

Select Language | ▼

# Know your Metabolic Type /The Oxidation Types

## Introduction to Metabolic Typing

Metabolic typing is a very central concept in nutritional balancing science. However, metabolic typing is not familiar to most people because modern allopathic medicine does not focus on it. Many ancient healing systems embraced it, however.

The idea behind of metabolic typing is that often people display symptoms, illnesses, and hundreds of body traits in specific groupings or patterns.

By identifying the pattern or metabolic types, one can immediately know a lot about a person, in most cases. Astute physicians have observed this for centuries. Here are some well-known examples of metabolic typing:

## Hippocrates Four Types

1. **Choleric, or irritable.**
2. **Sanguine, or content.**
3. **Phlegmatic, or sluggish.**
4. **Melancholic, or depressed.**

## Yin and Yang of Nutritional Balancing

1. Yang is warm or hot, more constricted at times, more reddish in color, more masculine, more active, and, at time, high-strung or irritable.
2. Yin is colder, more expanded, more feminine and often depressed and sluggish.

In terms of modern biochemistry and nutritional balancing science, here are some of the correlations with yin and yang:

- ***Fast oxidation (more yang) and slow oxidation (more yin).***
- ***Sodium (more yang) and potassium (more yin).***
- ***Zinc (more yang) and copper (more yin).***
- ***Calcium (more yang) and magnesium (more yin)***
- ***High Na/K (more yang) and low Na/K (more yin).***
- ***Sauna therapy and coffee enemas (more yang) and distilled water (more yin).***

- **Warm, cooked meats and cooked vegetables (more yang) and raw food, fruit, sugar, alcohol and most drugs (more yin).**

## The Oxidation Types & Stages of Stress

This article focuses on a very modern biochemical classification of bodies. It is somewhat similar to the ancient concepts of yin and yang, but it is determined mathematically, which is a great advantage. As a result, one can easily determine not only the **oxidation type**, but also the **oxidation rate** with precision. Older systems that do not use modern biochemical analysis methods cannot be as precise, and can often be vague.

The oxidation types, as I use them, are best understood as **homeostatic states of the whole human system**. They are ways the human body and animal bodies cope with their environment as best they can.

**WARNING: Before proceeding, I wish to clarify that some physicians determine the oxidation rate using blood tests, questionnaires and perhaps other means. They may also suggest different foods and nutrients for the oxidation types. This can be confusing, incorrect and even dangerous.**

Everything written in this article and others on this website regarding the oxidation rate and oxidation types pertains to Dr. Paul Eck's method of assessment of the oxidation types using hair mineral analysis when the hair has not been washed at the laboratory. This is the only method and system of metabolic typing that I trust and use, as it has proven reliable and consistent in almost all cases.

One cannot use another method of determining the oxidation rate and expect that the information here will apply. Indeed, several of my clients were tested by other methods of oxidation assessment and were found to have very different oxidation types using these methods.

### **SIMPLICITY AND NOT PERFECTION**

The metabolic typing system referred to in this article appears quite simple. That is its virtue. It is also fairly accurate in most cases, but certainly not perfect. All metabolic typing systems suffer from this problem, however, because the body is basically not a "type", but rather each person is an individual.

Metabolic typing, however, has value because it appears to be a **whole system behavior** of the body. Whole system behaviors provide a tremendous amount of information at once, thus simplifying our assessment procedure and greatly assisting the recommending of diets, nutritional supplements and other procedures at times.

Also, balancing the oxidation rate, in our experience, appears to greatly enhance the healing of hundreds of symptoms at once, both physical and emotional ones. This most likely occurs because balancing the oxidation rate increases energy production or energy efficiency of the body. It is like pedaling a bicycle at the right speed, which greatly enhances one's power and endurance.

In the body, it may have to do with specific requirements of thousands of enzymes that need an optimum physical and chemical environment in which to function best. If we can provide this, the body simply functions better with less stress, and, as a result, many symptoms improve easily without the need for remedies of any kind.

This is really quite amazing to see, and is one reason we do not need remedies in most cases to correct even the most difficult health conditions. This is the exact opposite of allopathic medicine in many cases, which depends upon remedies for various disease entities.

In fact, it is very different from even holistic medicine, naturopathy and homeopathy, all of which depend upon the use of hundreds or more remedies for healing.

In contrast, the nutritional balancing method is to correct the whole system behaviors, of which the metabolic type is a main one. (Others are the diet, lifestyle, drinking water, several mineral ratios on a hair analysis, and a few simple nutritional deficiencies.) Then the 'details' of the body, or most symptoms, go away on their own without our needing to do anything at all.

You can read more on the History of Oxidation Type [here](#).

## CORRELATING STAGES OF STRESS WITH OXIDATION TYPES

Essentially, fast and slow oxidation are homeostatic states and ways that the body responds to stress. The stress may be from within, such as nutrient deficiencies or fatigue.

Stress may also arise from a multitude of external sources. Basically, *slow oxidation correlates with a resistance or exhaustion stage of stress. Fast oxidation corresponds to an alarm stage of stress.* In the ancient Chinese and macrobiotic typing systems, fast oxidation corresponds to a more yang condition, while slow oxidation is a more yin condition of the body.

There is also a **sub-oxidation state**, so called by Dr. Watson, that most likely corresponds to Dr. Eck's *four lows* hair analysis pattern, when the hair has not been washed at the laboratory. This is a collapsed or "spinning the wheels" state of body chemistry that may be fast or slow oxidation, but has its own qualities as well. It is discussed in detail in another article on this website, *Four Lows Pattern*.

## DEFINITIONS OF THE OXIDATION TYPE AND THE OXIDATION RATE

**Fast Oxidation** is defined on a properly performed hair mineral analysis when the calcium/potassium ratio less than about 4 AND when the sodium/magnesium ratio greater than about 4.17. The lower the calcium/potassium ratio or the higher the sodium/magnesium ratio, the faster the oxidation rate.

**Slow Oxidation** is defined as a calcium/potassium ratio greater than about 4 and a sodium/magnesium ratio less than about 4.17. The higher the calcium/potassium ratio or the lower the sodium/magnesium ratio, the slower the oxidation rate.

**Hair Washing.** The hair must not be washed at the laboratory in order to make an accurate determination of the oxidation type or stage of stress. This is a vital point, since most hair mineral laboratories in the United States and most around the world wash the hair in powerful detergents, alcohol, water or solvents.

Only two laboratories do not wash the hair, Analytical Research Laboratories that Dr. Eck founded, and Trace Elements, Inc., (TEI) founded by a student of Dr. Eck's. I do not recommend using TEI at this time, as their graphs are hard to read, the programs are not nearly as good, and in fact are horribly incorrect. For more on this subject, read [Hair Analysis Interpretation Methods And Laboratories](#).

## FACTORS THAT CAN SKEW THE READINGS

Hair tissue mineral tests can unfortunately be affected by many factors. These are important in some cases, though not that important in most cases. These factors include the presence of excessive toxic metals, nutritional deficiencies, infections, illnesses or stress from any source. Emotional and lifestyle factors such as lack of rest and sleep, stimulant use and the use of prescription or over-the-counter medications.

## IMPORTANCE OF LIFESTYLE

For this reason, the first few hair analyses may yield temporary or even superficial patterns related to the condition of body chemistry. After several months to more than a year of nutritional balancing, the hair mineral patterns often change dramatically.

We always wish to get through the superficial patterns in the fastest possible manner. To do this, one must address all aspects of a person's body chemistry, diet, eating habits and other lifestyle factors as well.

Otherwise, these factors usually stand in the way of understanding the deeper layers of body chemistry. This is why I emphasize the importance of correcting the diet, eating habits, rest habits and other lifestyle factors when beginning a nutritional balancing program.

Now we will address the specific changes in body chemistry that occur with each of the major oxidation types or stages of stress.

## Fast Oxidation OR The Alarm Stage of Stress



Fast Oxidizer

Fast oxidation or an alarm stage of stress is characterized by excessive activity of the thyroid and adrenal glands. More adrenal activity and thus a higher level of aldosterone raises the hair or soft tissue sodium and potassium levels.

One result of this excessive adrenal and thyroid activity are lower hair tissue levels of calcium and magnesium. Essentially, increased solubility of calcium and magnesium occur when the sodium and potassium levels rise. Sodium and potassium are highly water-soluble and antagonistic to calcium and magnesium.

Blood serum mineral levels may, but usually do not correspond to the levels of these minerals in the hair. This is because the serum mineral levels are very sensitive to any variations, so the body often keeps them extremely stable. Much greater variation is seen in the hair levels, however. Also, hair is a storage and excretory tissue. Minerals that the body is deficient in are "stolen" or not permitted into the hair. Minerals that are in excess in the blood are often pushed off or stored in non-essential soft tissues such as the hair.

*On a hair mineral analysis, the pattern of fast oxidation is one of lowered calcium and magnesium levels, along with elevated levels of sodium and potassium. This is very easy to read on a test from Analytical Research Laboratories, which has calibrated scales and simple vertical graphs. The pattern often looks like two low numbers followed by two high numbers.*

### **TYPES OF FAST OXIDATION**

Fast oxidation occurs only in specific situations. These are:

#### **1. Babies and Young Children up to the Age of between 3 and about 10**

All babies are born in mild fast oxidation. Usually, before they leave the hospital the oxidation rate speeds up tremendously due to stress, pure and simple. Babies and young children should all be fast oxidizers

up tremendously due to stress, pain and simpler. Babies and young children should all be fast oxidizers through the age of about 3, at least, and really until much later. However, today most babies and children “burn out” of fast oxidation quickly. Many, in fact, are in a **four lows pattern**, which is a severe adrenal burnout pattern, as children!

### **Babies and young children are the only ones who are in a natural fast oxidation pattern these days.**

Fewer and fewer of them are staying in fast oxidation, but it is their natural state. Adults, by contrast, should be slow oxidizers. The reasons for this are complex, and include psychological factors, vitality levels, and perhaps hormonal factors as well. Most adults are also very burned out of vital minerals, which slows their metabolic and oxidation rates.

## **2. Stress Fast Oxidation**

These are adults or some older children who are only in fast oxidation because they are under tremendous stress of a type that forces their bodies into faster oxidation. The stress may be of different types depending on the person. Common ones include:

**a) Stimulant fast oxidation.** A common type of stress is the use of stimulants. These can include caffeine, sugar, cigarettes, alcohol in some cases, irritant substances such as hot spices, medical drugs such as amphetamines, cocaine, crack, crystal meth, Ecstasy, and other stimulants.

Other common stimulants are lack of rest, too much work, fears, anger, hatred, working in noisy environments, domestic arguments, financial stress and others.

When the stress, which is often biochemical, is relieved, they immediately slow down into slow oxidation. If it happens quickly, it is called a *crash landing*, which is somewhat unpleasant, although it can be taken care of easily with the proper diet and nutritional supplements.

**b) Infection fast oxidation.** These individuals have an infection of a type that speeds up the oxidation rate. These are often bacterial infections that cause high fevers, for example.

**c) Excitement fast oxidation.** These are people who are in fast oxidation because they are extremely excited. This happens quite often during nutritional balancing programs as a person begins to get well, often after years of trying different programs and going to doctors with little or no success. The person is so excited to be healing and feeling well for the first time in years, in many cases. An excitement fast oxidizer may be said to be in a *positive stress* situation.

**3. Vampire fast oxidation.** Some, but certainly not all adult fast oxidizers, are energy vampires. This means they have mastered methods to steal a subtle energy from others. The hair mineral analysis often reveals a fast oxidation rate with a normal or even elevated sodium/potassium ratio. A double pattern occurs if the sodium/potassium ratio is high and the calcium/magnesium ratio is elevated as well.

Interestingly, the person may reports few symptoms, and more women than men tend to fall into this category. A separate article entitled **Energy Vampirism**, discusses this fascinating topic.

Some energy vampires are very subtle, while others are obvious parasites who rape or mug others. Others even crave male sexual fluid, which seems to have a speeding up effect on the oxidation rate, at least temporarily. This unusual topic is discussed in a separate article entitled **Sexual Fluid Craving Disease**.

## **4. Dietary Fast Oxidation**

These are people who stay in fast oxidation because they refuse or simply do not like to eat enough fats and oils – foods that slow the oxidation rate. Many are vegetarians, or semi-vegetarians who do not eat meat, eggs or cheese that all contain fats. Many eat fruits and other high-carbohydrate foods that may help keep them in fast oxidation

Some do this unconsciously, while others know exactly what they are doing, and just want to stay in fast oxidation by avoiding foods and other things that may slow their oxidation rate.

## 5. Toxic Fast Oxidation

Although all people are toxic today, certain toxic metals, as they build up in the body, cause a common type of fast oxidation rate. These include cadmium, nickel, and “the amigos”.

The amigos are toxic, usually oxide forms of aluminum, iron, manganese, and at times chromium, selenium, copper, cobalt, and other minerals as well – even calcium and magnesium. They are powerful oxidants and irritants to the body and can cause a faster oxidation rate as a byproduct or secondary effect of their irritating presence. Most older people have some of them.

These often accumulate in the kidneys, in particular, but also at times elsewhere in the body such as in the thyroid gland, adrenal glands, nervous system, brain or elsewhere.

Toxic fast oxidation can always be corrected with a nutritional balancing program, though it may take months or several years of following a properly designed nutritional balancing program. When the toxic metals are removed, the oxidation rate promptly slows down.

## 6. Running Away Fast

Some fast oxidizers are simply “running away”, biochemically speaking, in a way that causes a fast oxidation rate. The situation can be rather mild and might be termed an avoidance of life pattern.

However, some are in a **step up pattern**, a dangerous, and quite egotistical mineral pattern that is associated with cancer, heart attacks, strokes and other fatal health catastrophes. These people are running away from life, or stepping out of life.

## 7. Beam Me Up Scottie Pattern

Consuming a lot of fruit, interestingly enough, causes a type of fast oxidation mineral pattern.

## 8. Farmer Fast Oxidation

Interestingly, Many farmers are in a state of fast oxidation. This may be due to a few possible factors, including handling farm chemicals, especially superphosphate fertilizers, handling toxic metals used in farm implements such as nickel-plated machinery, cadmium or lead. It may be due, however, to picking up a lot of energy from the earth because the person works in the dirt all day.

## 9. Toxic Potassium Fast Oxidation

This is a temporary fast oxidation rate caused by the presence of large amounts of a toxic form of potassium in the body. It can overlap with several of the other types. Common sources of toxic potassium are eating a lot of fruit, using krill oil, eating vegetables containing toxic potassium from superphosphate fertilizers, and male sexual fluid contains a toxic form of potassium.

## 10. Fast Oxidation Personality

This is a type of personality that often loves thrills, is often somewhat superficial, is often somewhat emotionally immature, and is definitely in denial to some degree. This combination can easily help keep a person in fast oxidation, or the person will unconsciously seek out stressors, stimulants and other ways to remain in fast oxidation for years.

## 11. Drug fast Oxidation

Some people are fast oxidizers because they are taking medications, specifically thyroid hormones (Synthroid, Armour thyroid, Levothyroxine, Naturethroid or other brands), or adrenal hormones such as DHEA, cortisone, cortisol or others. In some cases, the drug is caffeine in large quantity. Other stimulant drugs could also be involved.

## 12. Sympathetic Tone and Fast Oxidation

Fast oxidizers have significant *sympathetic nervous system tone*. This, in part, accounts for their increased adrenal and thyroid glandular activity. Sympathetic nervous activity stimulates the activity of these two sets of glands. Understanding the relationship of the sympathetic nervous system with the glandular system is essential for a correct interpretation of the hair tissue test and for understanding many health conditions.

Fast oxidizers are in an early stage of stress in which their sympathetic nervous system is responding excessively. They are in a fight-or-flight mode too much of the time, which uses up many nutrients and leads to a set of symptoms and illnesses associated with this metabolic type.

# Introduction to Slow Oxidation



Slow Oxidizer

In slow oxidation, the activity of the adrenal and thyroid glands decreases. The glands themselves, and at times the sympathetic nervous system, are both basically depleted of nutrients and do not function well. It is a **resistance stage of stress**, or often an **exhaustion stage of stress**.

In part for this reason, slow oxidation is related to a more *parasympathetic state of body chemistry* with less fight-or-flight activity. In almost all cases, the sympathetic nervous system is exhausted and the person moves into an unhealthy parasympathetic state by default.

I would guess that about 80 to 85% of adults are in a slow oxidation state of body chemistry. It is a decidedly lower energy state with, and perhaps caused by more impairment of the **electron transport system** in the mitochondria, where most biochemical energy is produced.

This impairment is caused primarily by replacement of the bioavailable forms of minerals such as copper, iron, manganese and others with some of the less bioavailable forms of these minerals such as oxides and other forms. This disables the critical enzymes in the energy cycles to a substantial degree, adaptive energy production decreases, and the person moves into slow oxidation.

This can occur even in babies, today, and generally always occurs by age 10 or so in most people. They usually spend the rest of their lives in slow oxidation, and often in poor health. Without sufficient energy, the body is unable to repair and regenerate itself, and soon many health problems begin to occur.

Also, low energy gives rise to the common mental/emotional symptoms of slow oxidation such as apathy, fatigue, introversion, depression, and if it is severe enough, suicidal thoughts and despair as the body's energy system fails to a greater degree.

### **Slow Oxidation and Society**

Entire nations "burn out" as more and more of their citizens move into slow oxidation, lose their drive to work and succeed, and their brains and bodies just do not function as well. This is the situation today in much of the developed world where lower quality food, widespread use of toxic medical drugs and surgeries, vaccinations, and other insults to the body combine to decimate the energy-producing system of the body.

### **Nutritional Balancing Restores the Energy System**

Nutritional balancing science, unlike medical or most holistic or naturopathic methods, specifically targets the body's energy-producing system and will restore it, although it can take a few years to do so if it is very damaged. When this is done, the oxidation rate speeds up, dozens of health problems vanish by themselves, and health seems to be remarkably restored although no "remedies" have been used at all.

### **Sympathetic Dominance**

A common situation found in slow oxidizers is of great importance and called ***sympathetic dominance***. In this common condition, the person is still attempting to use the sympathetic nervous system all the time. However, the body is exhausted and can no longer respond strongly.

As a result, the person stays tired and often ill, because excessive sympathetic stimulation blocks or inhibits the activity of the immune system, digestive system, elimination system and other vital organs and systems needed for recovery of health.

This is a very important pattern on a hair mineral test that I have added to Dr. Eck's wealth of knowledge regarding hair analysis interpretation. It is displayed on a properly performed hair tissue mineral test that has not been washed at the laboratory as a potassium level less than about 5 mg% or a high sodium/potassium ratio with elevated levels of calcium, magnesium and sodium, and perhaps potassium as well. Sympathetic dominance is discussed in much more detail in the article entitled [Sympathetic Dominance](#), and in one entitled [Autonomic Balance](#).

### **Adrenal and Thyroid Insufficiency**

Tissue sodium correlates well with the activity of aldosterone, an adrenal hormone. *On a hair mineral analysis, slow oxidizers have low levels of sodium and potassium, relative to their levels of calcium and magnesium.*

### **Basic Physiology Of Slow Oxidation**

What occurs physiologically is that lower levels of sodium due to adrenal and thyroid weakness or generally lower energy production reduce the solubility of calcium and magnesium in the blood.

Sodium and potassium are solvents that maintain calcium and magnesium in an ionized form. As the solubility decreases, more calcium and magnesium precipitate out of the blood and begin to accumulate in the soft tissues of the body. This causes a rise in the hair tissue calcium and magnesium, relative to the sodium and potassium levels.

In other words, *calcium and magnesium rise in the hair as the tissue sodium and potassium levels decrease. This is the familiar look of slow oxidation on a hair mineral analysis.*



## MIXED OXIDATION

As mentioned above, Dr. Eck found that the best way to calculate the oxidation rate is to evaluate two ratios on a hair mineral chart, the sodium/magnesium ratio (Na/Mg or the adrenal ratio) and the calcium/potassium ratio (Ca/K or the thyroid ratio). If one of these ratios indicates fast oxidation and the other indicates slow oxidation, the pattern is called ***mixed oxidation***.

This pattern is fairly common, temporary, and usually a short-term condition of the body chemistry.

### Specific Definition of Mixed Oxidation

Mixed oxidation is said to be present on a hair mineral analysis, provided the hair is not washed at the laboratory, when:

- **The calcium/potassium ratio is greater than 4 AND the sodium/magnesium ratio is greater than 4.17, OR**
- **The calcium/potassium ratio is less than 4 AND the sodium/magnesium ratio is less than 4.17.**

For example, mixed oxidation is present if the Ca/K is 6 and the Na/Mg is 10. Another example of mixed oxidation is if the Ca/K is 2 and the Na/Mg is 0.5.

### FAST MIXED OXIDATION AND SLOW MIXED OXIDATION

Dr. Eck further classified mixed oxidation as either ***fast mixed oxidation*** or ***slow mixed oxidation***. This calculation is necessary in order to decide whether to give a fast oxidizer program or a slow oxidizer program to these individuals.

Dr. Eck defined ***fast mixed oxidation*** as follows: The ratio that indicates fast oxidation (whether it be the Ca/K or the Na/Mg) is more extreme or out of balance than the ratio indicating slow oxidation.

He defined ***slow mixed oxidation*** as follows: The ratio indicating slow oxidation is more extreme or more out of balance than that indicating fast oxidation.

For example, let us imagine that a hair analysis indicates a Ca/K ratio of 10 and a Na/Mg ratio of 6. First of all, this is a mixed oxidizer because the Ca/K is greater than 4 and the Na/Mg is greater than 4.17.

The next step is to figure out if it is a fast mixed oxidizer or a slow mixed oxidizer. To do this, one must follow a two-step process:

1. Check to see which of the two ratios is more extreme or most out of balance. In our example, since both ratios should be about 4:1, the one that is most out of balance is the Ca/K, since it is the furthest away from a ratio of 4. The number 10 is further away from the ideal of 4 than is the number 6. Therefore, for our determination, we will focus on the more imbalanced Ca/K ratio.
2. The next step is to ask, is the Ca/K ratio of 10 an indicator of fast oxidation or slow oxidation? The answer is **slow oxidation**, by the definition given in one of the earlier paragraphs in this article. Since the ratio that indicates slow oxidation is more extreme, the hair analysis is said to be showing a **slow mixed oxidation** pattern.

**A mathematical short cut method.** Mixed oxidation can be a confusing pattern to read at first glance. A simple and fairly accurate mathematical way to figure it out is to simply subtract the Na/Mg from the Ca/K number (or  $Ca/K - Na/Mg = X$ ). If the answer is **positive number**, it is a **slow** mixed oxidizer. If the answer is a **negative number**, it is a **fast** mixed oxidizer.

For instance, in the example above in which the Ca/K is 10 and the Na/Mg is 6, if one takes  $10 - 6 =$

For instance, in the example above in which the Ca/K is 10 and the Na/Mg is 6, if one takes 10 minus 6 = 4. Since 4 is a positive number, it is a slow mixed oxidizer.

### **How Skewed is the Oxidation Rate?**

One can do some other calculations that may be helpful to further assess a state of mixed oxidation. For example, it can be helpful to know if the mixed oxidation rate is fairly balanced between fast and slow oxidation, or if it is very skewed either toward faster oxidation or slower oxidation.

To do this, use the same mathematical calculation as above, subtracting the Na/Mg ratio from the Ca/K ratio (**Ca/K - Na/Mg = X**). However, now we are not going to consider whether the answer is a positive or negative number. Instead, we will just consider how large the number is. If the number is larger, then the oxidation rate is heavily skewed. If it is a lower number, then it is fairly balanced between fast and slow oxidation.

### **To Summarize CA/K - NA/MG:**

**Smaller positive number = fairly balanced slow mixed oxidizer.**

**Larger positive number = slow mixed oxidizer and the oxidation rate heavily skewed toward slow oxidation.**

**Smaller negative number = fairly balanced fast mixed oxidizer.**

**Larger negative number = fast mixed oxidizer and heavily skewed toward fast oxidation.**

**How unbalanced or skewed are the ratios themselves?** This may also be helpful. When the ratios are very unbalanced, it tends to indicate more health imbalances in most cases, for example. It may also have to do with the presence of certain patterns on the hair mineral chart.

To calculate this, you can use the formula  $Ca/K \times Na/Mg - 16.7 = X$ . If the answer is:

A low number, either a positive or negative number, then the ratios themselves are fairly near their ideal ratio.

A higher number, either a positive or negative number, then the ratios themselves are more skewed or imbalanced.

**Two mixed oxidation types based on which ratio is fast and which is slow.** In a mixed oxidation situation, the ratio that indicates fast oxidation can be either the adrenal ratio (Na/Mg) or the thyroid ratio (Ca/K).

If the adrenal ratio is fast (greater than 4.17), this is more associated with *acute stress*. This is true regardless of whether the oxidation rate is a fast mixed or slow mixed oxidation rate.

If the calcium/potassium ratio indicates fast oxidation and the sodium/magnesium ratio indicates slow oxidation, this is more likely associated with *adrenal exhaustion and more chronic stress*, in most cases. This is true regardless of whether the pattern is fast or slow mixed oxidation.

### **FOUR LOWS OR SUB-OXIDATION, POSSIBLY ANOTHER METABOLIC TYPE**

At times you may read that a four lows pattern is another metabolic type. I am not sure about this. It does, however, require a special nutritional balancing program. It might correlate with a state of body chemistry that Dr. George Watson, PhD, called Sub-Oxidation, but again I am not sure about this. For this reason, I will not include it in this article. For much more information about it, read [Four Lows Pattern](#) on this site.

### **HOW THE OXIDATION TYPES AFFECT THE BODY**

## **1. Frequency of Bowel Movements**

Increased metabolic activity is associated with increased peristaltic activity and hence more frequent bowel movements in the fast oxidizer. Fast oxidizers may have more than one bowel movement per day. One or fewer movements per day is commonly associated with slow oxidation.

## **2. Dry OR Oily Skin and Hair**

Increased metabolic activity is associated with increased activity of the sebaceous and oil glands of the skin and scalp. This tends to cause more a greater tendency for oily skin and hair in the fast oxidizer.

Slow oxidizers are more prone to dry skin and dry hair.

Also fast oxidizers tend to have a more watery appearance of their skin, and poorer muscle definition for this reason.

Slow oxidizers may have better muscle definition and dryer appearance to their skin.

Also, fast oxidizers often have a more ruddy complexion. This may be due to higher blood pressure, use of alcohol or better circulation in the skin. This is true even though the sympathetic nervous system tends to move blood inward, away from the periphery of the body.

However, many slow oxidizers are still in a sympathetic dominant condition described elsewhere, in which their sympathetic system is in fact even more active than in many fast oxidizers. This causes poor circulation to the extremities.

## **3. Blood Circulation**

An increased rate of metabolism in the fast oxidizer is associated with enhanced blood circulation, and correlates with a tendency to warmer hands and feet, even in cold weather.

Slow oxidation is commonly associated with impaired circulation and a tendency for cold hands and feet.

## **4. Food Cravings**

Food cravings can express the body's desire to balance chemistry. Fast oxidizers tend to crave fats, butter and red meat, foods which slow the metabolic rate. They may also crave sweets or carbohydrates if they do not eat enough fats and oils.

Slow oxidation is associated with chronic low blood sugar. There is a tendency for sweet cravings and at times salt cravings, as the body does not retain sodium and potassium as well in slow oxidation, due to impaired adrenal glandular activity. (low aldosterone).

## **5. Blood Pressure**

Fast oxidation is associated with increased vascular (sympathetic) tone, and sodium retention due to elevated aldosterone levels. These frequently result in a blood pressure of 120/80 or greater.

Fast oxidizers are also more prone to labile or changing high blood pressure. This is because greater sympathetic nervous system activity will cause momentary constriction of the arteries due to fatigue, emotional upset or other stressors.

Healthy slow oxidizers tend to have blood pressures of 120/80 or lower. This is due to weaker vascular tone, and/or low sodium levels which cause a reduced blood volume and blood pressure. However, slow oxidizers

are prone to hardening of the arteries, as are fast oxidizers. This can cause high blood pressure later in life, in particular.

## 6. Sweating

Enhanced metabolic activity increases the generation of heat in body tissues. This is associated with increased sweating in the fast oxidizer.

Slow oxidizers generally sweat less, and many hardly sweat at all.

## 7. Mood

In fast oxidation, all metabolic processes speed up, including mental functioning. This can result in a tendency to anxiety, irritability, nervousness, or jitteriness. Slower mental activity in the slow oxidizer, on the other hand, causes a tendency for sluggishness, lethargy, apathy, and depression. Very slow oxidation is associated with despair, brain fog and confusion.

## 8. Energy Levels

A fast metabolic rate, within certain limits, is associated with higher energy levels than is a slow oxidation rate. Fatigue and lethargy can be experienced by both types, but is more common with slow oxidation.

## 9. Animal Protein Preference

Fast oxidizers require more fat, and tend to prefer red meats to other meats, as they contain a higher percentage of fat. Fast oxidizers may also prefer the high-purine proteins such as sardines, anchovies and organ meats.

Slow oxidizers tend to prefer chicken, fish, or vegetarian proteins because these low-fat sources of protein speed up and normalize the slow oxidizers' metabolic rate. They are also easier to digest as they contain less fat. They also contain somewhat less etheric energy and thus have a lower dynamic action than the red meats.

## 10. Body Shape

Classically, the fast oxidizer corresponds to a more 'Cushinoid' body shape, so named after an illness called Cushing's disease. The person is not as tall, and is broad in the middle.

This is sometimes called the apple-shaped body. The legs and arms are thinner. There may be a "buffalo hump" in the back if the case is extreme, though most of the time this is not present. There is often a bulge in the belly. This is due to high cortisol, which in turn causes high insulin, which deposits fat in the belly area.

The classic slow oxidizer has a pear-shaped body, especially later in life. This is due to sluggish thyroid gland activity, which is more associated with fat deposition on the hips and legs. The upper body is often thinner.

However, combinations of these two are very common, because people pass through various stages of stress at different times of their lives. Also, one can be a mixed type, which also gives rise to combinations of body shapes.

**One final note regarding body shapes is in order.** The sympathetic dominant person often has a very angular body. That is, there is little fat deposition. This is basically good, though if the sympathetic dominance persists, serious health problems including heart disease, cancer and others develop in these individuals as well.

This is seen in women, particularly, who are what is called progesterone dominant. Estrogen is responsible for fat deposition, especially in the hips and breast areas. Women with low estrogen tend to be more angular.

Women with higher estrogen levels tend to be more curvy, fleshy and at times one calls them more voluptuous shaped.

**CAUTION:** *Beware of using body shape or other physical characteristics to assign a metabolic type to anyone or to recommend a nutrition program. Many times you are viewing a person as they were some years ago, in terms of their body chemistry. I tried this for several months and found the hair mineral analysis did not correlate with my guesswork based on symptoms and body characteristics.*

I also found the hair test gave me more accurate information than just using the symptoms or signs described above. I learned through the experience to trust the hair tissue mineral analysis and began to get far better results with patients.

### **11. Cell Membrane Permeability**

Fast oxidizers tend to have more permeable cell membranes than slow oxidizers. This may be because calcium that builds up in the tissues of slow oxidizers tends to stabilize cell membrane potentials. This fact is very important for hormone imbalances, in particular, and perhaps for blood sugar and other types of metabolic problems as well.

### **12. Acid OR Alkaline**

Fast oxidizers tend to be more alkaline at the cellular level, while slow oxidizers tend to be more acidic at the cellular level. Blood, urine and saliva pH levels do not correlate well with the cellular level and are often useless for determining the true cellular acidity.

The reasons for the differences between fast and slow oxidizers is that fast oxidizers have less toxic metals, in general, which are very acidic. They also have far better alkaline mineral reserves, in general, than slow oxidizers. This is likely the major factor.

Slow oxidizers also have more biounavailable calcium that does not seem to neutralize acids as well in the body. In addition, slow oxidizers tend to have more infections, which tend to be more acidic.

### **SYMPTOMS OF FAST OXIDATION**

*True fast oxidizers* tend to be anxious, irritable and aggressive if their oxidation rate is very fast. Their blood sugar and blood pressure tend to be on the high side of normal. They are often warm and sweat easily. They usually have oily skin, and a tendency for frequent or loose bowel movements. They may gain weight in the area of the abdomen due to high levels of cortisol and cortisone.

### **TEMPORARY FAST OXIDATION OR SLOW OXIDATION UNDER STRESS**

Most people whose hair analysis indicates fast oxidation, however, are not true fast oxidizers. Instead, they are what we call *tired or temporary fast oxidizers, or slow oxidizers under stress*. Hair analysis indicators for this condition are:

- **A sodium/potassium ratio less than about 2.5. This is the major indicator. Other less reliable indicators are:**
- **A hair calcium level greater than about 40 mg%, OR a magnesium level greater than about 6 mg%.**

- A zinc level greater than 14 mg% or a phosphorus level less than 14 mg% in some cases.

## SYMPTOMS OF SLOW AND MIXED OXIDATION

**Slow oxidizers** often suffer from fatigue, sweet cravings and low blood sugar. As their oxidation rate slows further, they often become apathetic and depressed.

Their blood pressure and blood sugar may be low unless arteriosclerosis or diabetes have set in. Their skin and hair are often dry, and their hair may become brittle or thin. Many experience constipation and other symptoms associated with reduced adrenal and thyroid glandular activity. Slow oxidizers may gain weight on the hips and the legs due to their metabolic imbalances.

**Mixed oxidizers** often display a mixture of symptoms of both fast and slow oxidation. One may need to wait until the mixed oxidation pattern resolves into slow or fast oxidation to gain a clear picture of underlying metabolic patterns.

Mixed oxidizers tend either toward fast oxidation or toward slow oxidation. This will determine many of their symptoms. Most mixed oxidation is quite mild and simple to resolve. At times, however, it represents more complex glandular imbalances that take more time to unravel and correct using our methods of balancing the body chemistry.

## SYMPTOMATIC PROGRAMS

In the case of mixed oxidation that is balanced, meaning even between fast and slow oxidation, at times we use symptoms to help assess whether to give a fast or a slow oxidizer program to the patient.

For example, a patient with a mixed oxidation hair chart might present with fatigue, depression, constipation and copper toxicity and have a mixed oxidizer hair analysis. This patient most likely requires a slow oxidizer supplement and dietary program.

If, in contrast, the patient complained of anxiety, nervousness, muscle tension and anger, one might readily assume that although the hair test indicates mixed oxidation this person requires a fast oxidizer diet and nutrient program.

## DIET FOR THE OXIDATION TYPES

### The Fast Oxidizer Diet

All fast oxidizers today require plenty of cooked, not raw vegetables three times daily. This is most critical. In addition, Dr. Goerge Watson found that fast oxidizers require extra amounts of fats and oils in their diet in order to feel their best. They burn their food quickly and their caloric needs are greater. They also do best on a low carbohydrate diet, obtaining most of their calories from fats and oils.

Fats provide more calories and longer-lasting energy. In contrast, sugars burn too fast, provide fewer calories and often further enhance the oxidation rate.

For this reason, fast oxidizers should avoid all sugars, including ALL fruit and all juices. Even complex carbohydrates are recommended only in small amounts.

True fast oxidizers require heavier, fattier foods such as lamb and even beef in limited amounts if it is grass fed or naturally raised. They may handle sour cream, butter, eggs and other fatty foods well.

To lose weight, they may do well on an Atkins-style diet, although I feel it does not include enough cooked vegetables, at times. Also, the quality is not as good as our standards. However, one could try it for a limited

period of time.

We suggest, however, that one eat only the highest quality animal fats, along with flax oil, fish oil, cod liver oil, olive oil and a small amount of refined vegetable oils such as in blue corn chips are fine as well. Coconut oil and palm oil are not recommended, except perhaps occasionally, as they are too yin and slightly toxic, in our experience. For more information, see the [Fast Oxidizer Diet](#) on this website.

### **The Slow Oxidizer Diet**

Slow oxidizers definitely require plenty of cooked vegetables three times daily, In addition, they require more protein and less fat in their diets than fast oxidizers. Some protein at least twice daily is most important to maintain their blood sugar level and support adequate adrenal and thyroid gland activity.

In fact, if there are blood sugar issues, as there often are, then five meals a day with some protein and possibly a little fat as well is an excellent regimen.

Animal protein of some kind is helpful for most slow oxidizers to eat at least once every day, as the bodies are depleted of many nutrients found in meats. These include zinc, alpha lipoic acid, sulfur-containing amino acids and L-carnitine. Meats also provide other less-known nutrients the slow oxidizer requires.

Protein digestion is weak in slow oxidizers. As a result, many tend toward vegetarian diets. However, this slows or prevents their complete healing. Instead, they require digestive enzymes to obtain all the nutrition from their food. For much more information about diet, see [The Slow Oxidizer Diet](#) on this website.

### **BASIC SUPPLEMENTS FOR FAST AND SLOW OXIDIZERS**

Dr. Watson and Dr. Eck found that fast oxidizers need more of nutrients such as copper, zinc, choline, inositol, calcium and magnesium. They also do well on more of vitamins A and D. B-complex vitamins, vitamin C and vitamin E are less beneficial and tend make fast oxidation much, much worse in many cases.

Slow oxidizers need more of the B-complex and vitamins C and E. They usually do not need much copper. They do, however, need zinc, calcium and magnesium supplements.

Both types benefit from a digestive aid. We find that they both also need extra chromium, selenium, kelp, omega-3 fatty acids and vitamin D3.

When one combines the extensive research of Dr. Hans Selye, Dr. George Watson and Dr. Paul Eck, one begins to develop a very clear picture of the physiology and biochemistry of fast and slow oxidation.

By identifying these states quickly with a hair mineral analysis, one knows at a glance how a person is responding to stress biochemically. Then one can recommend the correct foods, nutrients, lifestyle changes and detoxification protocol to bring the body to balance and harmony.

Balancing body chemistry in this manner results in a significant increase in cellular energy production. This allows healing to occur at a greatly increased rate.

We always seek to move a person from a lower energy and less optimum homeostatic state to a healthier state with higher energy. Slow oxidation, for example, is a lower energy state than fast oxidation. A balanced state, neither too fast nor too slow, is considered optimum. It is a condition in which the metabolism can speed up when needed, and yet at other times remain peacefully at rest.

**References:** Larry Wilson, MD

Being tested via a hair tissue mineral analysis and getting on the right diet fit for your metabolic type, will free you once and for all. Don't wait!! Give us a call or [contact us](#) by filling out the short form in the [contact](#)