3 Fatty Acids

Healthy polyunsaturated fats known to ease inflammation, support brain, heart, and immune health.

Average dose: 1,000 to 4,000 mg/day.

Pea Protein

Supports recovery after workouts, helps improve overall lean muscle mass, and may help to increase resting metabolism.

Average dose: 1,000 to 10,000 mg/day.

Pine Nut Oil

Natural compounds (pinolenic acid) found in pine nuts are known to reduce appetite by releasing hunger-suppressing hormones like cholecystokinin.

Average dose: 1 drop of oil per day or 450 mg capsule/day.

Probiotics

Healthy gut bacteria that promote optimal digestion and immunity.

Average dose: Varies. Best to supplement with a variety of strains.

Propolmannan

A fiber that swells in the stomach after ingestion with water to help reduce calorie consumption. It binds to bile acids in the small intestine and helps transport them out of the body.

Average dose: 2,000 to 4,000 mg/day.

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Saffron Extract

A spice that helps support a healthy weight by decreasing sugar cravings and between-meal snacking. It also improves mood by increasing the effective time of serotonin within the central nervous system.

Average dose: 176.5 mg/day in two divided doses.

Sesame Lignans

A plant-based antioxidant that helps to reduce excess estrogen and dihydrotesterone effects (DHT). It helps guard against dangerous lipid peroxidation and helps ease chronic inflammation.

Average dose: 50–100 mg/day.

Tryptophan

An amino acid precursor to serotonin, the "feel good" neurotransmitter. It improves sleep, enhances mood, and modulates stress.

Average dose: 1,000 mg/day.

Whey Protein

Supports recovery after workouts, helps improve overall lean muscle mass, and may help to increase resting metabolism.

Average dose: 5,000 to 20,000 mg/day.

White Kidney Bean Extract

Helps support normal levels of the gut hormones that control appetite and satiety. The result is reduced desire for food and less food intake.

Average dose: 100 to 200 mg/day.

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