CHAPTER 7

SYMPATHETIC/PARASYMPATHETIC BALANCE

Introduction

Sympathetic/Parasympathetic balance represents a dualistic, diphasic model of autonomic nervous system activity. The term diphasic refers to the alternate operation of opposing forces for the purpose of maintaining metabolic balance. Each of these opposing forces operates under the direction of one or more fundamental control systems. Sympathetic/Parasympathetic Balance is one of several fundamental control systems in human physiology.

Sympathetic and Parasympathetic Imbalances represent the two opposite abnormalities possible regarding the autonomic nervous system. It is often more appropriate to think of these imbalances as sympathetic or parasympathetic **stress**. The term stress, as it is used here, is intended to mean an over-sensitivity, or an over-reactivity of that branch of the autonomic nervous system. In a normal healthy individual, sympathetic forces are initiated in response to some stress demand, continuing in operation until the limits of homeostasis are reached. At this point, sympathetic activity is switched off and parasympathetic activity is initiated, moving physiological qualities such as temperature, blood sugar levels, etc. in the parasympathetic direction until the opposite homeostatic limit is reached, at which point parasympathetic forces are switched off and sympathetic forces reinitiated, and so on.

Many patients you see in your clinical practice are showing the effects of a Sympathetic/Parasympathetic system out of control. One of the two branches of the autonomic nervous system has been oversensitized to the point of reacting spontaneously, excessively, and inappropriately. In essence, this patient is "stuck" in either a state of sympathetic or parasympathetic over-reactivity. The clinical picture is often best described as unpredictable – with bizarre symptoms that come and go seemingly with a mind of their own.

The sympathetic and parasympathetic systems are antagonistic at the organic level of biological organization, i.e., organs stimulated by sympathetic activity are inhibited by parasympathetic, and vice-versa.

Sympathetic/Parasympathetic Nervous System Activity

The SNS and PNS stimulate or work in harmony with (1):

Sympathetic	Parasympathetic
H+	OH-
Calcium; Phosphorous	Potassium; Sodium; Magnesium
Adrenal Medulla; Thyroid	Pancreas Tail; Pancreas Head; Adrenal Cortex
Hypothalamus; Pineal	Thymus; Parotid
Testosterone; Progesterone	Estrogen
G.I. sphincters	G.I. lumen motility; G.I. secretion & salivary glands
Sphincter of Vater	Gall Bladder & Bile Ducts
Liver glycogen mobilization; triglyceride mobilization	Liver glycogen storage; Fat storage
Respiratory center	Bronchial muscles & glands
	Nasal & Pharyngeal secretion
	Larynx
Myocardium	
Vasomotor activity (constriction and dilation)	
Pupil dilators; muscles of Muller (exophthalmos)	Pupil constrictors; muscles of the iris; muscles of accommodation; levator palpebrae (enophthalmos)
	Lacrimal secretion
Prostate: Cowpers and Bartholins production	Prostate: Cowpers & Bartholins release of secretion
	Penis erection
Bladder trigonum and sphincters; uretha	Bladder wall
Pilomotor activity; sweat secretory activity	
	Histamine activity

Sympathetic Stress & Parasympathetic Stress

Sympathetic Stress or sympathetic nervous over-reactivity, is typified by excess activity in one or more of the listings under Sympathetic Nervous System Activity, above. In the various states of toxemia, the SNS is particularly sensitive to harmful stimulation. The calcium:potassium ratio determines the SNS:PNS effect on various organs. When there is Sympathetic stress there will be adrenergic and/or cholinergic nerve hyperexcitability.

Parasympathetic Stress is typified by excess activity in one or more of the listings found above under Parasympathetic Nervous System Activity. Again, the calcium:potassium ratio determines the SNS:PNS effect on various organs. Parasympathetic stress is associated with cholinergic nerve hyperexcitability.

Sympathetic or Parasympathetic reactivity is evidenced by changes in skin color and temperature. The skin color, red or pale, depends upon the quantity of blood in the capillaries and venules. Sargent's white line and a dermographic white line (see Clinical Findings, below) indicate constriction of capillaries and venules, and result from sympathetic alpha adrenergic over-reactivity. A dermographic red line bordered by white means the capillaries and venules in the central area are dilated, which results from sympathetic cholinergic stress. A dermographic red line reflects inhibition of alpha adrenegic activity by parasympathetic cholinergic over-reactivity.

Skin temperature depends both on the quantity of blood flowing, and its rate of flow. Warm, pale skin occurs when the arteries are dilated (SNS cholinergic), and the capillaries are constricted (SNS alpha adrenergic). Cold, blue skin means the arteries are constricted (SNS alpha adrenergic), while the capillaries and venules are dilated (SNS cholinergic). (SNS beta adrenergics do not affect the skin, as these are dilators to skeletal muscles and coronary arteries, and constrictors to the abdominal viscera.)

Warm, flushed skin indicates that the arteries are dilated (SNS cholinergic), as are the capillaries, reflecting PNS cholinergic inhibition of SNS alpha adrenergic activity. This vasodilation is particularly evident on the ears of patients with a tendency toward Parasympathetic Stress.

The sweat glands are stimulated by SNS cholinergic activity. This is the only SNS activity not stimulated by the adrenal medulla. Night sweats are frequently an indication of Sympathetic Stress.

Parasympathetic Stress involves an unstable equilibrium that can result in excessive sweating of the hands and feet. Otherwise, the patient with Parasympathetic Stress tends to have dry skin associated with SNS inhibition. However, acetylcholine excess can result in night sweats.

One point of interest about these imbalances is that they are **reactive** as often as causative. What do we mean by that? We mean that these nervous system over-reactivities have developed in response to an unrelenting stressor in the patient's life. The source of stress may be an emotional factor; it may be a chronic nutritional inadequacy; very often it is one of the other NUTRI-SPEC Fundamental Imbalances. Whatever the source of stress, the involved branch of the autonomic nervous system has become **habituated** to reacting in an attempt to meet the challenge of the stressor. Over time, the neurological activity becomes **facilitated** to the point where an inappropriate and excessive response is triggered by the slightest provocation.

Clinical Findings

Sympathetic	Parasympathetic
Pupil large	Pupil small
Pulse increased; marked orthostatic increase; arrhythmias	Pulse decreased; little orthostatic increase
Respiratory rate increased; bronchial dilation; respiratory depth increased	Respiratory rate decreased unless bronchial constriction
Systolic BP & pulse pressure increased, especially orthostatically	Orthostatic failure of systolic BP & pulse pressure
Pilomotor reflex increased	Pilomotor activity absent
Dermographic white line, or thin red line bordered by white; Sargent's Line positive	Dermographic red line; Sargent's line negative
Cough reflex decreased	Cough reflex increased
Oliguria; urine specific gravity high	Polyuria; urine specific gravity low
Temperature increased	Temperature decreased
Cold sweat on hands, or, cold dry hands	Hands warm and dry
Nervous tension; insomnia; tremors	Nervous tension; depression; anxiety; somnolence or insomnia
Dry mouth	Saliva and tear quantity increased
Exophthalmos	Enophthalmos usual; exophthalmos with exophthalmic goitre
Glucose increased	Glucose decreased (or increased if insulin resistance)
WBC decreased	WBC increased
Low resistance to infection	Osteo-arthritis
Poor circulation associated with vasoconstriction	Poor circulation associated with decreased pulse pressure
Heart; Kidney; BP problems	Weak heart
Indigestion; ulcers; gall bladder or bowel problems	Indigestion; ulcers; bowel problems; colitis
Food allergies	Allergies; asthma

Objective Testing vs. Clinical Symptoms

Many of the clinical findings listed above are symptoms that are often associated with Sympathetic or Parasympathetic Imbalances. There are many who believe that a symptom survey is all that is needed to distinguish your Sympathetic from your Parasympathetic patients. This is simply not true, for two reasons. Many of the symptoms frequently associated with Sympathetic or Parasympathetic tendencies can also be caused by other NUTRI-SPEC fundamental imbalances, and in fact are more likely associated with those imbalances than with the autonomic nervous system.

Second, there are a number of common symptoms that could be associated with **either** a Sympathetic or a Parasympathetic Imbalance. To illustrate, consider a patient suffering from constipation. A Sympathetic Imbalance is typified by spasms of the G.I. sphincters, a lack of tone in the lumen musculature, and an atonic constipation. On the other hand, a Parasympathetic patient tends to have spasms of the G.I. lumen, which can be accompanied by either diarrhea or by a spastic constipation. So, you see that two patients with the identical symptom, constipation, can have that condition associated with exactly opposite causes, and therefore need exactly opposite therapeutic intervention. From a nutrition standpoint, the dietary recommendations and supplementation that would benefit the constipation of one of these patients would actually make the other patient much worse.

You can see that you need some objective means to determine the Sympathetic/ Parasympathetic Imbalances in your patients. The objective tests you need are, of course, provided by your NUTRI-SPEC testing procedure. The specific tests related to Sympathetic/Parasympathetic Imbalances are found in the Sympathetic/Parasympathetic section of Appendix C, your Quick Reference Guide (QRG).

The 3-point quick scan for evaluating this imbalance includes the orthostatic blood pressure response, and the orthostatic pulse response. All three of these tests are primary indicators of autonomic nerve function.(2)

The efficient way to evaluate a patient's test results for this imbalance is to pick up those three tests from the Test Results Form simultaneously, and carry them over to your QRG page for consideration. Look at your patient's sitting to supine pulse difference, systolic plus diastolic changes, and highest minus initial plus highest minus final pulse changes, and **recite those findings to yourself**. Then, carry that information over to your QRG page and recite them to yourself again – and see if you have a match with either the Sympathetic or Parasympathetic column.

If you do not find that one column has two positive indicators then you need consider this imbalance no further. If your patient is found to have either a Sympathetic or Parasympathetic Imbalance, you will consider the other tests of autonomic imbalance – the cough, dermographic, and vasomotor reflexes, and the pupil size – when you make your QRG supplement selections.

Note also that you will never treat an asthmatic as Sympathetic, and, you will never treat a diabetic as Parasympathetic. To make such a mistake will almost invariably precipitate a disasterous exacerbation of the patient's asthma or diabetes.

Other confirmatory findings that will clue you in to a Sympathetic or Parasympathetic Imbalance are the ear color, the saliva and tear quantity, the frequency of urination and any tendency to insomnia or somnolence.

Consider the primary source of our Sympathetic/Parasympathetic paradigm. When Francis Pottenger wrote "Symptoms of Visceral Disease" more than 80 years ago, he was <u>not</u> an

"alternative" or "natural" health care provider. He was a world-renowned medical doctor who served as an officer in several influential medical organizations of his day. In other words, he was as "establishment" as could be. Yet he was an astute clinician, and the first to make the observation that most disease symptoms were at least partly mediated through the autonomic nerves. Further (and here we have the first practitioner of your own patient-specific emphasis in health care), he observed that two patients could be victimized by the same pathological stressor, yet would respond with entirely different sets of symptoms – one as a sympathetic dominant and one as a parasympathetic dominant. Controlling the symptoms, he found, was achieved far more effectively by treating the sympathetic-parasympathetic component of the disease than by treating the disease symptoms per se.

Lowe's Clinical Autonomic Disorders was published in the mid 1990s. All the clinical phenomena defined by Pottenger were now quantified – to the nth degree. Using modern technology, the contributors to Lowe's were able to define the complex interplay between Sympathetic and Parasympathetic stimulation and inhibition that underlie the orthostatic blood pressure response and the orthostatic pulse response.

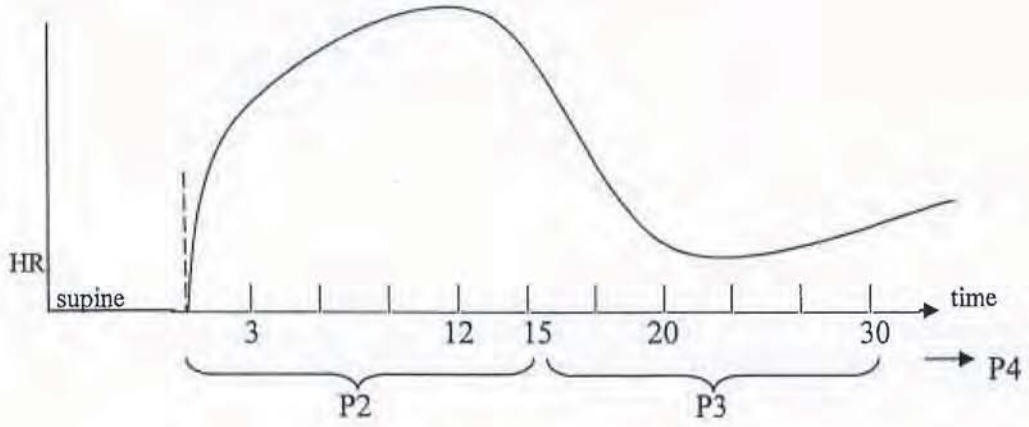
The orthostatic blood pressure response is not a simple matter of a sympathetic mediated increase in blood pressure, moving blood from the pool in the splanchnic vessels up to the brain to keep us from passing out when we stand up. The systolic blood pressure actually changes direction 4 times – going up, then down, then up, then down – in the 30 seconds beginning with initiation of the standing movement. Similarly, the diastolic blood pressure goes through the same 4 changes, but lags the systolic changes by a few seconds.

The orthostatic pulse response is just as complex. It is the initial contraction of the large muscles of the thighs, hips, pelvis, abdomen, and spine that sets off the orthostatic response. In fact, the most significant change in pulse occurs in the first 3 seconds, during most of which the patient is still recumbent.

The initial circulatory response to standing up involves the following changes in heart rate: (Refer to Figure 1, below.) As the patient initiates muscular contractions upon the command to stand up, there is a nearly vertical jump in the pulse that lasts for 3 seconds. This sharp up-move is not due to sympathetic activation, but rather to complete parasympathetic inhibition. By the 4th second, the sympathetic system kicks in, as parasympathetic inhibition is sustained, but to a lesser degree. The heart rate increase continues to a peak at 12 seconds, with a maximum instantaneous pulse count 25 greater than the supine pulse.

At the 13th second, the heart rate begins a decline steeper than the rise from seconds 4 through 12. It bottoms to a trough at about 19-20 seconds, with a minimum instantaneous pulse about 5 to 7 over the supine reading. Beginning in the 20th second, the heart rate begins a low-amplitude roller coaster with a slight upward slant, lasting up to 3 minutes.

Figure 1: Orthostatic Heart Rate Response



Upon orthostatic challenge, the instantaneous pulse relative to the supine pulse looks like this, second by second:

Second:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Pulse:	+4	8	12	14	16	18	19	20	21	22	24	25	22	19	16

Second:	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Pulse:	13	10	7	6	5	6	6	6	7	7	7	8	8	8	8

You can see that your NUTRI-SPEC Pulse 2, counted beginning with your patient's first muscular contractions and spanning the first 15 seconds of movement, captures perfectly the parasympathetic inhibition and sympathetic activation in response to orthostatic challenge. Your Pulse 3 measures the shutting off of the acute orthostatic response, and Pulse 4 represents where your patient stands after the dust has settled.

In a Sympathetic Imbalance, the orthostatic rise in blood pressure and pulse is exaggerated, and sometimes prolonged, while in a Parasympathetic Imbalance the amplitude of the changes is it muted. There is also an interplay between Sympathetic/Parasympathetic balance and Electrolyte Balance in many patients' orthostatic response. All such considerations are programmed into your QRG analysis, so you know exactly how to manage patients regardless of what wild gyrations in pulse and blood pressure they show upon orthostatic challenge.

Sympathetic/Parasympathetic Stress vs. Insufficiency

We indicated on page 7-1 that it is often appropriate to think of autonomic nerve imbalances as Sympathetic or Parasympathetic **Stress**. We all tend to react to acutely stressful events in our lives with some combination of Sympathetic and Parasympathetic activation, along with increased secretion of stress hormones. Some of us, however, tend to be predominantly Sympathetic reactors to stress, while others tend to be Parasympathetic reactors. Sympathetic reactors respond to a stress demand with activation of the Sympathetic nervous system (norepinephrine), along with adrenal medulla secretion of epinephrine – the classic catecholamine-mediated fight or flight

response. Parasympathetic reactors tend to react to challenges with excess stimulation of the Parasympathetic system, along with increased secretion of corticosteroid stress hormones.

So, when faced with a crisis, a Sympathetic reactor will show a racing heart, an increased rate and depth of respiration, a pounding heart associated with an elevation in pulse pressure, a dry mouth, and trembling hands. In the same crisis situation, a Parasympathetic reactor will experience a stomach "tied in knots," may vomit, and perhaps experience diarrhea. The respiratory rate may increase, but the heart rate will increase far less. Blood pressure may rise, but the diastolic will increase as much as the systolic. A diversity of Parasympathetic-related symptom are possible, including tension headache, breaking out in a rash, or, in susceptible individuals, an asthma attack. In extreme cases, the person may faint. In less extreme cases, the Parasympathetic dominant person will tend to withdraw – and eat.

What we have just described are the classic Sympathetic Stress and Parasympathetic Stress reactions. In other words, a Sympathetic Imbalance in which the Sympathetic system is strongly reactive while the Parasympathetic system is inhibited or weak, or conversely, when the Parasympathetic system totally dominates over a relatively weak Sympathetic system. These are the types of Sympathetic and Parasympathetic Imbalances you will tend find in younger adult patients. However, as we age, autonomic nervous system imbalances will tend to show up in association not with an extremely strong Sympathetic or Parasympathetic portion of the autonomic nervous system, but with an insufficiency or failure of one or the other. In other words, we can find a Sympathetic Imbalance associated not with a strong Sympathetic system, but rather with a weak Parasympathetic system. Similarly, we can find people who test as Parasympathetic because of an inability to produce Sympathetic responses rather than an abnormally reactive Parasympathetic system.

So, after about age 32 some of your patients who test Sympathetic are as much showing Parasympathetic failure as Sympathetic Stress, and some of your Parasympathetic patients are as much Sympathetic insufficient as they are Parasympathetic dominant. After about age 52, failure of the Sympathetic or the Parasympathetic system is a component of most Sympathetic or Parasympathetic patients' imbalances. Increasingly with age, some degree of failure of both Sympathetic and Parasympathetic reactivity is common.

Let us consider the various possibilities that unfold through a person's lifetime as regards Sympathetic/Parasympathetic balance. First, there are those who have a normal, healthy reactivity of both the Sympathetic and Parasympathetic systems. They go through their entire lives never showing a Sympathetic or Parasympathetic Imbalance.

Next, consider the individuals who are just plain "hyper." They show an exaggerated response of both the Sympathetic and Parasympathetic system from childhood up through at least age 22. Testing these individuals as teenagers will yield an extreme combination of both Sympathetic and Parasympathetic indicators. If we test a hyper 17-year-old, we may find extreme orthostatic pulse response on the upside, yet orthostatic failure of the blood pressure. There may be sweaty palms and dilated pupils, yet a +3 dermographics response. These patients have neither a Sympathetic nor a Parasympathetic Imbalance, they are just extremely sensitive types. As these people progress through life, the reactivity of the Sympathetic and Parasympathetic systems gradually decrease. If they decrease at an equal rate, these patients will never show a Sympathetic/Parasympathetic Imbalance. If one system begins to fail before the other, then the system that does not fail will show up as the imbalance you must treat with Nutri-Spec.

Now, consider those who are your classic Sympathetic or Parasympathetic reactors. Upon Nutri-Spec testing, these individuals will show a Sympathetic or Parasympathetic Imbalance through adolescence, young adulthood, and into middle age. That imbalance may persist into old

age, but in many of these patients their dominant system begins to fail at some point. As that previously dominant system becomes exhausted, the patient will no longer test as Sympathetic or Parasympathetic.

Regardless of what Sympathetic or Parasympathetic Imbalances exist or do not exist in a person through adolescence, early adulthood, and middle age, there comes a point in life when both the Sympathetic and Parasympathetic reactivity capacity begins to fail. Lowe's makes the point that by far the most common autonomic disorder is a failure (rather than an over-reactivity) of one of the autonomic systems, or both. Of course Lowe's is written from a pathologist's point of view; it is concerned with the treatment of frankly pathological conditions of the autonomic nervous system. Still, his point is well taken. Many of your patients, particularly those over age 52, will test as Sympathetic or Parasympathetic because of a failure of one system of the other. Many, many of your patients will test neither Sympathetic nor Parasympathetic because they are failing equally in the performance of both systems.

It is in this universal failure of both the Sympathetic and Parasympathetic system with age that we see the essential need for the Nutri-Spec Di-Phasic Nutrition Plan. Next to Nutri-Spec Metabolic Balancing, the most valuable service you offer your patients is maintaining their vital reserves with some combination of Complex S and/or Complex P. These powerful supplements will maintain a high amplitude diurnal cycle of Sympathetic and Parasympathetic vitality throughout middle age and beyond. (See Chapter 38 on the Nutri-Spec Di-Phasic Nutrition Plan.)

Asthma in Your Parasympathetic Patients

A classic example of inappropriate autonomic nerve reactivity is your asthmatic patient. In this case you have an oversensitive, over-reactive parasympathetic nervous system. The vagus nerve is in a state of oversensitivity and is thus subject to over-reactivity with very minimal provocation. Given the increased parasympathetic tone of the asthmatic patient, something as seemingly innocuous as a mild allergic exposure, an emotional stress, or a sudden change in temperature can elicit an extreme, even life threatening, response.

A special note is warranted here about asthma. With your NUTRI-SPEC tests and supplements you have the ability to have a most favorable influence on people suffering from asthma. There are, however, factors typical of your asthma patient that make it very difficult to interpret NUTRI-SPEC testing.

How do you analyze asthma in NUTRI-SPEC terms? Easily. Asthma is an over-reactive parasympathetic response. In particular, it is an over-reactive vagus nerve firing impulses into the bronchial tubes causing bronchial constriction and increased mucous secretion. In asthma, you have about as direct a cause and effect relationship between a particular NUTRI-SPEC imbalance and a particular disease as you will ever find. Not every Parasympathetic patient has asthma, but every one of your asthma patients has a Parasympathetic Imbalance.

For patients to have asthma they must have two things. They must first have the Parasympathetic Imbalance which keeps the vagus nerve in a continuous state of facilitation or over-reactivity. Second, they need a trigger. In other words there must be some second factor that further irritates the already over-sensitive vagus nerve into the bronchial tree precipitating the actual asthma attack. The trigger may take several different forms. The trigger may be an allergy. The trigger may be a second NUTRI-SPEC imbalance. It can be an upper respiratory tract infection. It can be the stress of exercise, or of a sudden change in the weather. It can be an emotional stressor. The trigger may, at times, be a chiropractic subluxation maintaining a

facilitated state in the parasympathetic system. In any event, the key to helping your asthma patients is to correct the underlying cause, the Parasympathetic Imbalance.

Once an asthma attack has been triggered, here is the sequence of events. The bronchial tree constricts and increases both its serous and mucous secretion. This causes increasingly labored breathing and also triggers a respiratory inflammatory reaction which brings various prostaglandins (especially leukotrienes) into the picture. The increased airway resistance, plus the presence of excess fluid, plus the activity of prostaglandins causes an inflammatory response and a swelling of the tissues, which has now progressed to the point of a positive feed-back loop. In other words, the asthma causes irritation of the bronchial tree, which feeds back afferently to the central nervous system, and then back over the vagus to the bronchial tree, causing more constriction and more secretion and thus more inflammation and prostaglandin activity and so on and so on.

To break this positive feed-back loop we, as NUTRI-SPEC practitioners, must decrease the underlying parasympathetic tone (and increase the antagonistic sympathetic tone), plus do whatever we can to eliminate the trigger. This includes correcting any other NUTRI-SPEC fundamental imbalances plus the Prostaglandin Imbalance.

From a NUTRI-SPEC perspective there is something else very interesting going on in these asthma patients. Because an asthma attack decreases functional respiratory capacity we see excess carbon dioxide accumulating in the system. This is, by definition, a Respiratory Acidosis. It is not at all uncommon to find a respiratory acidosis pattern upon testing these patients with NUTRI-SPEC. You must understand, however, that this Respiratory Acidosis is the result of, **not** the cause of the asthma.

The problem with this Respiratory Acidosis of which we must be aware is that to compensate for the Respiratory Acidosis the patient dumps chlorides into the urine. This loss of chlorides is very significant in asthma patients because it can tend to create a Metabolic Alkalosis or a Dysaerobic Imbalance. It turns out that Metabolic Alkalosis and the Dysaerobic Imbalances resulting from the loss of chlorides can subsequently further stimulate the vagus nerve. This triggers the whole cycle all over again.

Since asthma is always associated with a parasympathetic bronchial tree, all your patients with true asthma should test as Parasympathetic on NUTRI-SPEC testing. Many do – however, some do not. We are about to explain the reasons why some asthma patients do not test as Parasympathetic – but up front you must understand that you will treat virtually all your asthma patients as Parasympathetic. You will **never** treat an asthma patient as Sympathetic, no matter if their NUTRI-SPEC tests seem to indicate a Sympathetic Imbalance. Furthermore, since any Respiratory Acidosis imbalance is secondary to the asthma, and treating it can push a person into a rebound chloride deficient stimulation of the vagus nerve – you will **never** treat an asthma patient as a Respiratory Acidosis.

Now, let us look at the reasons why many of your asthma patients with a Parasympathetic condition do not test with NUTRI-SPEC as a Parasympathetic Imbalance, and may occasionally test as a Sympathetic Imbalance.

Since the asthma patient is Parasympathetic, you expect a slow pulse. Unfortunately, however, the asthma patient is often so hypoxic that the heart must beat faster in a desperate attempt to deliver oxygen. Therefore, the patient often shows a pulse that appears to be in the Sympathetic range. Likewise, looking at the orthostatic pulse increase, you may see the pulse jump up and stay up upon the stress demand of rising to the standing position.

With several tests for this imbalance leaning toward the Sympathetic side, you might well end up deciding this patient has no Sympathetic/Parasympathetic imbalance, or, (horrors!) even making the mistake of treating this patient as a Sympathetic Imbalance.

The situation is complicated even further by the fact that most asthma patients are taking medication, which further distorts the clinical test picture. Many asthma medications are powerfully anti-parasympathetic (which explains why they are effective). With chronic use of these anti-parasympathetic medications, patients will begin to show an elevated blood pressure, an accelerated pulse, an exaggerated orthostatic pulse response, and an exaggerated orthostatic blood pressure response. They will often also show an enlarged pupil and a white dermographics line. In other words, they will show a classic Sympathetic test pattern. You must understand that this pattern is the result of the medication only, and that it is the pattern you **want** the patients to show. As long as they are testing somewhat Sympathetic their asthma symptoms are being controlled to some degree.

If you make the mistake of treating asthma patients as Sympathetic as per a drug-induced Sympathetic test pattern, you will push them directly back into an extreme state of Parasympathetic Imbalance and precipitate an asthma attack. Again, **never treat an asthma patient as Sympathetic**.

If you are going to treat your asthma patients as Parasympathetic despite a Sympathetic test pattern, how are you going to monitor their progress? Most often there is at least one test in these patients that will still show a Parasympathetic tendency. Focus on this test as a means to monitor the patient.

There is another reason why some of your asthmatic patients do not test Parasympathetic and may even test as Sympathetic. If you look at the history of asthma over the last 40 years you find that two things have happened – first, the incidence of asthma has increased dramatically; second, asthma, a condition that once was principally a childhood affliction that decreased or disappeared by the time a person reached adulthood, is now persisting throughout life, and is even affecting many members of the adult population who did not suffer asthma as children.

What has happened over the last 40 years to create the increase in frequency and duration of asthma? This increase has been shown to be associated with the immunization and the indiscriminate use of antibiotics in children, plus the increased incidence of estrogen stress in young women, particularly those on birth control pills. Estrogen is the leading cause of allergies and asthma in adult women.

Historically, asthma was found in patients who had an inborn tendency to a Parasympathetic Metabolic Imbalance. Now, because of the influence of immunizations and antibiotics, we have patients who do not have a systemic parasympathetic tendency, but rather a **localized** parasympathetic tendency in the specific neurological control of the bronchial tree. There is a possibility that the neurotoxic effect of vaccines damages an autonomic nerve ganglion which causes the localized parasympathetic over-reactivity and thus the asthma. While this has not been proved conclusively, a study published in The Journal of Anthroposophic Medicine demonstrated that the recovery from childhood diseases plays a role in the maturation of the immune system and helps the individual develop resistance to disease, including helping to prevent the development of asthma and other chronic diseases.(3)

Another study published in Science showed that childhood infections paradoxically protect against asthma, and that allowing respiratory ailments to run their course is essential to developing natural immunity. Suppressing this immune response leads to a state of neuro-immunological deficiency in the upper respiratory tract and a predisposition to asthma.(4)

So, to summarize, many of our modern day asthma conditions are associated with a localized parasympathetic over-reactivity rather than a systemic Parasympathetic Imbalance. To control the asthma in these patients you must still treat them with Complex P, tyrosine, and very often with magnesium chloride as per your QRG. However, you must be cautious because these patients can very easily be pushed into a systemic state of Sympathetic Imbalance, even as their bronchial system is struggling with its own parasympathetic condition.

One other note on your asthmatic patients is that many of these people also tend to be Anaerobic. This imbalance can also be hidden by asthma medications, many of which push a patient more Dysaerobic. Look for an Anaerobic tendency in these patients and treat it with Oxygenic A, Oxygenic A+, tyrosine, and Diphasic A.M.

While you will be of tremendous help to your asthma patients, most of them will continue to need some pharmacological intervention, at least from time to time. Which medications are the most beneficial and which ones are damaging? The best medications for your asthma patients are those which are both anti-parasympathetic and anti-anaerobic. These are the epinephrine analogs. Most of them are provided in the form of inhalers. These constitute the most logical choice for asthma medication since they not only directly impact the symptom but are also addressing the underlying metabolic imbalances. Also beneficial are the leukotriene inhibitors.

While your epinephrine analogs are an excellent choice, theophylline is a good choice in those patients who are Parasympathetic – but is not good in those patients who have an Anaerobic component to their asthma.

The third common medication used for asthma is glucocorticoids. These steroids are a very poor choice in that while they may give short term relief, they actually exacerbate the Parasympathetic and the Anaerobic Imbalances that cause the asthmatic condition. We could condone the use of the medication for short-term crisis relief despite its side effects **if there were no other alternative**. However, since epinephrine is just as effective or more so at controlling an asthmatic crisis, there is no justification for using steroids.

In a crisis situation, such as when a severe asthma attack necessitates hospital emergency care, a shot of epinephrine (adrenalin) should be the first treatment choice. This used to be standard practice, but has been replaced by the use of prednisone. Prednisone "works" symptomatically by virtue of its anti-inflammatory and anti-prostaglandin effect, while actually exacerbating the patient's underlying Parasympathetic (and Anaerobic) tendency. Only asthmatics with a Dysaerobic tendency derive more short-term good than long-term harm from steroids.

Two additional comments on asthma medications are in order. First, many asthma medications and allergy medications contain sodium benzoate. It has been found that this common cough, cold, and allergy medication actually causes asthma in many patients. A study published in The Archives of Pediatrics showed that children with asthma had their condition clear completely as soon as they discontinued sodium benzoate containing medication.(5)

Finally, let us consider allergy shots, which are often used in the belief that a decreased sensitivity to allergens will decrease the frequency or severity of asthma attacks. We love it when establishment researchers set out to prove themselves right and end up stubbing their toe in the process. A study published in the New England Journal Of Medicine, which was designed to prove the efficacy of allergy shots in asthma patients, proved exactly the opposite. When the study showed absolutely no benefit from allergy shots, and likely harm, the researchers were dumbfounded, and in their state of disbelief urged caution in accepting their own study's conclusions.(6)

So – what will you do with your next asthma patient? First, identify all the NUTRI-SPEC fundamental imbalances. Second, treat all those imbalances plus a Parasympathetic Imbalance, regardless of whether the patient tests as Parasympathetic. To monitor that patient, use whatever tests lean toward the Parasympathetic side. Finally, put the patient on the **Prostaglandin Dietary Recommendations** in addition to the NUTRI-SPEC Fundamental Diet. This means the patient must strictly avoid salad dressings, margarine, mayonnaise, nuts and nut butters, and all fried foods. The patient should also be following the Parasympathetic Diet, which means a decrease in carbohydrate intake with particular attention to decreasing fruit and other forms of sugar, plus strict avoidance of juices.

Your only additional responsibility with these patients is to check their medications. Make sure they are taking no sodium benzoate containing medications. Also make sure that if they are using an inhaler it is an epinephrine analog and not a steroid.

Again, the key to asthma is correcting the Parasympathetic Imbalance and keeping the other NUTRI-SPEC imbalances under control as well. Most typically the other imbalances include a Metabolic Alkalosis, or an Anaerobic or Dysaerobic Imbalance.

Dietary Recommendations

The dietary recommendations for both Sympathetic and Parasympathetic Imbalances require that these patients strictly avoid refined or concentrated sugars and starches of any kind, particularly juice and other sugar drinks. This consideration is so important for Parasympathetic patients that they must include strict avoidance of fruit as well.

Blood sugar irregularities are typical of both Sympathetic and Parasympathetic Imbalances. But the problems associated with dietary sugars and starches are not limited to those directly related to energy production and blood and brain sugar levels. Water/Electrolyte balance is affected as well. Excess carbohydrate intake causes sodium retention in both your Sympathetic and your Parasympathetic patients (and to some extent in all people), and, carbohydrates cause loss of potassium in your Sympathetic patients.

Both these imbalances need to increase their intake of the high nutrient density foods, i.e., meat and vegetables. The Parasympathetic patient has a greater need for high adenine type meats such as beef, lamb, poultry dark meat, seafood, and organ meats. A high protein, low carb diet will increase the vitality of a Parasympathetic patient, while eliminating Parasympathetic symptoms, and assuring loss of excess body fat. The Sympathetic patient does better emphasizing fish, poultry, dairy and eggs as a source of protein. Carbohydrates are no problem for Sympathetic patients as long as sugar foods are avoided.

Recommended Supplementation

Your Sympathetic and Parasympathetic patients will often present you with an extraordinarily complex symptomatic picture.

Now let us consider just what it is in your Nutri-Spec supplements for these imbalances that enables you to expect improvement in both your objective indicators and in the symptomatic picture in such extreme patients.

First look at Complex S. Your Complex S contains a complete blend of nutrients which have a specific normalizing effect on the characteristic problems of a Sympathetic Imbalance:

- excess vaso-constriction
- excess renin activity
- elevated blood sugar
- nervous tension
- deficient immune response
- deficient GI secretion and motility

These nutrients include vitamins, minerals, trace minerals, and amino acids designed to push your patient powerfully from the Sympathetic side of the balance scale to the Parasympathetic side, **without** creating any other metabolic imbalances.

If you look at the label on your Complex S, one nutrient you should note is the amino acid **arginine**. We could easily devote several pages to this amazing nutrient – but here are the highlights:

Research published in both The Lancet and in The Journal of the American College of Cardiology shows that arginine is used in the body to produce nitric oxide.(7,8) Why is this important? Several studies have shown that the role of cholesterol in cardiovascular disease is not so much a matter of clogging the arteries, but rather of causing both spasms of the blood vessels and a fibrous thickening of the vessel walls. Nitric oxide, made from arginine, allows the blood vessels to relax and dilate, and also decreases the fibrous thickening that we know as atherosclerosis. (However, nitric oxide in even slight excess can cause a decrease in mitochondrial energy production in cells throughout the body, and will cause cellular death in the brain, heart, and blood vessels. It exacerbates all inflammatory diseases. It can accelerate the development of cancer. Clearly, Arginine must be supplemented responsibly.

You will find that many of your Sympathetic patients have cardiovascular disease. Arginine is one of several nutrients in your Complex S that will reverse cardiovascular disease, and restore the blood pressures, pulses, and dermographics reflex to normal.

Some of the other benefits of arginine should be mentioned:

- It decreases angina pain
- It has anti-cancer activity
- It is beneficial in certain types of arthritis
- It promotes wound healing
- It restores sexual functioning to impotent men
- It helps detoxify the liver
- It assists in generating creatine phosphate, a compound required for muscle contractions and stability of the membrane that surrounds the heart
- It helps produce collagen required for strong joints and youthful skin
- It helps maintain normal growth hormone levels

Since the excess catacholamines typical of your Sympathetic patients have a catabolic effect, your Complex S is loaded with anti-catabolic nutrients. One of these is the arginine we just discussed – others include the amino acids **ornithine**, and **serine**. Many of the minerals and trace minerals in Complex S also have an anti-catabolic effect, preserving the integrity of brain tissue as well as muscle and skin.

You will note that Complex S contains four forms of **magnesium**. Magnesium is vitally important to the Sympathetic patient because of its vaso-dilating effect, because of its effect on stimulating GI secretion and motility, because of its favorable impact on the heart muscle, and because of its importance in regulating electrolyte levels. Magnesium also helps reverse the effects of diabetes, a condition commonly associated with Sympathetic Imbalance.

Diabetes is an important consideration for your Sympathetic patients. Most of your insulin dependent diabetics will show a Sympathetic Imbalance upon NUTRI-SPEC testing – and virtually all your sympathetic patients will have a tendency to become diabetic during a lifetime of excess sugar consumption. There are two trace minerals in your Complex S that have an amazing impact on elevated blood sugar levels. These are **chromium in polynicotinate form**, and **vanadium in BMOV form**. Numerous research studies have shown the ability of each of these nutrients to independently lower the serum glucose in diabetic patients. When used in combination with each other and with the other nutrients in Complex S, they have the power to bring many of your diabetic patients under control – and to favorably impact the serious consequences of diabetes including retinopathy, atherosclerosis, gangrene, and kidney failure.

An amino acid beneficial for many of your Sympathetic patients is **taurine**. We have described taurine in previous chapters on Electrolyte Stress and Anaerobic imbalances. Its anti-sympathetic effect is associated primarily with two of its functions:

- It is a natural calcium channel blocker (thus keeping blood pressure and pulse under control).
- It facilitates the upper GI function of the liver and gall bladder.

Constipation is a problem that plagues many of your Sympathetic patients. Complex S is in itself very beneficial in that regard. However, there are some Sympathetic patients that have a strong Anaerobic component to their problem. In these cases, supplementation with **Oxygenic A+** will do the trick, if it is indicated by a tendency to elevated urine pH.

The neuro-vascular component of a Sympathetic Imbalance can often lead to rebound **migraine headaches**. In these cases you will often find indication for supplementation with **Oxygenic D-Plus.** Sympathetic migraines are also benefited by extra **taurine**. Extra taurine is also indicated if your Sympathetic patient has **elevated cholesterol** or **cardiac arrhythmia**.

Oxy Power will reverse the oxidative stress typical of many Sympathetic patients. It, along with Oxy D-Plus, will lower elevated cholesterol. Oxy Power will also benefit sympathetic-related diabetes, allergies, and arthritis.

Turn your attention now to the Parasympathetic page of your QRG. Heading the list of supplements for your Parasympathetic patients is, of course, Complex P. Complex P contains the blend of nutrients which have a specific normalizing effect on the consequences of a Parasympathetic Metabolic Imbalance, which include:

- blood and brain sugar problems
- excess GI motility and secretion
- hypotension and poor circulation
- allergies and asthma
- low energy; nervous tension; and depression

Looking at the ingredients in your Complex P, you see the list headed by a few of our critically important amino acids – **tyrosine**, **phenylalanine**, and **glutamine**. The benefits of these three amino acids to **brain function**, to **energy levels**, and to **GI function** will be described in detail in Chapter 11.

Some other noteworthy items on the list of Complex P ingredients include three forms of **calcium** – glycerophosphate, orotate, and aspartate. Each form has its own distinct impact on the metabolic dysfunctions associated with Parasympathetic Imbalance.

You will also find **chromium as polynicotinate** – the most biologically active form of chromium – for its impact on maintaining normal **blood and brain sugar levels**.

Complex P also contains therapeutic doses of the bioflavinoid **rutin**. Bioflavonoids are powerfully protective nutrients. But there is something about the bioflavonoids added to almost all supplements that you must know. You will often find an ingredient in other companies' products listed as "bioflavonoids." This is a tell-tale sign that this product is cheap garbage. Do you know what constitutes this "bioflavonoids" ingredient that nearly all nutrition companies use in their products? It is nothing more than a crude concentrate of lemon peels. It contains approximately 2 milligrams of biologically active bioflavonoids per 100 milligram of the so-called bioflavonoid substance. Remember that – only 2 milligrams of good stuff for every 100 milligrams on the label. Compare that with your Complex P which has 60 milligrams of the biologically active goodies.

One caution is in order regarding your Complex P. It is so effective that you have to be prepared to begin decreasing the dosage at the first sign of a Sympathetic shift. Your patients may begin to complain of constipation, insomnia, or a dry mouth. These are not side effects of the Complex P, they are the direct **intended** effects. These symptoms really show that your Complex P has achieved its job of pushing the patient out of a Parasympathetic rut, toward the Sympathetic side of the balance mechanism. At that point in time simply begin to decrease the dosage in accordance with the QRG protocol.

There are other supplements listed in your QRG that are often beneficial for your Parasympathetic patients. You will find, for example, that many patients benefit from extra tyrosine, pheynlalanine, or glutamine in addition to what you are providing in your Complex P.

- **Tyrosine** is indicated in your parasympathetic patient suffers from either **depression** or **allergies**.

- **Phenylalanine** is helpful if the patient has a problem with **fatigue**.

- **Glutamine** should be given to any of your parasympathetic patients who have **colitis/diarrhea**, or, who have **depression, or extreme hypoglycemia**.

Phos Drops will give a very nice boost to many of your Parasympathetic patients who show a tendency toward an **Alkalosis.**

Sodium glycerophosphate will ease the anxiety associated with a Parasympathetic Imbalance, yet will give a boost if fatigue is a problem.

Oxy D+ will help control GI inflammation, correct the vascular dysfunction, and will lower cholesterol if need be.

The out of control **vaso-dilation** typical of a Parasympathetic Imbalance can give these patients migraine headaches. These migraines often have a Dysaerobic component as indicated by a low urine pH. When that is the case you can use **Oxygenic D-Plus** for these Parasympathetic migraines.

Finally, we must consider asthma as a Parasympathetic condition. Many of your asthmatic patients will benefit from an additional dosage of magnesium chloride because of its impact as a broncho-dilator, plus its ability to replace the chlorides dumped by the kidneys during the Respiratory Acidosis phase of an asthma attack.

A) Sympathetic Imbalance

1) The goal in supplementation for your Sympathetic patients is to achieve one or more of the following: to decrease excessive vasomotor tone, to stabilize elevated sugar levels, to decrease the calcium:potassium ratio, to decrease pyruvic and lactic acidosis, to improve gastrointestinal function, and to calm nervous agitation. The following specific combination of amino acids, vitamins, minerals, and trace minerals have shown a powerful impact on the sympathetic pattern of test results.

L-Arginine

L-Ornithine

Magnesium (Citrate)

Magnesium (Sulfate)

Magnesium (Aspartate)

Magnesium (Orotate)

Potassium (Citrate)

Potassium (Aspartate)

Potassium (Orotate)

Chromium (Polynicotinate)

Manganese (Aspartate)

Thiamine Pyrophosphate

Niacin (Nicotinic Acid)

Pantethine

Choline

2) The nutrients listed below for Parasympathetic stress should never be given to your Sympathetic patients in anything more than nutritional quantities.

3) Lactate supplements should never be given to Sympathetic patients. Atheroma plaqueing is associated with high levels of collagen hydroxylase enzyme, which are associated with increases in pulse pressure from excess sympathetic, epinephrine, and thyroxin activity. Collagen hydroxylase activity is stimulated by lactate. Lactate can also precipitate panic attacks.

B) Parasympathetic Imbalance

1) Your objective in treating your Parasympathetic patients is to pull them out of their physical and emotional lethargy, to increase vasomotor tone while decreasing excessive bronchial constriction, to maintain normal blood sugar levels, to increase the calcium:potassium

ratio, and to inhibit excess G.I. activity. The following specific combination of amino acids, vitamins, minerals, and trace minerals have shown a powerful impact on the Parasympathetic pattern of test results.

L-Tyrosine

L-Phenylalanine

Glycine

L-Glutamine

Calcium (Glycerophosphate)

Calcium (Aspartate)

Calcium (Orotate)

Phosphorous (Calcium Glycerophosphate)

Phosphorous (Phosphoric Acid)

Chromium (Polynicotinate)

d-Alpha Tocopherol

Thiamine Pyrophosphate

Riboflavin 5 Phosphate

Niacinimide

Pantothemic Acid

Pyridoxal 5 Phosphate

Rutin

2) The nutrients listed above for Sympathetic stress should never be given to your Parasympathetic patients in anything more than nutritional quantities.

3) Alanine sypplements should be avoided by Parasympathetic patients. Alanine (the major amino acid source of glucose via gluconeogenesis) will stimulate excess insulin, thus causing hypoglycemia and many other Parasympathetic symptoms.

4) Excessive vitamin B6 supplementation must be avoided by Parasympathetic patients, as should supplementation with the amino acid histidine. Vitamin B6 will increase conversion of histidine to histamine (paralleling vagus activity), thus exacerbating Parasympathetic allergic symptoms such as sneezing, rhinitis, itching watery eyes, etc.