The Nutritional Assessment Questionnaire was first designed to be assessed using a sophisticated computer analysis program. This provided the practitioner with a number of comprehensive reports that could assist them to make further assessments and nutritional recommendations to their clients. However, there are many practitioners who would rather not rely on a computer program and have requested that I write a section in this second edition to help them do a manual assessment. This section of the Question by Question Guide to the Nutritional Assessment Questionnaire is written for them.

How to use the NAQ

The NAQ is one of the best data gathering tools available. It has saved me and my clients many hours of history taking and provides an incredible tool to track data over a longer period of time. I call this “history taking in motion”. Many practitioners spend a lot of time gathering that initial history. However, that valuable data is often relegated to the back of the file and never referred to again. The NAQ allows you to ask relevant history questions in an easy to use questionnaire and enables you to ask the same questions at a later date to see how much change there has been. In medicine we are always looking for change and this tool is one of the best ways I know of to monitor changes in the symptom burden of the client.

The NAQ is also an excellent tool to encourage compliance in clients. How many of us have had the experience of putting together an excellent protocol for a client’s migraine headaches only to have the client return in 3 weeks saying that the headaches have not changed. By using the NAQ the client themselves answers the questions and the questionnaire gathers the information for analysis. You can sit down with the client and point out that yes, their headaches have not completely resolved but they reported on their initial NAQ that their headaches were a 3 (a severe symptom that occurs frequently) and on their next NAQ they had reported that the same symptom had dropped down to a 1 (a minor or mild symptom, rarely occurs). This client is more likely to comply with your recommendations.

How to do a manual analysis of the NAQ

As you are probably aware the NAQ has been broken down into two main parts and each part is broken down into sub sections. There are a specific number of questions in each section and a maximum total score for each section. The questionnaire has a place at the top of each section that indicates the maximum score that can be recorded for each section.

For instance the Upper Gastrointestinal System has 19 questions that are asked on the questionnaire. If a client answered a 3 to each and every question on that section they would have a maximum symptom count of 55. This number reflects the maximum symptom count in that section or body system. The symptom burden in this case is extraordinarily high.
Question by Question guide to the NAQ- Manual Analysis of the NAQ

The table below breaks the questionnaire down into each of its individual sections and lists the maximum symptom count for each section. It also indicates how many questions are in each section. These two numbers are going to be used to evaluate the severity of symptom burden for each system and also give you a sense of the total symptom burden your client is under.

<table>
<thead>
<tr>
<th>Section</th>
<th>Maximum symptom count for each section</th>
<th>Number of questions in each section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet</td>
<td>58</td>
<td>20</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Upper Gastrointestinal System</td>
<td>55</td>
<td>19</td>
</tr>
<tr>
<td>Liver and Gallbladder</td>
<td>68</td>
<td>28</td>
</tr>
<tr>
<td>Small Intestine</td>
<td>47</td>
<td>17</td>
</tr>
<tr>
<td>Large Intestine</td>
<td>58</td>
<td>20</td>
</tr>
<tr>
<td>Mineral Needs</td>
<td>75</td>
<td>29</td>
</tr>
<tr>
<td>Essential Fatty Acids</td>
<td>22</td>
<td>8</td>
</tr>
<tr>
<td>Sugar Handling</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td>Vitamin Need</td>
<td>81</td>
<td>27</td>
</tr>
<tr>
<td>Adrenal</td>
<td>78</td>
<td>26</td>
</tr>
<tr>
<td>Pituitary</td>
<td>29</td>
<td>13</td>
</tr>
<tr>
<td>Thyroid</td>
<td>48</td>
<td>16</td>
</tr>
<tr>
<td>Men Only</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>Women Only</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Kidney and Bladder</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Immune System</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>830</strong></td>
<td><strong>294</strong></td>
</tr>
</tbody>
</table>

**Evaluating the Symptom Burden**

The best way to get a general assessment of the symptom burden for any particular system is to look at the total symptom count for each system and then divide that by the number of questions in that section. The closer the fraction gets to 1 the greater the severity. It is time to treat and further assess that system the closer the fraction approaches 1.
The following is an example of how to evaluate the symptom burden in a particular system:

A client has filled in their NAQ and you note that the symptom count for the sugar handling section appears to be high. The following example will illustrate how to evaluate the symptom burden for a typical sugar handling section on a NAQ:

**Section 7 – Sugar Handling**

173. 0 1 2 3  Awaken a few hours after falling asleep, hard to get back to sleep
174. 0 1 2 3  Crave sweets
175. 0 1 2 3  Binge or uncontrolled eating
176. 0 1 2 3  Excessive appetite
177. 0 1 2 3  Crave coffee or sugar in the afternoon
178. 0 1 2 3  Sleepy in afternoon
179. 0 1 2 3  Fatigue that is relieved by eating
180. 0 1 2 3  Headache if meals are skipped or delayed
181. 0 1 2 3  Irritable before meals
182. 0 1 2 3  Shaky if meals delayed
183. 0 1 2 3  Family members with diabetes (0=none, 1=1 or 2, 2=3 or 4, 3=more than 4)
184. 0 1 2 3  Frequent thirst
185. 0 1 2 3  Frequent urination

**Total symptom count in this section: 26**
**Total number of questions in this section: 14**
**The symptom burden for the sugar handling section for this client = 1.87 (26/14)**

The symptom burden for this particular case is severe because the symptom burden is way above 1. This is a significant finding and the underlying cause of the blood sugar dysregulation must be further assessed and treated. Suggestions of further assessment can be found in the individual sections further in the book.

**Evaluating the total body symptom burden**

You can use the same principle when evaluating the total body symptom burden. The best way to evaluate the total body symptom burden is to add up the symptom count for each section and divide that number by the total number of questions on the NAQ. I recommend that you do not include the medication count in this calculation as it just reflects a straight yes or no and will not add anything to your evaluation.

If the number is above 1 you know that the client is under fairly significant burden from their symptoms. The significance increases as the number increases above 1. Assessing total body symptom burden can very helpful when you are doing serial NAQs. You want to see the number decrease over time.
Part I of the NAQ

Part I deals with Diet, Lifestyle, and Medications that your clients may be taking. It is often easy to gloss over this section and head into Part II, which covers the organ systems. I think that this is a mistake. I find Part I a very helpful tool for uncovering hidden diet and lifestyle related factors that are obstructing my clients’ journey to health and wellness. It is also a great way to track prescription and over-the-counter drug use. It can also be used to track dietary and lifestyle changes that you ask your clients to make over the course of treatment. I use part I of the NAQ to steer my initial history intake. I ask the client to go into more detail on the dietary related questions they answer. This is a wonderful way to begin the education process.

Diet

The diet section has 20 questions that ask about general dietary history. Take the time to look in the diet section later in this book. I go into detail about each of the questions on the Diet section. As I mentioned above, this is an excellent place to start the re-education process for your clients. I will often tie in symptoms from part II with the questions they answer in the diet section. For instance, a client has a heavy symptom burden in the sugar handling section. They get sleepy in the afternoon, crave sweets, have headaches if meals are skipped, get irritable if meals are skipped, and crave coffee in the afternoon. I would then turn to the diet section and see what elements in their diet may contribute to these symptoms. They may eat refined sugar daily, drink caffeinated beverages, use artificial sweeteners, and consume refined flour on a daily basis. Connecting lifestyle and diet choices in with symptomology is a very effective way of creating change.

Lifestyle

The lifestyle section of the NAQ asks four very important questions:

1. Are you exercising?
2. Have you changed jobs recently?
3. Have you had a change in marital state recently?
4. How much do you work in a given week?

These questions are related to the stress levels a client is under. Hans Selye, the “father” of modern stress physiology put tremendous stock in the lifestyle factors that caused daily stress on the body.

Are you exercising?

The question “Are you exercising?” has a dual purpose. It identifies if the client is exercising at all. Moderate exercise is an important way to de-stress. You can begin the conversation about the importance of exercise with the clients who answer a 3 on the questionnaire (never exercise, or less than once a month). Please see the chapter on this question in the Lifestyle section of the book for a brief description on the benefits of exercise for your clients.

The other question it asks is whether or not the client may be over exercising. Research has shown that many people exercise too much. This puts considerable stress on the body, which
Question by Question Guide to the NAQ: Breakdown of the Sections of the NAQ

has a difficult time recovering. Dr. Schwarzbein, in her seminal work “Schwarzbein Principle 2: The transition” documents the dangers of over exercise in terms of blood sugar control and adrenal burnout. I ask a client who answer 0 to this question (I exercise 2 or more times a week) very specific questions related to their exercise:

1. What type of exercise they do?
2. How much recovery time do they give between sessions?
3. What ratio of cardio to resistance training?
4. Do they incorporate stretching, yoga or core muscle work into their exercise?
5. Do they get sore between exercise sessions?
6. Do they get muscle cramps?
7. How much water do they drink?

The answers to these questions can help the client create a more balanced exercise regime. Also tie in the answers to the Part II questions to see how much of their symptom burden is being aggravated by their exercise routine.

The other 3 questions are directly related to the severity of stress that a client may be under. Clients who answer 3 on these three questions (changed jobs within last 2 months, divorced within last 6 months, and always work over 60 hours/week) are under a tremendous amount of stress. Expect to see a significant symptom burden in the sugar handling, adrenal, and thyroid section in part II.

Exposure to long, daily bouts of sustained stress put tremendous burden on the adrenals causing first an elevated cortisol level followed by a decreased level as the body passes through a stage of maladaptation to stress that leads eventually to outright adrenal dysregulation. This in turn contributes to blood sugar dysregulation as the body has a hard time regulating insulin levels, which leads to abnormal blood sugar swings. Sustained adrenal stress is one of the major causes of a dysfunctional thyroid. High levels of stress lead to the creation of a substance called reverse T3, which inhibits the creation and activity of active thyroid hormone.

Medications
It is very difficult to remember to ask your clients about every drug they may be taking. The NAQ is a great tool to assess the medications your clients are taking. I always glance at the medication section of the NAQ and am prompted to ask for specifics about any medications they are taking. I ask questions such as:

1. How long have you been taking this medication?
2. Who is the prescribing physician?
3. When was the last time you saw this doctor about this medication?
4. What condition is this medication meant to be addressing?
5. Do you notice any unusual symptoms associated with this medication?
6. Do you get routine lab work to make sure that your liver, kidneys and red blood cells are coping with this medication?
7. Are you interested in trying to reduce your dependence on your medication?

Note well: Only the prescribing physician has the right to change or alter a client's medication.
Part II of the NAQ

Part II of the NAQ focuses on the organ systems of the body and is organized according to a very specific system called the “Foundations of Health”.

Foundations of Health

Part II of the Nutritional Assessment Questionnaire is organized according to a functional hierarchy called the Foundations of Health. You will notice that the digestive system is placed at the top of the list ahead of say the kidney and bladder section. This is not to say that the kidney and bladder are any less important to optimum health. It has been noted over many years that the body heals in very clear patterns. It is possible to clear up kidney and bladder dysfunction by first assessing and treating any dysfunction in the digestive system. You can have a tremendous impact on kidney function by increasing the level of available macro and micro nutrients in the body through optimizing digestion, by increasing the levels of Essential fatty Acids (EFAs) in the body by optimizing the gallbladder function, and by cleaning up the liver.

The foundations of health include:

1. Proper diet,
2. Adequate sleep,
3. Proper stress management,
4. Optimal digestion, absorption, and utilization of nutrients,
5. Adequate elimination,
6. Optimal tissue minerals,
7. Balanced essential fatty acids,
8. Proper blood sugar regulation,
9. Optimal hydration,
10. Adequate vitamin levels,
11. Balanced adrenals, thyroid and sex hormones,
12. Good cardiovascular health,

It is important to focus the most attention on the symptom burden that is highest up the functional hierarchy. Even though a client may have a high priority in the cardiovascular system, it would be best to focus the most attention on the high priority in the liver gallbladder system for instance. Assessing and correcting the symptom burden in the liver gallbladder system will have a strong impact on the cardiovascular system.

The following sections will explain the relevance of a high symptom burden in the systems that are covered in part II of the NAQ.
1. Upper Gastrointestinal Section

The upper gastrointestinal (GI) system refers to the stomach and pancreas. This is one of the primary areas of dysfunction in the body. It is placed first on the NAQ because it has the highest priority in the foundations of health. Many dysfunctions in the body will resolve themselves once the upper GI has been appropriately assessed and treated. In my experience you cannot expect to resolve problems further down the digestive system without addressing stomach acidity.

The stomach adds hydrochloric acid and pepsin to help digest the food. The food then moves to the first part of the small intestine, or duodenum. There the pancreas adds enzymes to digest protein, fat and carbohydrate, and the gall bladder secretes bile to help emulsify fats.

Problems with digestion in the stomach and duodenum include inadequate production of hydrochloric acid (also called "hypochlorhydria"), pancreatic enzymes and bile salts. If this initial phase of digestion is inadequate, nutrients will not be absorbed, the GI tract can become irritated and yeast and other improper flora can grow in the lower bowel.

Assessing the symptom burden of the upper GI:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 – 9</td>
<td>Low priority</td>
</tr>
<tr>
<td>10 – 14</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 15</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the upper GI approaches 15 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the upper GI. This may be caused by functional hypochlorhydria, with a concomitant zinc or thiamine insufficiency, a problem with gastric inflammation and a concomitant Helicobacter pylori infection, or ulceration. Poor digestion can be the beginning of digestive problems, fatigue, nutrient deficiency, obesity, food cravings, and allergies. It can also be the cause of irritable bowel, colitis, and Crohn’s disease.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess the upper GI.

To receive master copies of the questionnaire and manual assessment form please send a blank e-mail to:
naq@BloodChemistryAnalysis.com
Assessing the Upper GI (stomach function)

<table>
<thead>
<tr>
<th>Further assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check Ridler HCL reflex for tenderness 1 inch below xyphoid and over to the left edge of the rib cage</td>
</tr>
<tr>
<td>2. Check for tenderness in the Chapman reflex for the stomach and upper digestion located in 6th intercostal space on the left</td>
</tr>
<tr>
<td>3. Check for a positive zinc tally: A client holds a solution of aqueous zinc sulfate in their mouth and tells you if and when they can taste it. An almost immediate very bitter taste indicates the client does not need zinc. Clients who are zinc deficient will report no taste from the solution.</td>
</tr>
<tr>
<td>4. Gastric acid assessment using Gastrotest</td>
</tr>
<tr>
<td>5. Increased urinary indican levels</td>
</tr>
</tbody>
</table>

Assessing the Upper GI (exocrine pancreatic function)

<table>
<thead>
<tr>
<th>Further assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check Ridler enzyme point for tenderness 1 inch below xyphoid and over to the right edge of the rib cage</td>
</tr>
<tr>
<td>2. Check for tenderness in the Chapman reflex for the pancreas located in the 7th intercostal space</td>
</tr>
<tr>
<td>3. Increased urinary sediment levels</td>
</tr>
</tbody>
</table>

Supplemental Support for Upper GI

1. Betaine HCL, Pepsin, and Pancreatin
2. Pancreatic Enzymes
3. Bromelain, cellulase, lipase, and amylase
4. Beet juice, taurine, vitamin C and pancreolipase
5. Water soluble fiber and other nutrients to support colon health
6. Lactobacillus acidophilus and Bifidobacterium bifidus

NOTES:
2. Liver and Gallbladder Section

The liver has over 500 known functions. It is involved with digestion, the endocrine system, controlling blood sugar, and protein and fat metabolism. The liver also produces a substance called bile that is stored in the gallbladder. Bile is essential for proper fat emulsification and is also a major route of elimination for the body. Gallbladder dysfunction is very common in the developed world, hence the reason why this section is so high up the foundational hierarchy.

The amounts of chemicals we are exposed to are unprecedented in history. The average American consumes 10 pounds of chemical food additives each year. Add to that the chemical burden caused by food sprayed with pesticides and from air and water pollution, you can see that our chemical burden is considerable.

The body has systems designed to eliminate waste and to detoxify poisons. The liver chemically converts toxins to be easily eliminated by the kidneys. Detoxification is an ongoing process. The sheer volume of chemicals in the environment and in the diet has caused many people to reach their threshold of tolerance, which has adversely affected their health.

When the body is burdened with more chemicals than it can efficiently detoxify, chronic health problems can occur. Problems like allergies, skin problems, digestive problems, headaches, fatigue, joint pain and a variety of ailments can be caused by chemical exposure. Theron Randolph, MD, and early researcher of chronic allergies, was convinced that the increased incidence of allergies and other chronic health problems in the latter half of the 20th century is due to the amount of chemicals we are exposed to on a day-to-day basis.

The gallbladder will become more and more compromised as the liver becomes more dysfunctional. The gallbladder stores the bile and when stimulated by the appropriate response (fat and protein in the GI and from the influence of cholecystokinin) will contract and pump bile into the lumen of the GI tract. However, a couple of conditions exist that greatly impact the function of the gallbladder. Mild liver damage due to fatty deposits within the functional units of the liver itself can greatly impact the production of bile. This leads to a situation called biliary insufficiency. Some of the common causes of biliary insufficiency include changes in metabolism within the liver itself. This is most often caused by the consumption of excess hydrogenated or trans fatty acids, excess refined foods, oxidative stress, and low fat diets. Other causes include overt liver damage due to hepatitis, chemical damage to the liver and liver cirrhosis.

Another condition that affects the biliary system is a condition called biliary stasis. This is a condition of progressive solidification and thickening of the bile itself within the gallbladder. This is often due to a low fat diet that does not provide adequate stimulation for bile release from the gallbladder. The hormone cholecystokinin (CCK) will not be released if there is no fat in the lumen and the gallbladder will receive no stimulation to contract and release bile. This causes a Supersaturation of the bile within the gallbladder; if left unchecked this can lead to overt stone formation. Other causes of biliary stasis include a decrease in bile acid formation and decreased phosphatidylcholine secretion.
Assessing the symptom burden of the Liver and Gallbladder:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 – 11</td>
<td>Low priority</td>
</tr>
<tr>
<td>12 – 17</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 18</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the Liver Gallbladder section approaches 18 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the Liver and/or Gallbladder. This may be caused by detoxification problems that can significantly affect the functioning of the liver, biliary insufficiency, biliary stasis, a low fat diet, or the consumption of hydrogenated oil.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess the liver gallbladder system.

**Assessing Liver dysfunction**

<table>
<thead>
<tr>
<th>Further assessment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check for tenderness in the Chapman reflex for the liver-gallbladder located over the 6th intercostal space on the right side</td>
<td></td>
</tr>
<tr>
<td>2. Check for tenderness in the Liver point located on the 3rd rib, 3 “ to the right of the sternum, at the costochondral junction.</td>
<td></td>
</tr>
<tr>
<td>3. Check for tenderness underneath the right rib cage</td>
<td></td>
</tr>
<tr>
<td>4. Assess for Hepato-biliary congestion with the Acoustic Cardiogram (ACG), which will show post-systolic rounding due to increased backpressure on the pulmonic and aortic valve. It may also show through to the tricuspid valve if chronic.</td>
<td></td>
</tr>
<tr>
<td>5. Decreased uric acid on a blood chemistry panel is an indication for molybdenum deficiency, a sign of Phase II liver detoxification dysfunction.</td>
<td></td>
</tr>
<tr>
<td>6. Increased SGOT, SGPT on a blood chemistry panel</td>
<td></td>
</tr>
<tr>
<td>7. Various labs do liver detoxification panels</td>
<td></td>
</tr>
</tbody>
</table>

**Assessing Gallbladder dysfunction**

<table>
<thead>
<tr>
<th>Further assessment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check for tenderness underneath the right rib cage</td>
<td></td>
</tr>
<tr>
<td>2. Check for tenderness and nodulation on the web between thumb and fore-finger of right hand</td>
<td></td>
</tr>
<tr>
<td>3. Check for tenderness in the Chapman reflex for the liver-gallbladder located over the 6th intercostal space on the right side</td>
<td></td>
</tr>
<tr>
<td>4. Blood chemistry and CBC testing for SGOT, SGPT, GGT</td>
<td></td>
</tr>
<tr>
<td>5. Increased urinary sediment levels, especially calcium oxalate levels, which are typically elevated in these cases</td>
<td></td>
</tr>
</tbody>
</table>

**Supplemental Support**

1. Beet juice, taurine, vitamin C and pancreolipase with or without bile salts
2. Nutrients to support Phase II liver detoxification
3. Herbs that cleanse the liver
4. Glutathione, cysteine, and Glycine
5. Powdered detoxification support formula
3. Small Intestine Section

The small intestine is the site for further digestion and also absorption and assimilation of the majority of nutrients. It is split up into 3 distinct areas: the Duodenum, Jejunum, and Ileum. About 90% of all absorption takes place in the small intestines. However, success in the small intestine is dependent on proper setup from the stomach, gallbladder, and pancreas. Dysfunction in any one of these systems will lead to the production of metabolic toxins. The bacterial flora in the small intestine feasts on maldigested nutrients and produce metabolic toxins that cause considerable damage to the lining of the small intestine leading to problems such as leaky gut syndrome and malabsorption. The small intestine becomes a great place for potentially pathogenic to take up residence as the terrain in the small intestine begins to deteriorate.

The small intestine is about 10 feet in length, but its surface area is far larger. Some estimates suggest that the surface area of the small intestine is about the size of a tennis court due to the presence of the villi and microvilli, microscopic projections out into the lumen of the small intestine. The small intestine continues the digestive process using mechanical digestion of localized segments that contract and mix up the chime with digestive juices and brings the chime in direct contact with the mucosa for nutrient absorption. Chemical digestion in the small intestine is from the joint efforts of bile, pancreatic and intestinal juices.

Some of the functional disorders that affect the small intestine include:

1. Bowel toxemia, which is the production of metabolic toxins that can damage the mucosa,
2. Dysbiosis: bacterial, fungal or parasitic infections,
3. Malabsorption, a condition whereby the absorptive surface of the lumen of the small intestine is reduced from the size of a tennis court to the size of a small parking space,
4. Leaky gut syndrome, a condition marked by the emergence of gaps between the cells of the small intestine. Large molecules that would normally be blocked from entering into direct systemic absorption can flow freely into the blood stream setting up immune and allergy like reactions.
5. Allergies/intolerances and sensitivities. These are directly associated with small intestine health. Please see the small intestine section later in the book for an in-depth explanation of the small intestine’s role in allergies and sensitivities.

Assessing the symptom burden of the Small Intestine:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 – 7</td>
<td>Low priority</td>
</tr>
<tr>
<td>8 – 15</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 16</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the Small Intestine section approaches 16 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the Small Intestine. This may be caused by dysbiosis, bowel toxemia, malabsorption, leaky gut syndrome, or allergies.

Refer to the explanation on each individual question in this book and follow the general
Assessing Small intestine dysfunction

<table>
<thead>
<tr>
<th>Further assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check for tenderness in the Chapman reflex for the colon located bilaterally along the iliotibial band on the thighs. Palpate the colon for tenderness and tension. Tenderness in the colon can relate to a dysfunction upstream in the small intestine.</td>
</tr>
<tr>
<td>2. Check for tenderness in the Chapman reflex for the small intestine located on the 8th, 9th and 10th intercostal spaces near the tip of the rib.</td>
</tr>
<tr>
<td>3. Check the Bennet reflex for the small intestine. Palpate four quadrants in a 2&quot; to 3&quot; radius around the umbilicus for tenderness and tension.</td>
</tr>
<tr>
<td>4. Increased urinary indican levels</td>
</tr>
<tr>
<td>5. Stool analysis - either comprehensive digestive analysis or a parasite profile</td>
</tr>
<tr>
<td>6. Decreased secretory IgA on stool analysis</td>
</tr>
</tbody>
</table>

Supplemental Support

1. Micro Emulsified Oregano
2. Nutrients that heal the intestines
3. L-glutamine
4. Betaine HCL, Pepsin, and pancreatin
5. Water soluble fiber and nutrients to support colon health Gut healing nutrients and demulcscents
6. Multiple nutrients that support the immune system
7. Lactobacillus acidophilus and Bifidobacterium bifidus
8. Gut healing nutrients and demulcscents

NOTES:
4. Large Intestine Section

The large intestine is the area in the GI where water is reabsorbed back into the body. The liquid chyme is transformed into feces, which consists of water, inorganic salts, sloughed off epithelial cells, and bacteria. The expulsion of feces through the colon requires optimal peristaltic function. The bacterial environment in the colon can synthesize certain nutrients including vitamin B1, B2, B12, and vitamin K. It is important to have adequate amounts of fiber in the diet because the bacteria act on the fiber to produce butyric acid, which is one of the main sources of fuel for the cells that make up the colonic mucosa.

Success in the large intestine is dependent on optimal function in the rest of the digestive tract. Resolving issues of hypochlorhydria, pancreatic insufficiency, bowel toxemia, dysbiosis, leaky gut syndrome, and malabsorption will have tremendous effects on the colonic health.

Some of the main areas of dysfunction in the large intestine include:

1. Sluggish colon (constipation)
2. Rapid bowel transit (Diarrhea)
3. Dysbiosis- bacterial and parasitic
4. Bowel toxemia
5. Yeast overgrowth

Assessing the symptom burden of the Large Intestine:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 – 9</td>
<td>Low priority</td>
</tr>
<tr>
<td>10 – 15</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 16</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the Large intestine section approaches 16 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the large intestine. This may be caused by a sluggish colon, a fast bowel transit time, dysbiosis, bowel toxemia, or a yeast overgrowth in the colon.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess the large intestine.

Assessing Large Intestine dysfunction

1. Have a client check their bowel transit time. Give 6 “00” caps of activated charcoal and ask them to record how long it takes for the black to appear and to go completely away. Various dyes, including beets, sweetcorn and un-popped popcorn can also be used.
2. Assess the client’s hydration status. Have client stand with hands by their side and check and palpate the veins in the right hand. Have them slowly raise their hand to heart level and see if the veins still stick out. Veins that are only just visible or not visible at all are a sign of dehydration.
3. Increased urinary indican and sediment levels
4. Stool analysis- either comprehensive digestive analysis or a parasite profile
5. Check for tenderness in the Chapman reflex for the colon located bilaterally along the iliotibial band on the thighs.
6. Palpate the colon for tenderness and tension.
7. Check for tenderness in the Chapman reflex for the small intestine located on the 8th, 9th and 10th intercostal spaces near the tip of the rib. Also palpate four quadrants in a 2” to 3” radius around the umbilicus for tenderness and tension.
8. Decreased secretory IgA on stool analysis

Supplemental Support

1. Water soluble fiber and nutrients to support colon health
2. Nutrients that heal the intestines
3. Betaine HCL, Pepsin, and pancreatin
4. Larch arabinogalactans
5. Micro Emulsified Oregano
6. Beet juice, taurine, vitamin C and pancreolipase
7. Bromelain, cellulase, lipase, and amylase

NOTES:
5. Mineral Needs Section

No discussion of minerals can be done without first addressing calcium needs and calcium supplementation. A major part of the NAQ Mineral Needs section deals with the signs and symptoms of calcium insufficiency. Calcium is the most abundant mineral in the human body. Of the two to three pounds of calcium contained in the average body, 99% is located in the bones and teeth. Calcium is needed to form bones and teeth and is also required for blood clotting, transmission of signals in nerve cells, and muscle contraction. The importance of calcium for preventing osteoporosis is probably its most well-known role.

Many in the healing arts feel that calcium deficiency is widespread and almost everyone would benefit from a daily calcium supplement. Our experience indicates that the inability to use calcium available in the diet is far more wide-spread than simple calcium deficiency. When a calcium need is identified through subjective indications or through laboratory analysis, the lack of synergists or metabolizing agents may be locus to the problem. Always rule out the need for magnesium, phosphorus, vitamin A, B, and C, unsaturated fatty acids, iodine, and the inability to absorb calcium from the diet (hypochlorhydria) as the possible reason(s) for the calcium need.

Many doctors feel that an increased serum calcium indicates poor fat emulsification and decreased serum calcium indicates poor fatty acid utilization.

Common subjective indications of calcium needs are:

1. Frequent skin rashes or hives,
2. Muscle cramps at rest (especially leg or toe cramps while sleeping),
3. Soft fingernails,
4. Frequent nose bleeds,
5. Increased fever with a mild cold or virus,
6. Frequent hoarseness,
7. Irritability,
8. High or low blood pressure.

Some of the main causes for calcium insufficiency include:

1. Arthritis
2. Blood loss
3. Decreased absorption
4. Decreased intake especially if eating SAD (Standard American Diet)
5. High intake of sodium
6. High intake of sugar
7. High phosphorus
8. Hypochlorhydria
9. Lead toxicity

The mineral section of the NAQ covers more than just calcium insufficiency. It covers the major symptoms associated with mineral insufficiency in general. Minerals may be depleted under
several conditions. Individuals who eat a lot of sugar and refined foods tend to excrete minerals in their urine; this is compounded by the fact that a refined diet is very low in minerals in the first place. Stress and stimulation of the adrenal glands tend to increase the secretion of hormones that cause a loss of minerals. It has been argued that the use of chemical fertilizers and soil erosion is responsible for the produce of today being lower in mineral content than vegetables grown in decades past.

The following section outlines the importance of the major macro and micro minerals to human physiology.

**Boron:** Boron is a trace mineral that may influence hormones, especially estrogen. It is used in many products to enhance bone strength in those experiencing osteoporosis.

**Calcium:** Necessary for bone health. It is also necessary for muscles to relax after contraction. Calcium may be needed by people who suffer from leg cramps or by women who suffer from menstrual cramps. Low calcium can be a reason for poor growth in children. It may be helpful for clients with high blood pressure. High calcium intake may reduce the risk for colon cancer.

**Copper:** Copper is a common cofactor in enzymes that break down and build up body tissue, help with blood clotting and enable the adrenal glands to work properly.

Copper is necessary (along with vitamin C) for the integrity of skin and connective tissue. It is necessary for the production of myelin (necessary for nerve function). Copper deficiency can lead to arthritis, arterial disease, loss of pigmentation, myocardial disease and neurologic effects. Copper deficiency can lead to an anemia that will not respond to iron supplementation (interestingly, too much copper can also lead to altered iron metabolism and also cause an anemia).

Copper, in high levels, can be toxic. High levels of copper can deplete zinc and iron. Excess zinc, iron or molybdenum intake can deplete copper. There is some evidence that an imbalance between zinc and copper (favoring copper) may lead to attention-deficit/hyperactivity disorder (ADHD) and aggressive behavior in general.

**Chromium:** Chromium is part of glucose tolerance factor (GTF). GTF increases the effectiveness of insulin. It is a useful nutrient for both hypoglycemic (low blood sugar) individuals and for diabetics. Chromium deficiency is fairly common in the United States because the mineral is difficult to absorb. Deficiency can lead to severe glucose intolerance (problems handling sugar, sugar cravings). Chromium may also play a role in protein and fat metabolism. There is some evidence that taking adequate chromium may help to prevent atherosclerotic plaques.

**Iodine:** Iodine aids the development and functioning of the thyroid gland. It is found in seawater and in soil on the coasts of the world. The world’s “goiter belts,” like the American Midwest, are areas that are far from the ocean with soil that is deficient in iodine. Adding iodine to salt eliminates the symptoms of goiter. According to Broda Barnes, MD, iodizing salt is not adequate to eliminate hypothyroidism in these areas and that people in land-locked areas may still need more iodine (Hypothyroidism, the Unsuspected Illness, by Broda Barnes and Lawrence Galton, Harper Collins Publishers, Inc., 1976).
The condition of hair, nails, skin and teeth are dependent on adequate thyroid function. Poor thyroid function can lead to problems like high cholesterol and immune system problems. People with poor thyroid function often feel cold when others do not, have trouble losing weight, may cry for no reason, feel fatigue, be depressed, lack motivation, have swelling of their ankles, catch colds easily or lack sex drive. Iodine also has the effect of thinning mucus and can be used to relieve sinus pressure.

**Iron:** The primary use of iron is in making red blood cells. Low iron can create microcytic anemia (an anemia with small red cells) however, not all anemias are the result of low iron. Symptoms of iron deficiency anemia (and other types of anemia) include weakness, fatigue, pallor (being pale), becoming out of breath on exertion, palpitation, coldness and loss of sensation in the extremities, and a sense of being overly tired. Iron deficiency can cause people to eat things like clay, starch, salt, cardboard, and ice.

**Magnesium:** Magnesium is a cofactor for many enzymes that are involved with metabolizing and converting the components of food. Magnesium facilitates at least 300 such enzymes.

Magnesium is nature’s muscle relaxer. It is useful for relieving all kinds of muscle tension, including menstrual cramps, muscle cramps, and general muscle tension. It is necessary for the production of bone. Magnesium deficiency is also a source of heart arrhythmias. Low magnesium is also responsible for many of the symptoms of premenstrual syndrome (PMS). Low magnesium may also be responsible for mood swings associated with the menstrual cycle. For menstrual issues, magnesium is much more effective when given with vitamin B₆. In fact, B₆ and magnesium generally work together in many enzyme systems.

Magnesium helps with glucose tolerance and fat metabolism. Magnesium deficiency has been linked to increased triglycerides and cholesterol. Magnesium, along with vitamin B₆, is useful for the prevention of kidney stones.

**Manganese:** Manganese deficiency can lead to skeletal abnormalities, impaired growth, depressed reproductive function and defects of lipid and carbohydrate metabolism. Low manganese levels may be responsible for some seizures in epileptics. Manganese deficiency can also weaken ligaments and discs. It is necessary for proper function of the pituitary gland.

**Molybdenum:** Molybdenum is an important mineral cofactor for three important enzymes which the body uses to detoxify various chemicals. This mineral is commonly deficient in individuals who are sensitive to chemicals and smoke.

**Selenium:** Selenium functions as an antioxidant. In other words, it helps protect your cells. It also necessary for adequate thyroid function. Some studies show that selenium supplementation increases resistance to viral infections. Selenium deficiency in animal studies has lead to hair loss, growth retardation, reproductive failure, and pancreatic problems.

**Zinc:** Zinc is important for use in hundreds of enzyme systems production. Low zinc levels in children can be a cause of poor growth.

Zinc deficiency can cause delayed sexual maturation, impotence, low sperm counts, loss of hair, glossitis, nail dystrophy, night blindness, impaired sense of taste and smell, depression, compulsive behavior, and decreased appetite (even to the point of anorexia).
Imbalance between copper and zinc (too much copper in relation to zinc) may be linked to ADHD and aggressive or antisocial behavior. There may be a link between diarrhea and zinc deficiency.

Zinc is also important for immune function; letting a zinc tablet slowly dissolve in your mouth is a very effective treatment for a sore throat. Zinc deficiency can lead to depressed thymic activity.

The cornea is the tissue with the highest zinc concentration and is affected by zinc deficiency. Dry, irritated eyes can result from low zinc levels.

**Assessing the symptom burden of the Mineral Needs Section:**

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 – 12</td>
<td>Low priority</td>
</tr>
<tr>
<td>13 – 19</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 20</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the Mineral Needs section approaches 20 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate the mineral balance in the body. This may be caused by an inability to absorb minerals from the diet, essential fatty acid insufficiency, adrenal hormone imbalance, systemic pH issues, vitamin D insufficiency, and general hormone imbalance.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess for the mineral needs in your clients.

**Assessing Mineral Insufficiency**

<table>
<thead>
<tr>
<th>Further assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Assess for mineral deficiency using Tissue mineral assessment test. Place a standard blood pressure cuff</td>
</tr>
<tr>
<td>around the largest portion of the client’s calf muscle (sitting). Instruct the client to let you know when</td>
</tr>
<tr>
<td>they feel the onset of cramping pain and gradually inflate the cuff. Stop and deflate immediately when</td>
</tr>
<tr>
<td>threshold has been reached. Less than 200 mmHg is considered deficient in minerals. Use the neurolingual</td>
</tr>
<tr>
<td>testing to challenge the body with several types of magnesium to see if this increases the threshold above</td>
</tr>
<tr>
<td>200mmHg.</td>
</tr>
<tr>
<td>2. Check for a positive zinc tally: A client holds a solution of aqueous zinc sulfate in their mouth and</td>
</tr>
<tr>
<td>tells you if and when they can taste it. An almost immediate very bitter taste indicates the client does</td>
</tr>
<tr>
<td>not need zinc. Clients who are zinc deficient will report no taste from the solution.</td>
</tr>
<tr>
<td>3. Check client’s urine for the loss of type 1 collagen (several labs offer this test often called Bone</td>
</tr>
<tr>
<td>Resorption Assessment)</td>
</tr>
<tr>
<td>4. Check client’s urine for calcium loss (Sulkowitch test).</td>
</tr>
<tr>
<td>5. Check serum calcium, phosphorous, sodium, potassium and uric acid levels.</td>
</tr>
<tr>
<td>6. Assess for mineral insufficiency by using Dr. Kane’s mineral assessment tests.</td>
</tr>
<tr>
<td>7. Assess the impact of mineral deficiencies on the body’s acid buffering capacities by using Dr. Bieler’s</td>
</tr>
<tr>
<td>salivary pH acid test.</td>
</tr>
</tbody>
</table>
Supplemental Support

1. Alkaline Ash minerals (Calcium, Magnesium, Potassium)
2. Calcium and Magnesium formula with or without parathyroid tissue
3. Emulsified Vitamin E drops
4. Multiple nutrients to support bone health
5. Multiple mineral without iron or copper
6. Betaine HCL, Pepsin, and pancreatin
7. Mixed fatty acids (walnut, hazelnut, sesame, and apricot)

NOTES:
6. Essential Fatty Acids Section

A lot has been written and broadcast about the dangers of eating fat. Doctors, athletic trainers, and dieters are recommending low-fat diets. What has been lost in the midst of all of this advice is that fat is actually a necessary component of your diet. You need fats and oils for a properly functioning immune system, integrity of the skin and mucus membranes and absorption of fat-soluble vitamins (vitamins A, E, D, and K). Not all fats are created equal. Some need to be avoided; some are a vital component of a healthy diet. Most Americans need to add a source of essential fatty acids to their diets; so avoiding fats completely is not always a good idea.

Essential fatty Acids (EFAs) are just that, essential. You need to have them in order to live. Unfortunately most people in the so-called developed Western world are commonly deficient in essential fatty acids for a variety of reasons. One of the main causes of essential fatty acid deficiency is the consumption of hydrogenated and partially-hydrogenated oils. Hydrogenation is a process in which hydrogen is bubbled through an oil, turning it into a solid. Unfortunately, it changes the chemistry of the oil so that it is unusable by the body. Hydrogenating oil turns a liquid oil into a solid fat with a very long shelf-life—good for food processors, bad for your health. The fats created are called “trans fats” and they can create health problems.

Trans fats not only cause health problems of their own, they prevent the essential fatty acids from being properly utilized by tying up the enzymes necessary for their metabolism. In fact, one common sign of trans fats creating problems is a craving for fried food, or snacks fried in oil, like potato chips. The body is actually craving the essential oil it needs, but when deep-fried food is substituted it “gums-up” the works, creating a more severe deficiency than if the fried food was never consumed.

Encourage your clients to absolutely avoid all forms of hydrogenated and partially hydrogenated oils. As time passes, we keep finding out more and more bad things about hydrogenated oil and fried foods.

Some of the many problems associated with Trans fats include:

1. Women with higher levels of trans fats in their cells are much more likely to develop breast cancer than those with low levels.
2. High levels of trans fats create platelet aggregation, which is the beginning of the plaque associated with coronary heart disease.
3. Pain and inflammation become much worse for clients who consume hydrogenated oils. They chemically prevent the formation of natural anti-inflammatory substances that are normally produced by the body. If you suffer from chronic pain or have recently been injured, strictly avoid hydrogenated oil.
4. Trans fats are incorporated into the cells and affect the integrity of the cellular membrane. This makes the cell less resistant to bacteria and viruses. They are a source of immune system problems.
5. There may be a link between trans fats and ADD, depression and fatigue. Brain and nerve tissue have a high content of fat. Some researchers believe that when trans fats are incorporated into the nerve cells they affect certain functions, creating problems like ADD and depression.
6. Muscle fatigue and skin problems are also linked to hydrogenated oils. Trans fats cause the muscles to fatigue easily. Since the myelin sheath is largely composed of fat, trans fats may affect function of the nervous system and there may be a connection to attention-deficit disorder (ADD).

7. Most chips and fried snacks contain hydrogenated oils. Hydrogenated oils are found in a lot of packaged foods like crackers, cereals, and even bread. They are in margarine, mayonnaise and a lot of bottled salad dressings. Read labels.

8. Not all fats are bad for you. Permissible fats include raw nuts (not roasted), virgin or extra virgin olive oil and avocados.

Encourage your clients to eat foods that contain essential fatty acids. Raw nuts and seeds and cold water fish (like salmon) are good sources of essential fatty acids. Your doctor may have some specific suggestions for you. Clients suffering from chronic pain and inflammation should strictly avoid hydrogenated oil and trans fats. For that matter, they should go easy on meat products since they too may contribute to inflammation.

Another reason for essential fatty acid deficiency is the prevalence of low-fat diets. Americans are so afraid of fat that they will consume sugar and all manner of chemicals if the food promises to be low in fat. The problem isn’t the amount of fat we eat as much as it is the quality of the fat we eat.

Assessing the symptom burden of Essential Fatty Acids Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 4</td>
<td>Low priority</td>
</tr>
<tr>
<td>5 – 6</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 7</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the EFA section approaches 7 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate essential fatty acids in the body. This may be caused by increased consumption of hydrogenated oil, gallbladder insufficiency, which decreases the emulsification and absorption of all fats, a low fat diet, and a diet low in essential fatty acids in general.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess for essential fatty acid insufficiency in your clients.

Assessing Essential fatty acid deficiency.

<table>
<thead>
<tr>
<th>Further assessment</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Oral pH less than 7.2 indicates essential fatty acid deficiency</td>
<td></td>
</tr>
<tr>
<td>2. Repeated muscle challenge. This challenge involves a simple,</td>
<td>normal muscle test repeated once per second, 20 times with regular</td>
</tr>
<tr>
<td></td>
<td>intensity. As in a standard muscle test, the joint is positioned</td>
</tr>
<tr>
<td></td>
<td>in such a way that the muscle to be tested is shortened. The</td>
</tr>
<tr>
<td></td>
<td>practitioner applies pressure to the joint to lengthen the muscle,</td>
</tr>
<tr>
<td></td>
<td>until a “locking” is noted. A positive result occurs when &quot;locking&quot; of</td>
</tr>
<tr>
<td></td>
<td>the muscle and joint does not occur, indicating deficient free fatty</td>
</tr>
<tr>
<td></td>
<td>acids.</td>
</tr>
<tr>
<td>3. Fatty acid profile via laboratory testing of blood.</td>
<td></td>
</tr>
</tbody>
</table>
### Supplemental Support

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Flax seed oil</td>
</tr>
<tr>
<td>2.</td>
<td>Blackcurrant seed oil</td>
</tr>
<tr>
<td>3.</td>
<td>EPA and DHA from fish oil</td>
</tr>
<tr>
<td>4.</td>
<td>Mixed fatty acids (walnut, hazelnut, sesame, and apricot)</td>
</tr>
<tr>
<td>5.</td>
<td>Phosphatidylcholine</td>
</tr>
<tr>
<td>6.</td>
<td>Beet juice, taurine, vitamin C and pancreolipase with or without bile salts</td>
</tr>
</tbody>
</table>

**NOTES:**
7. Sugar Handling Section

Blood sugar dysregulation is reaching almost epidemic proportions in the Western world, and the west is intent on exporting this curse to many developing countries too, which are seeing unprecedented explosions in obesity over the last 10 years.

Blood sugar dysregulation does not suddenly emerge. You cannot wake up one day with Type II diabetes and not have a clue that something is going wrong. Type II diabetes follows an insidious pattern of development and involves, to some extent, dysregulation in the three organs of sugar regulation: the endocrine pancreas, the liver, and the adrenal glands. These three organs work in harmony to regulate and normalize blood glucose levels across the day and night.

As you consume a carbohydrate meal the pancreas releases the hormone insulin and opens the cells to accept glucose, thus lowering total blood glucose levels. In between meals and at night the adrenal glands release small amounts of glucocorticoid hormones that stimulate the liver to release glycogen, the storage form of glucose.

This is how the body evolved to deal with carbohydrates. Unfortunately, problems begin to emerge when stress levels are high and constant and you consume large amounts of carbohydrates at every meal. In this situation the insulin is released, blood glucose begins to drop but unfortunately the amount of insulin released causes the blood glucose level to drop below the normal fasting level. This leads to a condition called reactive hypoglycemia and to many of the symptoms you will find in the sugar handling section of the NAQ.

As the blood glucose levels drop with the reactive hypoglycemia, the adrenals and the liver come to the rescue. Glucocorticoids are released and the liver normalizes blood glucose levels by releasing stored glycogen. Unfortunately this leads to adrenal fatigue and condition called insulin resistance. As the cells become exposed to more and more insulin they begin to become resistant to its action. This causes the blood glucose levels to begin to rise and it is very hard for the body to lower them. Type II diabetes and obesity are the likely consequence of untreated sugar regulation, along with the many complications associated with uncontrolled blood glucose levels.

Hypoglycemia, or low blood sugar, can cause fatigue, depression and sugar cravings. Hypoglycemia is both a cause of certain health problems and the effect of other health problems. It can cause fatigue, depression, dizziness, sugar cravings, obesity, and headaches. It can be caused by dysbiosis, digestive problems, stress and adrenal problems, nutrient deficiency, allergies, and poor eating habits. Getting your clients' blood sugar under control will help them to feel a whole lot better. Handouts in the back of the book are very helpful to normalize your clients' blood sugar.

Assessing the symptom burden of the Sugar Handling Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 – 6</td>
<td>Low priority</td>
</tr>
<tr>
<td>7 – 10</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 11</td>
<td>High Priority</td>
</tr>
</tbody>
</table>
When the symptom burden of the sugar handling section approaches 11 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate blood sugar in the body. This may be caused by increased consumption of refined sugars in the diet, adrenal insufficiency, increased hydrogenated oil consumption, obesity, lack of exercise,

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess the sugar handling in your clients.

Assessing Blood Sugar Dysregulation

<table>
<thead>
<tr>
<th>Further assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check for tenderness in the Chapman reflex for the liver-gallbladder located</td>
</tr>
<tr>
<td>over the 6th intercostal space on the right side</td>
</tr>
<tr>
<td>2. Check for tenderness in the Liver point located on the 3rd rib, 3 “ to the</td>
</tr>
<tr>
<td>right of the sternum, at the costochondral junction.</td>
</tr>
<tr>
<td>3. Check for tenderness underneath the right rib cage</td>
</tr>
<tr>
<td>4. Check for tenderness or nodularity in the right thenar pad, which is a</td>
</tr>
<tr>
<td>pancreas indicator if tender</td>
</tr>
<tr>
<td>5. Check for tenderness in the Chapman reflex for the pancreas located in the</td>
</tr>
<tr>
<td>7th intercostal space on the left</td>
</tr>
<tr>
<td>6. Check for tenderness or guarding at the head of the pancreas located in the</td>
</tr>
<tr>
<td>upper left quadrant of the abdominal region 1/2 to 2/3 of the way between the</td>
</tr>
<tr>
<td>umbilicus and the angle of the ribs</td>
</tr>
<tr>
<td>7. Check for tenderness in the inguinal ligament bilaterally, an adrenal</td>
</tr>
<tr>
<td>indicator</td>
</tr>
<tr>
<td>8. Check for tenderness at the medial knee bilaterally, at the insertion of the</td>
</tr>
<tr>
<td>sartorius muscle at the Pes Anserine. This is an adrenal indicator.</td>
</tr>
<tr>
<td>9. Check for a paradoxical pupillary reflex by shining a light into a client’s</td>
</tr>
<tr>
<td>eye and grading the reaction of the pupil. A pupil that fails to constrict</td>
</tr>
<tr>
<td>indicates adrenal exhaustion</td>
</tr>
<tr>
<td>10. Check for the presence of postural hypotension. A drop of more than 10</td>
</tr>
<tr>
<td>points is an indication of adrenal insufficiency.</td>
</tr>
<tr>
<td>11. Check for a chronic short leg due to a posterior-inferior ilium. An adrenal</td>
</tr>
<tr>
<td>indicator when confirmed with postural hypotension and a paradoxical pupillary</td>
</tr>
<tr>
<td>response.</td>
</tr>
<tr>
<td>12. Check fasting blood glucose</td>
</tr>
<tr>
<td>13. Run a six-hour glucose-insulin tolerance test.</td>
</tr>
</tbody>
</table>

Supplemental Support

1. Multiple nutrients to support sugar handling problems
2. Adaptogenic herbs to support adrenal function
3. Adrenal tissue (neonatal bovine)
4. Beet juice, taurine, vitamin C and pancreolipase
5. Broad spectrum anti-oxidants
6. Nutrients to normalize cholesterol and triglycerides
7. Pancreatic tissue (neonatal bovine)
8. Herbs that cleanse the liver
9. L-Carnitine
10. Chromium
11. Nutrients to support eye function
12. Buffered vitamin C with bioflavonoids
13. Multiple nutrients for supporting renal function

NOTES:
8. Vitamin Need Section

When assessing clients’ nutritional needs you should ask yourself the following question: does this client’s typical diet provide enough vitamins and minerals?

According to nutrition experts, the average Western diet contains too many refined carbohydrates, not enough essential fatty acids, and too little fiber. The combination of low fiber and highly refined carbohydrates and fat contributes to an increased risk of heart disease, cancer, and diabetes. Even conventional medical authorities believe that the average Western diet is not ideal, since it is linked to poor health. A good diet should consist of fresh fruits and vegetables, whole grains, legumes, nuts and seeds, and (for nonvegetarians) nonfat dairy products, and fish.

People do not eat the same foods their great-grandparents ate, and these dietary changes might affect nutrient requirements. Some foods were not available in Europe or Asia until the discovery of the New World. Before 1492, there were no potatoes in Ireland, no tomatoes in Italy, and no eggplant or green peppers in England. All these foods are New World crops. Other foods, such as rice and soy, are also relatively new to Europeans.

Another recent phenomenon is that modern foods are generally picked before they are ripe. Ripening increases the nutrient content of the food, so diets based on unripened foods may be lacking in some nutrients.

Many of today’s foods are processed with extra ingredients compared to food in the past. An example is a loaf of bread, which 100 years ago was prepared with only wheat, water, butter, baker’s yeast, and a sweetener to help the yeast rise. Today, a modern loaf of bread may contain more than 100 ingredients, including preservatives, coloring agents, insecticides, herbicides, fungicides, and chemical residues from various packaging and cleaning procedures. These multiple ingredients may complicate digestion and increase the risk of allergic reaction.

Certain additives to the food chain have increased the need for certain vitamins and minerals. An example of this is the hydrazine residues in foods resulting from the fungicides used by farmers. The fungicides, along with nutrients from the soil, are absorbed by plants. Hydrazine compounds compete with and increase the body’s need for vitamin B6.

Plants do not always need the same nutrients as people. For example, plants do not require selenium, iodine, or chromium to thrive. But if people are deprived of selenium, they can develop certain heart muscle problems and have an increased risk of cancer; if deprived of iodine, people can develop goiters; and if deprived of chromium, they can develop blood sugar problems.

People today do not eat the same quantities of quality food their ancestors ate (and in general, people do not do as much work). For example, if people require the amount of beta-carotene available in two pounds of carotene-containing food, but now only eat two single carrots, then they are risking getting less than optimal amounts of beta-carotene.
The following section will give some basic information on the different vitamins and their role in physiology:

**B Vitamins**

B vitamins are necessary for energy production, carbohydrate metabolism, blood cell production, enzyme function and many other uses. Deficiency, or "poor vitamin status," perhaps a better term, is fairly common because of the amount of refined foods people eat and the preponderance of digestive problems. Let’s consider each of the B vitamins individually to give you some insight into your client’s health.

**Thiamin:** Deficiency of thiamin makes it difficult for a person to digest carbohydrates. It also leaves too much pyruvic acid in the blood, causing loss of mental alertness, labored breathing, and cardiac damage. Early signs of deficiency include easy fatigue, loss of appetite, irritability and emotional instability. Confusion and loss of memory will appear if the deficiency persists.

Beriberi is the disease of thiamin deficiency. The most advanced neural changes occur in the peripheral nerves, particularly the legs. The distal segments are involved earliest and most severely.

Early deficiency produces fatigue, irritation, poor memory, sleep disturbances, precordial pain, anorexia, abdominal discomfort and constipation. Peripheral neurologic changes are bilateral and symmetric, usually in the lower extremities. Paresthesias of the toes, burning of the feet (especially at night), calf muscle cramps, pain in the legs, loss of vibratory sense in the toes and difficulty in rising from a squatting position are early signs. Later signs include loss of ankle jerk, then knee jerk and loss of vibratory and position sensation in the toes, atrophy of the calf and thigh muscles and finally foot drop and toe drop. The arms may become involved after the leg signs are well-established.

Cerebral beriberi or Wernicke-Korsakoff syndrome is a state of mental confusion commonly seen in alcoholics.

Vitamin B₁ is necessary for hydrochloric acid (HCl) production. One possible way to check for thiamin need is to use neurolingual testing and see if the Chapman Reflex for the stomach is less tender while the client is holding thiamin in his or her mouth. You can use (Bio-3G-B) as a thiamin source.

**Riboflavin:** Riboflavin is water soluble. It is stable to heat, oxidation, and acid. It disintegrates in the presence of alkali or UV light. Riboflavin is necessary for cell respiration because it works with enzymes in the utilization of cell oxygen. It functions as part of a group of enzymes that are involved in the breakdown and utilization of carbohydrates, fats, and proteins.

Riboflavin is not known to have any toxic reactions. An early sign of deficiency is the appearance of cracks and sores in the corners of the mouth; a red, sore tongue; a feeling of grit and sand on the insides of the eyelids; burning of the eyes; changes in the cornea; sensitivity to light; lesions of the lips; scaling around the nose, mouth, forehead and ears; trembling; sluggishness; dizziness, and a lack of stamina. You can use Riboflavin and the associated B vitamins.
**Niacin**: Niacin is water soluble and is more stable than thiamin or riboflavin. Niacin is available in three synthetic forms: Niacinamide, nicotinic acid, and nicotinamide. As a coenzyme, it assists enzymes in the breakdown and utilization of proteins, fats, and carbohydrates.

Niacin has been used to improve circulation and to reduce cholesterol. Tryptophan can be converted into niacin by the body. Excessive consumption of sugar and starches will deplete the body's supply of niacin.

Niacin, in doses of 100 mg or more, can cause an unpleasant flush. Taking Niacinamide does not cause the flush. In doses of 2 g/day or more, it can cause liver damage. High doses may also precipitate a gout attack, or make a case of gout worse by competing with the excretion of uric acid. Niacin is involved with the release of stomach acid and should, therefore, be taken on a full stomach. High doses of niacin are capable of bringing down cholesterol. One way to get around the liver damage caused by high doses of niacin is to bind the niacin to an inositol molecule. Inositol hexaniacinate is a form of niacin that is safe for the liver at high doses. (It is found in **Nutrients to normalize cholesterol and triglycerides**.)

Niacin deficiency, in the early stages, leads to muscular weakness, general fatigue, loss of appetite, indigestion, and various skin eruptions. It can also cause bad breath, small ulcers, canker sores, insomnia, irritability, nausea, vomiting, recurring headaches, tender gums, and depression.

Severe deficiency leads to pellagra, which is characterized by the three Ds—dermatitis, dementia and diarrhea. Primary deficiency usually occurs in areas where maize (Indian corn) is a major part of the diet. Bound niacin, found in maize, is not assimilated in the intestinal tract (unless treated with alkali—as in making of tortillas). Corn protein is also deficient in tryptophan. Amino acid imbalance may also play a part. Pellagra is common in India among those who eat a lot of millet (which has a high leucine content). It can also be seen in diarrheal disease, cirrhosis of the liver, and alcoholism.

Pellagra is characterized by cutaneous, mucous membrane, central nervous system (CNS) and gastrointestinal (GI) symptoms. The complete syndrome of advanced deficiency includes scarlet stomatitis and glossitis, diarrhea, dermatitis, and mental aberrations. Symptoms may occur alone or in combination.

**Pantothenic Acid**: Pantothenic acid is water soluble. There is a close correlation between pantothenic acid tissue levels and functioning of the adrenal cortex. It stimulates the adrenal glands and increases production of cortisone and other adrenal hormones. It plays a vital role in cellular metabolism. As a coenzyme it helps with the release of energy from carbohydrates, fats, and proteins. It also helps with the utilization of other vitamins, especially riboflavin. It is an essential constituent of coenzyme A.

Pantothenic acid is essential for the synthesis of cholesterol, steroids, and fatty acids. It can improve the body's ability to withstand stressful conditions. Deficiency is rare, but symptoms can include vomiting, restlessness, abdominal pains, burning feet, muscle cramps, gas and abdominal distention.

Because pantothenic acid is so vital to adrenal function, you can use neurolingual testing. Have the client place pantothenic acid in his or her mouth and see if it diminishes the tenderness of the Chapman adrenal reflex (the reflex is located 1 inch lateral and 1 inch superior to the navel).
**Pyridoxine:** B\(_6\) is required for the proper absorption of B\(_{12}\) and the production of HCl. It plays an important role in fat metabolism. It acts as a coenzyme in the breakdown and utilization of carbohydrates, fats, and proteins. It must be present for the production of antibodies and red blood cells. The release of glycogen for energy from the liver and muscles is facilitated by B\(_6\). It also aids in the conversion of tryptophan to niacin.

Deficiency can lead to low blood sugar and poor glucose tolerance. It can also cause water retention during pregnancy, cracks around the mouth and eyes, numbness and cramps in the arms and legs, slow learning, visual disturbance, neuritis, arthritis, and an increase in urination. Gestational diabetes is frequently resolved by simply taking 50 mg of B\(_6\) per day. People who are sensitive to monosodium glutamate (MSG) have their symptoms resolved by taking B\(_6\) supplements. Excess estrogen depletes B\(_6\); menstrual problems are often helped by B\(_6\) supplementation.

Vitamin B\(_6\) is necessary for transamination. In other words, it moves amine molecules. One easy way to find a B\(_6\) need is when alanine aminotransferase (ALT) or aspartate aminotransferase (AST) levels (previously called SGOT and SGPT, respectively) are in the low teens or lower. Normal laboratory values can be as low as 0, but levels much lower than 20 may indicate a need for B\(_6\). Vitamin B\(_6\) is also a necessary cofactor for essential fatty acid metabolism. You can perform the essential fatty acid test—do a multiple muscle test rhythmically; the chosen muscle should endure 20 successive challenges. If it does not, see if the number increases while the client holds a B\(_6\) tablet in his or her mouth.

**Folic Acid:** Folic acid functions as a coenzyme, together with vitamins B\(_{12}\) and C, in the breakdown and utilization of proteins. Folic acid performs its basic role as a carbon carrier in the formation of heme. It is also needed for the formation of nucleic acid.

Folic acid is necessary for proper brain function. It is concentrated in the spinal and extracellular fluids. It is essential for mental and emotional health. Folic acid increases the appetite and stimulates the production of hydrochloric acid. It also aids in liver function.

Folic acid is easily destroyed by high temperature, by light and by being left at room temperature for long periods. It is one of the nutrients most often deficient in our diets. Deficiency can lead to glossitis, GI disturbances, poor growth, skin problems, obstetric disorders such as toxemia of pregnancy, neuropathy and psychiatric disorders. It can cause a megaloblastic anemia.

The need for the vitamin is especially increased during pregnancy. The fetus needs folic acid for its rapid growth and quickly depletes the mother's reserves. The World Health Organization reports that one-third to one-half of pregnant women are folic acid deficient. Spina bifida is associated with low levels of folic acid in the mother at the time of conception. Almost any interference with the metabolism of folic acid in the fetus can contribute to deformities like cleft palate or brain damage. It can cause slow development and poor learning ability in the child.

Folic acid is necessary for all cells that multiply rapidly. One sure sign of a folic acid deficiency is a woman who has an “irregular” Pap smear, when no cancer is present, but the cells are irregular, causing the physician concern. This is an almost sure sign of folic acid deficiency. Giving 5 mg/day of folic acid will frequently resolve the problem. Polyps may also be a sign of folic acid need.
Deficiency of folic acid in pregnancy can lead to toxemia, premature birth, afterbirth hemorrhaging, and megaloblastic anemia (in both mother and child).

In the United States, folic acid supplements must be less than 800 µg because taking folic acid can mask a B₁₂ deficiency. It is a good idea to give these two nutrients together.

One way to test for folic acid is to check for segmented neutrophils. This is a test that can be added to a complete blood count (CBC). Segmented neutrophils are immature cells. Levels higher than 15 are cause for concern (especially in women desiring to get pregnant). In ideal health, the number should be close to zero.

In a routine CBC, certain “normal” values may reflect a folic acid or a B₁₂ need (these values are the same for both folic acid and for B₁₂). The RBC count will be low or low normal, the white blood cell (WBC) count will be low or low normal (possibly with fewer polymorphonuclear leukocytes [PMNs] and more lymphocytes) and the mean corpuscular volume (MCV) will be greater than 90 or the mean corpuscular hemoglobin (MCH) will be above 32).

**Vitamin B₁₂**: B₁₂ is unique in that it is the first cobalt-containing substance found to be an essential nutrient. It is the only vitamin that contains essential mineral elements. Animal protein is almost the only place that contains B₁₂, although vegetarians can get it from microbial synthesis and from legume nodules where it is synthesized by microbes.

Vitamin B₁₂ is necessary for normal metabolism of nerve tissue and is involved in protein, fat and carbohydrate metabolism. B₁₂ aids folic acid in the synthesis of choline. It helps the placement of vitamin A into body tissues.

Vitamin B₁₂ deficiency is the most common cause of depression in the elderly (also consider it for elderly clients who are becoming forgetful). In severe cases it can cause symptoms that will mimic Alzheimer’s disease. Testing serum B₁₂ often yields normal results, yet the client will respond to B₁₂ therapy.

B₁₂ is poorly absorbed unless intrinsic factor, a mucoprotein secreted in the stomach, is present. Autoimmune reactions in the body can bind intrinsic factor or can affect the cells that produce it. Absorption of B₁₂ appears to decrease with age, and with iron, calcium and B₆ deficiencies. Absorption increases during pregnancy.

Generally, B₁₂ is given as an injection, but it is well established that high doses (in the 2-4 mg/day range) will yield satisfactory results.

Pernicious anemia develops insidiously and progressively as the large hepatic stores of B₁₂ are depleted. It may take 5 or 6 years to develop. Usually the problem is more profound than that expected based on the symptoms. This is due to physiologic adaptation. Splenomegaly and hepatomegaly may occasionally be seen. GI problems may be present, including anorexia, intermittent constipation and diarrhea and poorly localized abdominal pain. Considerable weight loss is common. Peripheral nerves are commonly involved, even in the absence of anemia. Second to this is spinal cord involvement beginning in the dorsal column with loss of vibratory sensation in the lower extremities, loss of position sense and ataxia. Lateral column involvement follows with spasticity and hyperactive reflexes and a Babinski’s sign. Some clients have irritability, mild depression or actual paranoia. Occasionally yellow-blue color blindness occurs.
Rare signs are fever of unknown origin that responds promptly to B₁₂ therapy. Endocrine deficiencies, especially of the thyroid and adrenal glands, if they are associated with pernicious anemia, suggest an autoimmune basis for gastric mucosal atrophy. Hypogammaglobulinemia may be present.

Anemia is macrocytic with an MCV higher than 100. An MCV above 90 though is a sign that the client is becoming low in B₁₂. There is a serum test for B₁₂ levels, but it may not be reliable. The Schilling test measures the absorption of radioactive B₁₂ with and without intrinsic factor.

A test for B₁₂ need developed by George Goodheart, MD, involves testing a muscle, suddenly stretching it and retesting it. If the muscle weakens, it is a sign that the client needs B₁₂.

In a routine CBC, certain "normal" values may reflect a folic acid or a B₁₂ need (these values are the same for both folic acid and B₁₂). The RBC count will be low or low-normal, the WBC count will be low or low-normal (possibly with fewer PMNs and more lymphocytes) and the MCV will be greater than 90 or the MCH will be above 32).

**Choline and Inositol:** Choline is considered one of the B-complex vitamins. Together with inositol it forms a basic constituent of lecithin. It is found in egg yolk, liver, brewer’s yeast and wheat germ. It is associated with the utilization of fats and cholesterol in the body. It prevents fats from accumulating in the liver and facilitates the movement of fats into the cells. Choline is also essential for the health of the myelin sheaths of the nerves. It also helps to regulate and improve liver and gallbladder functioning and aids in the prevention of gallstones.

Choline deficiency is associated with fatty deposits in the liver and may be related to cirrhosis of the liver, atherosclerosis, and high blood pressure.

Inositol is recognized as part of the vitamin B complex and is closely associated with choline and biotin. It is found in high concentrations in lecithin. It is found in animal and plant tissues. In animal tissues it occurs as a component of phospholipids; in plant cells it is found in phytic acid.

Inositol is a component of lecithin, along with choline. In combination with choline it prevents the fatty hardening of arteries and protects the liver. Large quantities of inositol are found in the spinal cord nerves and in the brain and cerebrospinal fluid. It is thought to be helpful in brain cell nutrition. It is needed for the growth and survival of cells in bone marrow, eye membranes, and the intestines.

Inositol works in some cases of pesticide poisoning. It is lipotropic and helps to free the pesticide from adipose tissue. High doses of inositol often work for neuralgia like pain.

**Vitamin A:** Vitamin A helps cells reproduce normally—a process called differentiation. Cells that have not properly differentiated are more likely to undergo precancerous changes. Vitamin A, by maintaining healthy cell membranes, helps prevent invasion by disease-causing microorganisms. Vitamin A also stimulates immunity and is needed for formation of bone, protein, and growth hormone. Beta-carotene, a substance from plants that the body can convert into vitamin A, also acts as an antioxidant and immune system booster. Other members of the antioxidant carotene family include cryptoxanthin, alpha-carotene, zeaxanthin, lutein, and lycopene, but most of them do not convert to significant amounts of vitamin A.

Vitamin A is found in dark green and orange-yellow vegetables are good sources of beta-
carotene. Liver, dairy, and cod liver oil provide vitamin A. Vitamin A can also be found in vegetarian supplements.

Individuals who limit their consumption of liver, dairy foods, and vegetables can develop a vitamin A deficiency. The earliest deficiency sign is poor night vision. Deficiency symptoms can also include dry skin, increased risk of infections, and metaplasia (a precancerous condition).

How much Vitamin A to recommend clients is often a question I get asked a lot. In males and postmenopausal women, up to 25,000 IU (7,500 mcg) of vitamin A per day is considered safe. In women who could become pregnant, the safest intake level is being re-evaluated; less than 10,000 IU (3,000 mcg) per day is widely accepted as safe.

Women who are or could become pregnant should take less than 10,000 IU (3,000 mcg) per day of vitamin A to avoid the rare risk of birth defects. For other adults, intake above 25,000 IU (7,500 mcg) per day can—in rare cases—cause headaches, dry skin, hair loss, fatigue, bone problems, and liver damage. Beta-carotene, however, does not cause any side effects, aside from excessive intake (more than 100,000 IU, or 60 mg per day) sometimes giving the skin a yellow-orange hue.

Individuals taking beta-carotene for long periods of time should also supplement with vitamin E, as beta-carotene may reduce vitamin E levels. Taking vitamin A and iron together helps overcome iron deficiency more effectively than iron supplements alone.

Antioxidants: Antioxidants function to deal with free radicals, which are created in times of high oxidative stress. Free radicals are inherently unstable, since they contain “extra” energy. To reduce their energy load, free radicals react with certain cells in the body, interfering with the cells’ ability to function normally. Fortunately there are many natural antioxidants that interfere with free radicals before they can damage the body. Antioxidants work in several ways: they may reduce the energy of the free radical, stop the free radical from forming in the first place, or interrupt an oxidizing chain reaction to minimize the damage of free radicals.

Superoxide dismutase (SOD), catalase, and glutathione peroxidase are enzymes produced by the body itself to defuse many types of free radicals. Supplements of these compounds are also available to augment the body’s supply and are richly supplied in the Biotic’s products tableting base.

In addition to enzymes, many vitamins and minerals act as antioxidants in their own right, such as vitamin C, vitamin E, beta carotene, lutein, lycopene, vitamin B3 in the form of niacin, vitamin B2, vitamin B6, coenzyme Q10, and cysteine (an amino acid). Herbs, such as bilberry, turmeric (curcumin), grape seed or pine bark extracts, and ginkgo biloba can also provide powerful antioxidant protection for the body. A wide variety of antioxidant enzymes, vitamins, minerals, and herbs may be the best way to provide the body with the most complete protection against free radical damage.

Assess Vitamin insufficiencies

<table>
<thead>
<tr>
<th>Further assessment</th>
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<tbody>
<tr>
<td>1. An excellent way to assess for Thiamine (vitamin B1) deficiency is with the Acoustic Cardiogram (ACG), which will show a depressed S1 heart sound reading. There will not be enough amplitude in the graph.</td>
</tr>
</tbody>
</table>
2. An increased Anion gap and a decreased CO₂ on a chem. Screen is indicative of low thiamine levels.

3. An excellent way to assess for B vitamin need is with the Acoustic Cardiogram (ACG). By analyzing the graphical output of the heart sounds one can determine the type of B vitamins that are deficient. For instance thiamine (vitamin B1) deficiency will show a depressed S1 heart sound reading. There will not be enough amplitude in the graph. Riboflavin (vitamin B2) will show an elongated S1 heart sound reading due to weak aortic and pulmonic valve closure.

4. Check the CBC for signs of B12 and folic acid deficiency: MCV > 90, ↓ RBCs

5. Hyper segmented neutrophils seen on a peripheral blood smear is a microscopic sign for folate deficiency

6. An excellent way to assess for Riboflavin (vitamin B2) deficiency is with the Acoustic Cardiogram (ACG), which will show an elongated S1 heart sound reading due to weak aortic and pulmonic valve closure.

7. B6 levels can be assessed by running a serum homocysteine or a B6 EGOT (Erythrocyte Glutamine-Oxaloacetate Transaminase) test.

8. Vitamin C levels can be assessed with the lingual or urinary vitamin C test.

9. Check MCV, MCH, LDH and MCHC levels on a CBC and Chem. Screen to assess Vitamin B12 insufficiency.

### Supplemental Support

1. Low dose naturally occurring B Vitamin Complex
2. B12
3. Folic acid
4. Emulsified Vitamin E drops
5. Broad spectrum anti-oxidants
6. Chlorophyllins
7. Naturally occurring riboflavin
8. Naturally occurring thiamine
9. Pyridoxal-5-phosphate
10. Broad spectrum bioflavanoids, vitamin C, thymus and spleen
11. Buffered Vitamin C with bioflavanoids
12. Emulsified Vitamin A drops

### NOTES:
9. Adrenal Section

Stress can undermine the health of you and your clients. The connection between stress and high blood pressure, heart disease, and many digestive problems is well-established in the medical literature. Stress creates hormonal and blood sugar changes, causes the body to excrete nutrients and adversely affects the immune system.

The adrenal glands are directly affected by stress. They are responsible for the "fight or flight" response. Hans Selye, MD, conducted some experiments creating stress in rats. The rats were made to tread water with their legs tied until they became exhausted and died.

Dr. Selye took the rats at various stages of their ordeal and dissected out their adrenal glands. He found that the adrenal glands responded to stress in three distinct stages. In the initial stage, the adrenal glands enlarge and the blood supply to them increases. As the stress continues, the glands begin to shrink. Eventually, if the stress continues, the glands reach the third stage, which is adrenal exhaustion.

The adrenal glands produce certain hormones in response to stress. They are responsible for the fight or flight response. In a stressful situation, they raise blood pressure, transfer blood from the intestines to the extremities, increase the heart rate, suppress the immune system and increase the blood's clotting ability.

This response is meant to be short-lived. When primitive man walked through the forest, he'd see a wild animal. His heart rate would increase, his pupils would dilate, his blood would go out of his digestive system and into his arms and legs, his blood clotting ability would improve, he would become more aware and his blood pressure would rise. At that point he'd either pick up a stick and try to fight the animal or run. The physiological changes brought on by the adrenal glands would make the body more efficient at doing either of those things. It is called the fight or flight response.

If he survived the ordeal, chances are it would be a while before such a strain was put on the adrenal glands and the rest of his body. He would have an opportunity to relax, eat nuts and berries (and a little meat from the wild animal, if he was lucky.) His adrenal glands would have a chance to recover.

Many people in modern society do not have the luxury of a recovery period for their overworked adrenal glands. The changes caused by the overproduction of adrenal hormones stay with them. The stimulation of the adrenal glands causes a decrease in the immune system function, so an individual under constant stress will tend to catch colds and have other immune system problems, including allergies. Blood flow to the digestive tract is decreased. Stress causes many digestive problems such as indigestion, colitis and irritable bowel. Adrenal hormones cause an increase in the blood clotting ability, so prolonged stress can lead to formation of arterial plaque and heart disease.

Worrying makes the adrenal glands work. Relaxing and thinking peaceful thoughts enables them to rest and heal. That is why Yoga and meditation are so good for you. You go a long way in preserving your health and energy if you do not fret about things over which you have no control. It's the amount of worry and not necessarily the size of the problem that stresses your
adrenal glands. If you worry a lot about little problems, you do as much damage to your adrenal
glands as someone who really has a lot of stress. If you can control your worrying when under
stress, you minimize the damage stress does to your health. A wise man once said that worry is
interest paid in advance on money you haven't even borrowed yet.

Selye described the progression of stress on the adrenal glands as the general adaptation
syndrome. The first stage is called the alarm reaction. This is when someone (with healthy
adrenal glands) can perform amazingly well when the need arises. The primitive man, seeing
the saber tooth tiger, was able to run faster than he ever dreamed possible during the alarm
reaction. If the stress continues, the body moves into the resistance stage, during which the
adrenal glands become enlarged. The individual is responding to the stress and handling it. He
or she may feel keyed up. The person may have cold, clammy hands; a rapid pulse or reduced
appetite, but hasn't begun to feel any of the more serious symptoms of the next stage. During
the exhaustion stage the adrenal glands begin to fail to meet the demands placed upon them.
During this stage, the individual begins to have a variety of symptoms including fatigue,
digestive problems, obesity, depression, dizziness, fainting, allergies and many other problems.

People with weak adrenal glands frequently crave coffee and sugar, as well as salt. Sugar and
caffeine stimulate the adrenal glands. It's as if your adrenal glands are two horses towing a
wagon load of bricks up a mountain. Sugar or caffeine is the whip you use to get the horses to
keep trying. What they need to get to the top of the mountain is nourishment and a rest period.

To effectively treat the adrenal glands, you must eliminate as much stress from your life as
possible. Emotional stress is the kind of stress most people think of when stress is mentioned,
but there are many different kinds of stress. Thermal stress results from being exposed to
extremes of temperature; physical stress from heavy physical work, poor posture, structural
misalignments, lack of sleep and being overweight; and chemical stress from ingestion of food
additives, exposure to pollutants and consumption of sugar and alcohol. Changes in blood sugar
are also a form of chemical stress. Eating frequent, small meals is often very helpful, since
people suffering from hypoadrenia are often hypoglycemic (having low blood sugar).

Situations are not always controllable, but stress is. Stress is cumulative. Emotional, structural
and chemical stress all affect the body the same way. Your adrenal glands do not know the
difference between an IRS audit, treading water or excessive sugar consumption; excess sugar
consumption will add to the stress of the IRS audit.

If you reduce the stress that you can control, stressful situations will not have as much of a
physical effect on you. For instance, eating frequent meals and avoiding sugar will reduce stress
on the adrenal glands. So even if you can't do anything about Aunt Millie and Uncle Edgar
coming to spend the summer, you can reduce your stress by controlling your diet. Also, how you
think of the stress will make a difference in the health of your adrenal glands. Aunt Millie's handy
tips on how you should raise your kids or clean your house, or Uncle Edgar's penchant for
eating everything that isn't nailed down (without offering to pay for groceries) won't stress your
adrenal glands if you don't focus on it.

If you can't change your work situation, then improve your diet and get plenty of rest. Change
how you think about your job situation. Focus on the positive: You do have a job, you do eat
regular meals. (Much of the world doesn't.) Just do the best you can and think of the things you
can't control in positive terms. Jesus says in Luke 12:25, "And which of you with taking thought
can add to his stature one cubit?" Or, to quote the great teacher and spiritual advisor, Yogi
Babaganoush, "Chill out man." Think to yourself, "What could be good about this situation?" Then take a minute to really look for positive answers.

Hanging on to anxiety over past situations is stressful. Thought has power. Worry gives you all of the physiologic responses of Selye's rats or the caveman facing the wild animal. It's a waste of energy and it undermines your health.

Your adrenal glands simply don't know the difference between imagined danger and real danger. Think about it; if you hear a noise at night and think it's the wind, you can go back to sleep. If you think it's an intruder you can't get back to sleep even after you get up to investigate. The thought of facing an intruder made the adrenal glands start producing their hormones.

Meditation and biofeedback have been of such value in controlling stress. They don't help with the situation, just how you perceive it and your body's response to the stress. Doctors are beginning to find that laughter helps the prognosis of cancer clients. They even have clients watch sitcoms in the hospital: "Mr. Smith, it's time for your chemotherapy and 'Lucy' reruns."

Minimizing chemical stress is also important. We have plenty of chemical stress today. Environmental pollution, food additives, sugar, alcohol and caffeine contribute stress to your adrenal glands. You must remove chemical stresses from your diet—effortlessly and without putting yourself under pressure. Gradually improve your diet by removing chemical additives. Move toward a more organic way of eating. Enjoy the change without fretting over how your diet isn't perfect yet.

Ironically, stress often makes you crave the foods that are bad for you. While under stress, it is hard to be diligent in keeping additives and refined sugar out of the diet. Clients often complain that they have no time and can't eat properly. Lack of time really isn't the problem because raw nuts, fruits and vegetables take no time to prepare. Lack of time is usually used as an excuse to give in to craving the wrong foods. Once you understand that, you can eat healthily with little effort.

Eating sugar and skipping meals are two things that are especially stressful to the adrenal glands, which work to maintain your blood sugar level. Eating sugar causes a temporary increase in blood sugar, which soon drops. Skipping meals also causes the blood sugar to drop. The adrenal glands then have to work to increase the blood sugar. Hypoadrenia and hypoglycemia (low blood sugar) usually exist together.

**Assessing the symptom burden of the Adrenal Section:**

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
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<tbody>
<tr>
<td>8 – 12</td>
<td>Low priority</td>
</tr>
<tr>
<td>13 – 20</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 21</td>
<td>High Priority</td>
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</tbody>
</table>

When the symptom burden of the adrenal section approaches 21 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate the adrenals in the body. This may be caused by increased consumption of refined carbohydrates and sugar in the diet, high levels of stress, over exercise, lack of sleep, pain, inflammation, worry, anxiety etc.
Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess for adrenal imbalance in your clients.

Assessing for adrenal dysfunction

| Further assessment | 1. Check for tenderness in the inguinal ligament bilaterally, an adrenal indicator  
2. Check for tenderness at the medial knee bilaterally, at the insertion of the sartorius muscle at the Pes Anserine. This is an adrenal indicator.  
3. Check for a paradoxical pupillary reflex by shining a light into a client's eye and grading the reaction of the pupil. A pupil that fails to constrict indicates adrenal exhaustion  
4. Check for the presence of postural hypotension. A drop of more than 10 points is an indication of adrenal insufficiency.  
5. Check for a chronic short leg due to a posterior-inferior ilium. An adrenal indicator when confirmed with postural hypotension and a paradoxical pupillary response.  
6. Check the cortisol/DHEA rhythm with a salivary adrenal stress profile  
7. Increased chloride in the urine is a sign of hypoadrenal function  
8. Assess for adrenal insufficiency with the Acoustic Cardiogram (ACG), which will show static in both the systolic and diastolic rest phases. You will also see an elevated S2 sound. |

Supplemental Support

1. Adrenal tissue (neonatal bovine)  
2. Adaptogenic herbs to support adrenal function  
3. Multiple nutrients for blood sugar handling problems  
4. Naturally occurring thiamine

NOTES:
The anterior pituitary is a gland located deep in the brain. It produces a number of very important hormones that help in the regulation of many of the major glands in the body including the thyroid, the ovaries, the testes, and the adrenals. The hormones released from the pituitary gland are themselves ultimately under the control of the hypothalamus, another important gland in the brain. The hypothalamus is able to sense how much circulating hormone there is in the body. When levels of circulating hormone begin to drop the hypothalamus releases stimulating factors that stimulate the pituitary to secrete releasing hormones. This biofeedback system ensures a healthy level of circulating hormone from the major glands. Unfortunately this system is often dysfunctional.

Symptoms for hypothalamus and pituitary dysfunction are vague and can easily mean other things. Think of this as an area to consider if you are not getting the kind of results you would hope for when treating adrenal, thyroid, or sex hormone issues. I have found that adrenal, thyroid or other endocrine problems respond well to glandular therapy using specific glandulars for the pituitary and hypothalamus.

Assessing the symptom burden of the Pituitary Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 4</td>
<td>Low priority</td>
</tr>
<tr>
<td>5 – 8</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 8</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the pituitary section approaches 8 or higher, this is a sign that you should consider pituitary involvement in your client. It is hard to specify individual assessment methods for the pituitary. Consider that the cause of the pituitary dysfunction lies within one of the other hormonal systems or with blood sugar dysregulation, and check those systems out accordingly.

Supplemental Support

1. Pituitary/hypothalamus tissue (neonatal bovine)

NOTES:
11. Thyroid

Many physicians believe that hypothyroidism is under diagnosed and that many people who have had blood tests indicating normal thyroid function may actually suffer from hypothyroidism. These physicians believe that many clients with normal test results have some thyroid hormone that isn't active. In other words there is enough hormone to make the test appear normal even if the person is actually deficient in active hormone.

It has been shown that reverse thyroid hormone, which is a molecule of thyroid hormone that has the mirror image of the active hormone, gets produced in large quantities and is grossly under-valued in terms of its negative effects on thyroid hormone metabolism. The presence of large amounts of reverse thyroid hormone comes about with high levels of stress, adrenal insufficiency, selenium and iodine deficiency, liver and kidney dysfunction, and yo-yo dieting. Its effect is to cause the symptoms of an under functioning thyroid gland.

Broda Barnes, MD, was perhaps the first physician to come to the conclusion that many people suffering from chronic illness had under functioning thyroids. In his book, *Hypothyroidism, the Unsuspected Illness* (Broda Barnes and Lawrence Galton, Harper Collins Publishers, Inc., 1976), he states that hidden hypothyroidism is responsible for many chronic health problems including heart disease, immune system problems and chronic fatigue. He also felt that laboratory tests don't diagnose many cases of hypothyroidism.

Barnes developed a way to screen for hypothyroidism by taking a basal body temperature. Basal body temperature is taken the very first thing in the morning, before there is any movement or activity. The thyroid is the body's thermostat, controlling metabolism. Body temperature is a reflection of that metabolic activity and people with under functioning thyroids tend to have low basal body temperatures. You can get your clients to record their basal body temperature and bring it into the office for interpretation. A basal underarm body temperature consistently below 97.8 is a sign of an under active thyroid.

Combining the basal body temperature and information in a health history can give valuable information about how well the thyroid is functioning. The symptoms listed in the thyroid section of the NAQ are evidence of poor thyroid function. The more symptoms present, the more likely it is that there is a thyroid problem.

Barnes states in his book that hypothyroidism is very common for a variety of reasons. Iodine deficiency is common, especially in the world’s "goiter belts," or areas that are removed from the seashore (like the American Midwest). Adding iodine to salt has virtually eliminated the occurrence of goiters, but Barnes says the additional iodine is not enough to bring the other symptoms of hypothyroidism under control. Other nutrients, like vitamin B₁₂, vitamin A and tyrosine are also necessary for proper thyroid function. Chemical pollution and heavy metal toxicity can also adversely affect the thyroid. This is one reason why dealing with liver function and improving the body’s ability to remove toxins is so important. Nitrites added to packaged meats, certain sulfa drugs given to farm animals and even certain soft plastics used to hold drinks could be a source of chemicals that harm the thyroid. Poor digestion, especially poor protein digestion may also be a source of this problem.
Barnes recommends the use of natural thyroid extract (also called Armor thyroid). He preferred the natural product to the usually prescribed synthetic hormone (called Synthroid) because Armor thyroid is a whole product and contains all of the components of thyroid hormone. Some clients can improve thyroid function with nutrient supplementation, exercise, dietary changes, and by addressing some of the other core health issues.

There is also a condition called hyperthyroidism, which is less common. A number of symptoms on the NAQ help identify this condition. Please refer to the individual question explanations for a discussion of what to do with symptoms of hyperthyroidism.

### Assessing the symptom burden of the Thyroid Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 – 7</td>
<td>Low priority</td>
</tr>
<tr>
<td>8 – 12</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 12</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the thyroid section approaches 12 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate the thyroid gland in the body. This may be caused by increased levels of stress, adrenal insufficiency, iodine and/or selenium deficiency, liver dysfunction, kidney insufficiency, a low calorie diet etc.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess for thyroid dysfunction in your clients.

### Assessing thyroid dysfunction

1. Check for tenderness in the Chapman reflex for the thyroid located in the second intercostal space near the sternum on the right
2. Check for a delayed Achilles return reflex, which is a strong sign of a hypo-functioning thyroid
3. Check for general costochondral tenderness, which is a thyroid indicator
4. Check for pre-tibial edema, which is a sign of a hypo-functioning thyroid
5. Iodine test: Use a tincture of 2% iodine solution, and paint a 3" by 3" square on the client’s abdomen. The client is to leave the patch unwashed until it disappears. The square should still be there in 24 hours. If it has disappeared, there is an indication of iodine need
6. Have client assess their basal metabolic temperature by taking their axillary temperature first thing in the morning for 5 straight days. An average temperature below 36.5°C is an indication of hypo-thyroidism
Supplemental Support

1. Multiple nutrients to support thyroid function with pituitary glandular
2. Potassium iodide
3. Pituitary/hypothalamus tissue (neonatal bovine)
4. Thyroid glandular
5. Nutrients to support thyroid function
6. Flax seed oil
7. Naturally occurring thiamine

NOTES:
12. Men Only

The majority of the questions in this section deal with problems with the prostate or other male health issue. In dealing with the prostate, there are two issues. One is to rule out cancer or other pathology, which can be accomplished with laboratory tests and physical examination. The second is to treat the problem naturally if there is no pathology.

Benign prostatic hypertrophy (BPH) is an enlargement of the prostate, causing it to exert pressure on the urethra. Resulting symptoms include interruption of urinary flow, a feeling of incomplete evacuation after urinating, a feeling of urgency before urinating, pain, burning, and even impotence. If you are not trained to perform a digital exam of the prostate and you suspect an enlarged prostate please refer to a trained physician for this examination. Early detection of BPH can save your clients from considerable discomfort and also alert them to lifestyle and dietary changes that could significantly reduce their chances of developing cancer of the prostate, one of the leading killers in men.

One of the other areas on men only section deals with impotence, which can be caused by a number of factors including drug therapy, circulatory problems or nutrient deficiency. Low sperm counts can be the result of nutrient deficiency or other problems.

Assessing the symptom burden of the Men Only Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 – 5</td>
<td>Low priority</td>
</tr>
<tr>
<td>6 – 7</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 7</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the Men Only section approaches 7 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate the male hormonal system in the body. The majority of the questions in the Men Only section of the NAQ have to do with prostatic health. A high symptom burden may be caused by enlarged prostate, zinc deficiency, andropause (a condition of decreasing testosterone), and impotence.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess prostate and male hormonal system in your clients.

Assessing dysregulation in the Male reproductive system

<table>
<thead>
<tr>
<th>Further assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check for tenderness in the Chapman’s reflex for the prostate and testes located lateral to the pubic symphysis on the rami</td>
</tr>
<tr>
<td>2. Check for tenderness in the middle portion of the ilio-tibial band, an indicator for the prostate</td>
</tr>
<tr>
<td>3. Check creatinine levels on a blood chemistry screen. If the client has a creatinine 1.2 or &gt; they have a developing prostate problem e.g. BPH. PSA will only show prostatic problem when it’s too late.</td>
</tr>
<tr>
<td>4. Check client’s PSA and PAP levels to follow course of therapy</td>
</tr>
<tr>
<td>5. Check client’s zinc levels with a zinc test.</td>
</tr>
</tbody>
</table>
Supplemental Support

1. Saw palmetto and other nutrients to support prostate health
2. EPA and DHA from fish oil
3. Aqueous zinc
4. Nutritional zinc
5. Flax seed oil
6. Potassium iodide
7. Peruvian Maca and deer antler velvet

NOTES:
13. Women Only

The majority of the questions in the Female only section of the NAQ deal with issues of PMS, menopause, menstrual irregularity, and problems with fertility. All of these conditions have a variety of causes. Many times taking care of general health issues solves them. This is an example of the principles of the foundations of health coming into play. You can resolve a large number of the problems in the female reproductive system by resolving issues further upstream. For instance, mood swings during the menstrual cycle can be the result of poor thyroid function. Poor liver function or dysbiosis can cause imbalance between progesterone and estrogen. Menopausal hot flashes can be the result of poor adrenal function or EFA deficiency. It is best to treat root causes of health problems, but sometimes symptom management is necessary. You will need to decide on an effective and natural approach to this issue.

Helping clients improve their diet is a good first step in improving health in relation to their menstrual cycle. The average American eats 150 pounds of sugar and ten pounds of chemical food additives every year. Most Americans get half of their calories from refined carbohydrates. People consume hydrogenated oils at an alarming rate. The resulting vitamin deficiencies and detrimental effects on all organs and systems of the body are the beginning of many health problems, including menstrual irregularities. Getting adequate exercise is also very important. Based on the results of this questionnaire, and other findings, you will be able to find the best way to fix the root causes of problems with your clients’ menstrual cycle and other women's health issues.

Assessing the symptom burden of the Women Only Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 – 9</td>
<td>Low priority</td>
</tr>
<tr>
<td>10 – 15</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 15</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the EFA section approaches 15 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate the female hormonal system. This may be caused by increased consumption of hydrogenated oil, gallbladder insufficiency, which decreases the emulsification and absorption of all fats, a low fat diet, and a diet low in essential fatty acids in general.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess the female reproductive in your clients.

Assessing dysregulation in the Female reproductive system

<table>
<thead>
<tr>
<th>Further assessment</th>
<th>1. Check for tenderness in the Chapman reflex for the ovaries and uterus located lateral to the pubic symphysis on the rami attachment of the Rectus abdominus muscle.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Assess client’s hormonal status across the menstrual cycle with a cycling female salivary hormone assessment.</td>
</tr>
<tr>
<td></td>
<td>3. Assess pituitary hormonal influences by running serum FSH and LH levels.</td>
</tr>
</tbody>
</table>
### Supplemental Support

1. Multi nutrients supporting female endocrine health
2. Flax Seed Oil
3. Adrenal tissue (neonatal bovine)
4. Black Currant Seed Oil
5. Pituitary/hypothalamus tissue (neonatal bovine)
6. Ovary tissue (neonatal bovine)

### NOTES:
Cardiovascular disease is one of the major killers in the western world. It is important to decide whether the cardiovascular dysfunction in your clients is actually due to pathology in the heart itself or due to other conditions that put a significant burden on the heart. For instance there are over 12 different causes of hypertension and the majority of them have nothing to do with the heart itself. Nutritional support can coincide with traditional methods. The important thing, when you look at cardiovascular disease is to protect the life of the client. Nutritional and other natural therapies take time to work and are best for chronic problems. Traditional medical practitioners best treat acute medical emergencies.

Everyone is concerned with cholesterol and the amounts of fat clients eat. This is a one-dimensional idea and the dietary issues here are much more complex than simply avoiding fat. The issue may not be the amount of fat or oil, but the quality of the fats eaten; Omega 3 essential fatty acids may actually be cardioprotective. Consuming hydrogenated oil is dangerous to the heart (among other things). Avoid margarine. Many people consume margarine, thinking that it is good for the heart. The truth is that margarine is full of hydrogenated oil and is worse for your heart than butter is.

Not many people pay attention to sugar and refined foods. Refined sugar and flour may play an important role in increasing cholesterol. Anti-cholesterol medications work by suppressing a liver enzyme, HMG CoA reductase. Increasing insulin increases the activity of this enzyme, so eating sugar can have an unfavorable effect on cholesterol. Sugar and refined grains also increase the growth of yeast and other dysbiotic organisms in the gut. Bile salts can be deconjugated by these organisms and turned into bile acids; this may trigger production of cholesterol by the liver. Epidemiologic studies show that native populations have increased heart disease when exposed to the Western diet, but their fat consumption doesn’t actually go up; their consumption of refined carbohydrates does.

A refined, vitamin-deficient diet does not provide enough vitamin B₆, B₁₂ or folic acid. These nutrients are necessary to keep homocysteine levels low. High homocysteine levels increase cardiac risk.

### Assessing the symptom burden of the Cardiovascular Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 4</td>
<td>Low priority</td>
</tr>
<tr>
<td>5 – 8</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 8</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the cardiovascular section approaches 8 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate the cardiovascular system in the body. This may be caused by increased consumption of hydrogenated oil, digestive dysfunction, EFA insufficiency and a diet low in essential fatty acids in general, increased levels of homocysteine, nutrient deficiencies, increased refined carbohydrates, kidney insufficiency, and biliary insufficiency, to name a few.

Refer to the explanation on each individual question in this book and follow the general
Question by Question Guide to the NAQ: Breakdown of the Sections of the NAQ

guidelines below to further assess for cardiovascular dysfunction in your clients.

Assessing the Cardiovascular system

<table>
<thead>
<tr>
<th>Further assessment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Check for tenderness in the Chapman reflex for the heart located in the left second intercostal space near the sternum</td>
</tr>
<tr>
<td>2.</td>
<td>Check for tenderness in the Chapman reflex for the kidney located 1” lateral and 1” superior from the umbilicus on the medial margin of the Rectus abdominus muscle (have client tighten stomach muscle to palpate.</td>
</tr>
<tr>
<td>3.</td>
<td>Assess for tenderness over the transverse processes at T1 for the MI type, and T2 for the myocardium and the congestive type,</td>
</tr>
<tr>
<td>4.</td>
<td>Assess blood pressure</td>
</tr>
<tr>
<td>5.</td>
<td>An excellent way to assess the heart from a functional perspective is with the Acoustic Cardiogram (ACG). By analyzing the graphical output of the heart sounds one can determine many functional disturbances that can be assessed and corrected using nutrition.</td>
</tr>
</tbody>
</table>

Supplemental Support

1. Nutrients to support cardiovascular health
2. CoQ10
3. Naturally occurring thiamine
4. Riboflavin and the associated B vitamins
5. EPA and DHA from fish oil
6. Naturally occurring thiamine
7. Multiple nutrients for supporting renal function

NOTES:
15. Kidney and Bladder

The majority of the questions in this section of the NAQ is concerned with problems with the kidney itself and with symptoms associated with advancing kidney disease or infection. It is important to refer the client to a physician who can diagnose and treat kidney disease.

Assessing the symptom burden of the Kidney and the Bladder Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Low priority</td>
</tr>
<tr>
<td>4</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 4</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the kidney and bladder section approaches 4 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the systems that help regulate the kidney.

Refer to the explanation on each individual question in this book and follow the general guidelines below to further assess for kidney insufficiency in your clients.

Assessing Kidney and Bladder dysfunction

1. Check for tenderness in the Chapman reflex for the kidneys located 1" lateral and 1" superior from the umbilicus on the medial margin of the Rectus abdominus muscle. Have clients tighten stomach muscles to palpate.
2. Check for an increase in blood pressure when the client goes from standing to supine
3. Routine and functional urinalysis panel
4. Blood chemistry renal function panel
5. Check for nitrites, lymphocytes and RBCs in the urine. If necessary order or perform urine culture and microscopy.
6. Check for tenderness with Murphy’s punch to the kidneys on the lower back.
7. Check urine pH. Extremes of pH on the acid and alkaline side can determine whether or not certain stones will form
8. X-ray or intravenous pyelogram may be necessary

Supplemental Support

1. Multiple nutrients for supporting renal function
2. Flax Seed Oil
3. Pyridoxal-5-phosphate
4. Magnesium
5. Emulsified vitamin A drops
6. Buffered vitamin C plus bioflavanoids
7. Larch arabinogalactans
16. Immune System

We live in toxic times, and it is becoming clear that our bodies are getting less able to deal with such levels of toxicity. We only have to look at the increasing levels of cancer to know that something is not right with our immune systems. And as these increasing levels of cancer are occurring in younger and younger people we know that something has to be done about the decrease in our immune response. The immune system is constantly being challenged. Theron Randolph, MD, firmly believed that the pollution of the environment and our constant exposure to chemicals is responsible for allergies and other immune system problems.

Another problem is the highly refined diet that many people eat. Consumption of refined sugar and refined carbohydrates can actually decrease the efficacy of white blood cells. Trans fats from hydrogenated oils and partially hydrogenated oils become incorporated into our cells, compromising their integrity, making it easier for bacteria and viruses to invade.

Dysbiosis, heavy metals and increased intestinal permeability can all place demands on the immune system. The old saying an ounce of prevention is worth a pound of cure is an important one when looking at the immune system. I am not a big fan of vaccinations in general because I feel the best way to deal with infections is to boost the body’s natural and inherent ability to deal with infectious organisms in our environment. So, what are the best ways to do this?

One of the best ways is to avoid suppressing the immune system. Unfortunately one of the things about living in the 21st century is the constant exposure to foods, such as refined carbohydrates and hydrogenated oils, metabolic toxins, and xenoestrogens, which are “fake” hormones that block the natural function of our hormonal systems. These all reduce the natural immunity and burden the already burdened detoxification systems in the liver. It has been demonstrated that even a small amount of sugar will suppress the immune system for up to 8 hours. Alcohol and stress will also suppress normal immune function and slow down the detoxification process.

One of the other ways to boost the immune system and support the detoxification processes is to increase the body’s natural immune response. In the past people have relied on immune staples such as the herbs Echinacea and goldenseal, perhaps boosted with some elderberry and high doses of vitamin C. Unfortunately I don’t think these staples are often enough to strengthen and boost the immune system to deal with the levels of toxins in our environment.

Fortunately, you can do things to support your clients’ immune system. There are nutrients and herbs that will improve immune function. For many people, simple changes in diet work wonders in improving immune function.

Calcium d-glucarate is a nontoxic, natural substance found in high concentrations in fruits and vegetables. The benefits of d-glucarate were first discovered by researchers at the M.D. Anderson Cancer Center. Many studies have shown it to be highly protective against cancer due to properties that increase the ability of the body to detoxify and eliminate toxins and other harmful substances. Calcium d-glucarate is also an effective product for removing excess hormones and foreign chemicals that have negative hormonal activity in the body. This may be one of the reasons that d-glucarate is important in protecting against breast cancer and controlling postmenopausal symptoms. I feel that d-glucarate’s role in improving your body’s
immunity lies in its ability to process and eliminate harmful toxins and carcinogens that tax the immune system, and also in its ability to bind to and remove toxic cellular waste. By increasing the levels of d-glucarate your clients will have to spend less energy eliminating harmful substances. Energy that can be better used to fight incoming infections. There is also increasing evidence that d-glucarate has antibacterial and antiviral properties.

### Assessing the symptom burden of the Immune Section:

<table>
<thead>
<tr>
<th>Symptom count</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 4</td>
<td>Low priority</td>
</tr>
<tr>
<td>5 – 8</td>
<td>Moderate priority</td>
</tr>
<tr>
<td>Above 8</td>
<td>High Priority</td>
</tr>
</tbody>
</table>

When the symptom burden of the immune section approaches 8 or higher, then there is a need for further assessment and treatment. This signifies that there is significant distress in the immune system. This may be caused by increased consumption of hydrogenated oil, digestive dysfunction, dysbiosis in the digestive tract, bowel toxemia, EFA insufficiency and a diet low in essential fatty acids in general, nutrient deficiencies, and increased refined carbohydrates in the diet.

### Assessing Immune Insufficiency

1. Check for tenderness in the Chapman reflex for the thymus located in the 5th intercostal space on the right near the sternum
2. Check for tenderness in the Chapman reflex for the lungs located bilaterally in the 3rd and 4th intercostal space near the sternum
3. Check for tenderness in the histamine point located at five o’clock on the pectoralis muscle in the intercostal space between the 5th and 6th rib on the right side only
4. Assess the client for allergic tension. Take a full one-minute pulse sitting, then stand, wait 15 seconds and take another full minute pulse. If the standing pulse goes up by more than six beats, this is an indication of “allergic tension”
5. Assess the client’s vitamin C status with the lingual and urinary ascorbic acid tests

### Supplemental Support

1. Calcium d-glucarate
2. Multiple nutrients that support the immune system
3. Thymus tissue (neonatal bovine)
4. Herbal support against viruses
5. Nutrients that support against bacteria
6. Lung tissue (neonatal bovine) and other nutrients to support lung function
7. Multiple herbal anti-histamines
<table>
<thead>
<tr>
<th>System</th>
<th>High Priority</th>
<th>Moderate Priority</th>
<th>Low Priority</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immune System</td>
<td>11+</td>
<td>9</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Kidney &amp; Bladder</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>11+</td>
<td>9</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Women Only</td>
<td>21+</td>
<td>18</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Men Only</td>
<td>10+</td>
<td>8</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Thyroid</td>
<td>17+</td>
<td>15</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Pituitary</td>
<td>10+</td>
<td>9</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Adrenal</td>
<td>28+</td>
<td>24</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Vitamin Need</td>
<td>28+</td>
<td>24</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Sugar Handling</td>
<td>14+</td>
<td>12</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Essential Fatty Acids</td>
<td>8+</td>
<td>7</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Mineral Needs</td>
<td>25+</td>
<td>23</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>Large Intestine</td>
<td>20+</td>
<td>18</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>Small Intestine</td>
<td>16+</td>
<td>14</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Liver &amp; GB</td>
<td>22+</td>
<td>19</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Upper GI</td>
<td>19+</td>
<td>17</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Nutritional Assessment Questionnaire - Symptom Burden Analysis