Naturopathic Handouts

Finding the Cause of Disease with Specialty Lab Tests

by Ronald Steriti, ND, PhD
These handouts were written to help educate patients about which lab tests are available for their specific disease. A comprehensive list of causes is given for each disease, along with descriptions of specialty lab tests (from Great Smokies Diagnostic Labs) that can be used to identify the specific cause.

Acknowledgements
I would like to acknowledge the fine instruction I have received at Southwest College of Naturopathic Medicine. This review guide is based, in part, on the knowledge handed down from teacher to student in the time honored manner of true education.

Disclaimer
The information contained in this notebook has not been evaluated by the FDA. These products are not intended to diagnose, treat, cure or prevent any disease.

© 2003
Please note that the contents of this document are the sole property of the author.

Ronald Steriti, ND, PhD
Naples, Florida
(239) 659-2684
www.naturdoctore.com
ron@naturdoctore.com
Computer Software by Dr. Steriti

**Drug-Vitamin-Herb Interaction Analysis**
Many people are concerned about the interactions between prescription drugs and nutritional supplements. This computer program generates a list of the interactions between the prescription drugs entered and nutritional supplements.

**Differential Diagnosis of Conventional Lab Test Results**
Interpreting standard lab tests is not easy, particularly when there are several out of range test results (which often happens with multiple medications). This computer program prints out the differential diagnosis for each lab test. You select whether it is high or low, giving you the ability to use tighter criteria.

**The Bach Flower Emotional Wellness Quiz**
The Bach Flower Emotional Self-Help Quiz has four quizzes that help you choose Bach Flowers Remedies to balance your emotions.

Mac and PC demos of the software can be found on www.naturdocto.com
# Table of Contents

Conventional Lab Test Recorder ............................................. 1  

**Eyes**  
Cataracts ............................................................................. 11  
Macular Degeneration ............................................................. 12  

**Ears**  
Otitis Media .......................................................................... 15  

**Throat**  
Bruxism .................................................................................. 18  

**Respiratory**  
Bronchitis ............................................................................... 21  

**Cardiology**  
Atherosclerosis .................................................................... 25  
Cholesterol ............................................................................. 26  
Congestive Heart Failure ....................................................... 27  
Hypertension - High Blood Pressure ....................................... 28  

**Vascular Diseases**  
Hemorrhoids .......................................................................... 31  
Intermittent Claudication ....................................................... 32  
Varicose Veins ......................................................................... 33  

**Gastrology**  
Candida ................................................................................... 37  
Crohn’s Disease .................................................................... 38  
Irritable Bowel Syndrome .................................................... 39  
Peptic Ulcer Disease ............................................................... 40  
Ulcerative Colitis .................................................................... 41  

**Liver and Gallbladder**  
Comprehensive Detoxification Program ................................. 44  

**Endocrine**  
Diabetes .................................................................................. 46  
Diabetes, Type I or IDDM ......................................................... 47  
Diabetes, Type II or NIDDM .................................................... 48  
Hypothyroidism ...................................................................... 49  

**Urology**  
Urinary Stones ........................................................................ 52

**Gynecology**
# Table of Contents

Amenorrhea ................................................................. 54  
Dysmenorrhea (Menstrual Cramping) ............................... 55  
Endometriosis ............................................................. 56  
Fibrocystic Breast Disease ............................................. 57  
Menopause ................................................................. 58  
Menorrhagia ............................................................... 59  
Premenstrual Syndrome, PMS ........................................ 60  
Uterine Fibroids ........................................................... 61  

**Obstetrics**  
Prenatal Support ....................................................... 64  

**Men**  
Benign Prostatic Hypertrophy ....................................... 66  

**Neurology**  
Amyotrophic Lateral Sclerosis ....................................... 68  
Insomnia ................................................................. 69  
Memory Loss ............................................................ 70  
Multiple Sclerosis ....................................................... 71  
Restless Leg Syndrome ............................................... 72  
Seizures ................................................................. 73  
Trigeminal Neuralgia .................................................. 74  

**Dermatology**  
Acne ................................................................. 76  
Psoriasis ............................................................... 77  
Scleroderma ............................................................ 78  

**Immunology**  
Allergies .............................................................. 80  
Candida ............................................................... 81  
Chronic Fatigue Syndrome ......................................... 82  

**Musculoskeletal**  
Bursitis ............................................................... 84  
Carpal Tunnel Syndrome ............................................ 85  
Fibromyalgia ............................................................ 86  
Gout ................................................................. 87  
Osteoarthritis .......................................................... 88  
Osteoporosis ............................................................ 89  

**Psychology**  
Attention Deficit Hyperactivity Disorder ....................... 93
Table of Contents

Anxiety and Panic .......................................................... 94
Depression ................................................................. 95

General
Pain ................................................................. 98

References and Index
References ............................................................... 101
Index ................................................................. 103
# Conventional Lab Test Recorder

## CBC

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin, HGB</td>
<td></td>
</tr>
<tr>
<td>Hematocrit, HCT</td>
<td></td>
</tr>
<tr>
<td>WBC</td>
<td></td>
</tr>
<tr>
<td>RBC</td>
<td></td>
</tr>
<tr>
<td>Platelets</td>
<td></td>
</tr>
<tr>
<td>MCV</td>
<td></td>
</tr>
<tr>
<td>MCH</td>
<td></td>
</tr>
<tr>
<td>MCHC</td>
<td></td>
</tr>
<tr>
<td>RDW</td>
<td></td>
</tr>
</tbody>
</table>

## Differential

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutrophils</td>
<td></td>
</tr>
<tr>
<td>Lymphocytes</td>
<td></td>
</tr>
<tr>
<td>Monocytes</td>
<td></td>
</tr>
<tr>
<td>Eosinophils</td>
<td></td>
</tr>
<tr>
<td>Basophils</td>
<td></td>
</tr>
<tr>
<td>Neutrophils %</td>
<td></td>
</tr>
<tr>
<td>Lymphocytes %</td>
<td></td>
</tr>
<tr>
<td>Monocytes %</td>
<td></td>
</tr>
<tr>
<td>Eosinophils %</td>
<td></td>
</tr>
<tr>
<td>Basophils %</td>
<td></td>
</tr>
</tbody>
</table>

## Lipids

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td></td>
</tr>
<tr>
<td>Triglycerides</td>
<td></td>
</tr>
<tr>
<td>LDL</td>
<td></td>
</tr>
<tr>
<td>VLDL</td>
<td></td>
</tr>
<tr>
<td>HDL</td>
<td></td>
</tr>
<tr>
<td>Total Cholesterol:HDL</td>
<td></td>
</tr>
</tbody>
</table>

© 2003 Ronald Steriti, ND, PhD
## Conventional Lab Test Recorder

### Chemistry

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose (fasting)</td>
<td></td>
</tr>
<tr>
<td>Uric acid</td>
<td></td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td></td>
</tr>
</tbody>
</table>

### Kidneys

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUN</td>
<td></td>
</tr>
<tr>
<td>Creatinine</td>
<td></td>
</tr>
<tr>
<td>BUN:Creatinine ratio</td>
<td></td>
</tr>
</tbody>
</table>

### Minerals

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td></td>
</tr>
<tr>
<td>Potassium</td>
<td></td>
</tr>
<tr>
<td>Chloride</td>
<td></td>
</tr>
<tr>
<td>Calcium</td>
<td></td>
</tr>
<tr>
<td>Phosphorus</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td></td>
</tr>
</tbody>
</table>

### Proteins

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td></td>
</tr>
<tr>
<td>Albumin</td>
<td></td>
</tr>
<tr>
<td>Globulin</td>
<td></td>
</tr>
<tr>
<td>Albumin:Globulin Ratio</td>
<td></td>
</tr>
</tbody>
</table>
Conventional Lab Test Recorder

**Enzymes**

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkaline Phosphatase</td>
<td></td>
</tr>
<tr>
<td>LDH</td>
<td></td>
</tr>
<tr>
<td>AST (SGOT)</td>
<td></td>
</tr>
<tr>
<td>ALT (SGPT)</td>
<td></td>
</tr>
</tbody>
</table>

**Liver function**

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGT</td>
<td></td>
</tr>
<tr>
<td>Bilirubin, Total</td>
<td></td>
</tr>
<tr>
<td>Bilirubin, Direct</td>
<td></td>
</tr>
<tr>
<td>Bilirubin, Indirect</td>
<td></td>
</tr>
</tbody>
</table>

**Hepatitis panel**

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis A</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td></td>
</tr>
<tr>
<td>Hepatitis C</td>
<td></td>
</tr>
<tr>
<td>Hepatitis B surface antigen</td>
<td></td>
</tr>
<tr>
<td>Hepatitis C Antibody</td>
<td></td>
</tr>
</tbody>
</table>
# Conventional Lab Test Recorder

## Thyroid

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>T3 uptake</td>
<td></td>
</tr>
<tr>
<td>Free T4</td>
<td></td>
</tr>
<tr>
<td>Total T4</td>
<td></td>
</tr>
<tr>
<td>T7 (FTI)</td>
<td></td>
</tr>
<tr>
<td>TSH</td>
<td></td>
</tr>
<tr>
<td>Free T3</td>
<td></td>
</tr>
<tr>
<td>Reverse T3</td>
<td></td>
</tr>
<tr>
<td>Thyroid autoantibody</td>
<td></td>
</tr>
</tbody>
</table>

## Rheumatology

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-Peptide</td>
<td></td>
</tr>
<tr>
<td>C-Reactive Protein, CRP</td>
<td></td>
</tr>
<tr>
<td>ESR (Sedimentation Rate)</td>
<td></td>
</tr>
<tr>
<td>Lupus</td>
<td></td>
</tr>
<tr>
<td>Rheumatoid Factor (RF)</td>
<td></td>
</tr>
</tbody>
</table>

## Hormones

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estradiol</td>
<td></td>
</tr>
<tr>
<td>Progesterone</td>
<td></td>
</tr>
<tr>
<td>Testosterone</td>
<td></td>
</tr>
<tr>
<td>FSH</td>
<td></td>
</tr>
<tr>
<td>LH</td>
<td></td>
</tr>
<tr>
<td>Prolactin</td>
<td></td>
</tr>
<tr>
<td>DHEA</td>
<td></td>
</tr>
<tr>
<td>Cortisol AM</td>
<td></td>
</tr>
<tr>
<td>Cortisol PM</td>
<td></td>
</tr>
</tbody>
</table>
## Conventional Lab Test Recorder

### Immune panel

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immune Cell Subset</td>
<td></td>
</tr>
<tr>
<td>Immunoglobulin E</td>
<td></td>
</tr>
<tr>
<td>Complement 3</td>
<td></td>
</tr>
<tr>
<td>Complement 4</td>
<td></td>
</tr>
<tr>
<td>T&amp;B Subset + T-cells</td>
<td></td>
</tr>
</tbody>
</table>

### Virology

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Candida</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td></td>
</tr>
<tr>
<td>Cytomegalovirus, CMV</td>
<td></td>
</tr>
<tr>
<td>Epstein-Barr Panel</td>
<td></td>
</tr>
<tr>
<td>H-Pylori (IgG, A, M)</td>
<td></td>
</tr>
</tbody>
</table>

### Herpes Panel

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herpes 1</td>
<td></td>
</tr>
<tr>
<td>Herpes 2</td>
<td></td>
</tr>
<tr>
<td>Herpes Ab</td>
<td></td>
</tr>
<tr>
<td>Herpes IgM</td>
<td></td>
</tr>
</tbody>
</table>

### Gastrointestinal

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastrin</td>
<td></td>
</tr>
<tr>
<td>Pepsinogen</td>
<td></td>
</tr>
<tr>
<td>D-Xylose Absorption</td>
<td></td>
</tr>
</tbody>
</table>
# Conventional Lab Test Recorder

## Pancreas

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemoglobin A1c</td>
<td></td>
</tr>
<tr>
<td>Insulin</td>
<td></td>
</tr>
</tbody>
</table>

## Cardiac

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homocysteine</td>
<td></td>
</tr>
<tr>
<td>Alipoprotein A-1</td>
<td></td>
</tr>
<tr>
<td>Renin</td>
<td></td>
</tr>
</tbody>
</table>

## Cancer

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast CA-15-3</td>
<td></td>
</tr>
<tr>
<td>CEA</td>
<td></td>
</tr>
<tr>
<td>Free PSA</td>
<td></td>
</tr>
<tr>
<td>Total PSA</td>
<td></td>
</tr>
<tr>
<td>Gastric-Pancreatic CA</td>
<td></td>
</tr>
<tr>
<td>Ovarian CA-125</td>
<td></td>
</tr>
</tbody>
</table>

## Nutritional

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin B12</td>
<td></td>
</tr>
<tr>
<td>Magnesium</td>
<td></td>
</tr>
<tr>
<td>Selenium</td>
<td></td>
</tr>
</tbody>
</table>
## Conventional Lab Test Recorder

### Additional Tests

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Conventional Lab Test Recorder

### Additional Tests

<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Eyes
Cataracts

Description

A cataract is any opacity of the lens, either localized or generalized. Cataracts are the single largest cause of blindness in the world, blinding an estimated 17 million people. Treatment of cataracts is usually by surgical removal.

Types include: Age-related ("senile") - over 90%; Congenital - 1/250 newborns, 10-38% of childhood blindness; Toxic/nutritional; Systemic disease associated e.g., myotonic dystrophy, atopic dermatitis; Metabolic - diabetes (accelerated sorbitol pathway), hypocalcemia, Wilson's disease; "Complicated" - secondary to associated eye disease, e.g., uveitis (juvenile rheumatoid arthritis, sarcoid, etc.). Also secondary to occult tumor (melanoma, retinoblastoma); Trauma - heat (infrared), electrical shock, radiation, concussion, perforating eye injuries, intraocular foreign body.

Age-related cataracts are caused by the continual addition of layers of lens fibers throughout life which creates a hard, dehydrated lens nucleus which impairs vision (nuclear cataract). Aging alters biochemical and osmotic balance required for lens clarity, and the outer lens layers hydrate and become opaque, affecting vision.

Causes

The cause of congenital cataracts is usually obscure and includes: Drugs (corticosteroids in first trimester, sulfonamides, etc.); Metabolic - diabetes in mother, galactosemia in fetus; Intrauterine infections during the first trimester of pregnancy (rubella, herpes, mumps); and Maternal malnutrition. Other cataract types have in common that a biochemical/osmotic imbalance disrupts lens clarity. Local changes in lens protein distribution lead to light scattering manifest as lens opacity.

Conventional Lab Tests

No lab tests are necessasary.

Specialty Lab Tests

The Glucose/Insulin Tolerance Test employs a glucose challenge and blood samples over a 4 hour period to assess the relationship of insulin and glucose. The test provides important information about hypoglycemia, hyperglycemia and insulin resistance.

The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.

The Oxidative Stress Analysis (Blood & Urine) identifies markers of hydroxyl radical activity, urine lipid peroxides, reduced glutathione, superoxide dismutase, and glutathione peroxidase, following a challenge dose of aspirin and acetaminophen. Offered by itself or included in the Comprehensive Detoxification Profile. Especially useful in cases of chronic fatigue, xenobiotic exposure, and chronic illnesses.

© 2003

11

Ronald Steriti, ND, PhD
Macular Degeneration

Description
One definition of Age-Related Macular Degeneration (ARMD) is pigmentary changes in the macula or typical drusen (Small bright structures seen in the retina and in the optic disc) associated with visual loss to the 20/30 level or worse, not caused by cataract or other eye disease in individuals over 50 years of age. Other definitions do not include age or visual acuity criteria. ARMD is the leading cause of irreversible severe visual loss in persons over 65 years of age.

There are two stages: Atrophic/nonexudative and Neovascular/exudative. Atrophic/nonexudative has drusen and/or pigmentary changes in the macula. Neovascular/exudative has growth of blood vessels underneath the retina.

Prevalence increases with age. Over 75 years; one quarter of men and one third of women will have evidence of ARMD. The prevalence of severe visual loss from ARMD increases with age. 2.2% of patients over 65 years of age are blind in one or both eyes from ARMD. The atrophic/nonexudative stage accounts for 20% of cases of severe visual loss. The neovascular/exudative stage accounts for 80% of cases of severe visual loss.

Causes
The cause of macular degeneration is considered to be visible light which can result in the formation and accumulation of metabolic byproducts in the RPE which normally helps remove metabolic byproducts from the retina. The excess accumulation of these metabolic byproducts interferes with the normal metabolic activity of the RPE and can lead to the formation of drusen.

Risk factors include: Excess sunlight exposure; Blue or light iris color; Hyperopia; History of cardiovascular disease (hypertension, circulatory problems); Short height; History of lung infection; and Cigarette smoking.

Conventional Lab Tests
No lab tests are necessary.

Specialty Lab Tests
The Cotinine Assay examines urine to determine the presence of cotinine, a nicotine metabolite, which is an indicator of exposure to second-hand smoke. This test is useful in cases of recurrent infections or allergy in children of smokers.

The revolutionary Cardiovascular Assessment is on the cutting edge of molecular medicine and is based on the latest advancements in cardiovascular disease (CVD) research. The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status. Using this state-of-the-art assessment, you can now better identify individuals who don't show abnormalities in traditional markers of CVD—those who comprise almost 50% of all heart attack victims.
Ears
Otitis Media

Description
Otitis media is defined as inflammation of the middle ear. Acute otitis media is usually a bacterial infection accompanied by viral upper respiratory infection. Recurrent acute otitis media is diagnosed when there are 3 or more acute episodes in 6 months, or 4 or more in 1 year. Otitis media with effusion occurs when persistent inflammation manifests as asymptomatic middle ear fluid that follows acute otitis media or arises without prior otitis media.

By age 7 years, 93% of children have 1 or more episodes of acute otitis media; 39% have 6 or more episodes. Otitis media most commonly occurs between the ages of 6-12 months; and declines after age 7 years. It is rare in adults.

Causes
Acute otitis media is considered to be caused by infection. A preceding viral upper respiratory infection produces eustachian tube dysfunction that is thought to promote bacterial infection via eustachian tube. Infectious agents include Haemophilus influenzae (20-25%); Moraxella (Branhamella) catharrhalis (10-15%); Group A streptococci (1-2%); Staphylococcus aureus (1-2%); and Sterile/non-pathogens (25-30%). Of particular interest is that acute otitis media is the last entry: the most common cause is not an infection!

Otitis media with effusion is considered to be caused by a silent bacterial infection in 20-40% of cases. Eustachian tube dysfunction thought important. Allergic causes rarely substantiated.

Risk factors include: Day care; Formula feeding; Smoking in household; Male gender; and a Family history of middle ear disease. Acute otitis media in the 1st year of life is a risk factor for recurrent episodes.

Conventional Lab Tests
No lab tests are necessasary.

Specialty Lab Tests
The Comprehensive Allergy (Antibody) Profile assays blood for immediate and delayed reactions to 96 combined foods or 100 vegetarian foods, and 36 region-specific inhalants, allowing patients to moderate exposure to allergens. Includes separate IgE & IgG profiles. Various add-on panels are also available, including a 24-spice panel.
Otitis Media
Throat
Bruxism

Definition

Bruxism is the grinding and clenching of teeth usually during sleep. It is common in persons of all ages and affects about 15% of children and as many as 96% of adults. Clinically, bruxism commonly accompanies the stress of marital strife, school examinations or work difficulties. It may resolve when these stresses lessen.

Causes

The specific cause of bruxism is unknown. Bruxism has been associated with stress, occlusal disorders, allergies and sleep position. Alcohol often aggravates bruxism. Some studies indicate that bruxism may be associated with magnesium deficiency.

Acrodynia (pain in peripheral or acral parts of the body) is a syndrome caused almost exclusively by mercury poisoning. In children it is characterized by erythema of the extremities, chest, and nose, polyneuritis, and gastrointestinal symptoms. In adults it is characterized by anorexia, photophobia, sweating, and tachycardia.

Recent research has indicated an association between neurotransmitters and bruxism, particularly epinephrine and dopamine. The use of serotonin re-uptake inhibitors (SSRI’s, antidepressants) and Ecstasy are associated with bruxism.

Specialty Lab Tests

The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

The Comprehensive Allergy (Antibody) Profile assays blood for immediate and delayed reactions to 96 combined foods or 100 vegetarian foods, and 36 region-specific inhalants, allowing patients to moderate exposure to allergens. Includes separate IgE & IgG profiles. Various add-on panels are also available, including a 24-spice panel.

The Metabolic Analysis Profile assesses urine metabolites to evaluate four critical areas of metabolism: gastrointestinal function, cellular energy production, neurotransmitter processing, and amino acid-organic acid balance. Test results can be used to address chronic systemic complaints: fatigue and mood disorders to headaches, muscular/joint pain, and digestive problems. Analytes: Creatinine and 39 organic acids ratioed to creatinine, including: 8 gastrointestinal metabolites, 13 cellular energy metabolites, 4 neurotransmitter metabolites, and 14 amino acid metabolites. Specimen Requirements: First morning urine collection; 2 tubes (samples frozen).
Respiratory
Bronchitis

Description
Bronchitis is an inflammation of the trachea, bronchi and bronchioles resulting from a respiratory tract infection. It is generally self-limited with complete healing and full return of function.

Causes
Risk factors include: Chronic bronchopulmonary diseases; Chronic sinusitis; Bronchopulmonary allergy; Hypertrophied tonsils and adenoids in children; Immunosuppression; Air pollutants; Elderly; Infants; Smoking; Second-hand smoke; Alcoholism; Reflux esophagitis; Tracheostomy; IgA deficiency; and Environmental changes.

Conventional Lab Tests
Lab tests include a sputum culture an gram stain, viral and mycoplasm titers, and a CBC (for leukocytosis). Pulmonary function tests are recommended for chronic cases. A chest Xray can help rule out other diseases.

Specialty Lab Tests
The Comprehensive Allergy (Antibody) Profile assays blood for immediate and delayed reactions to 96 combined foods or 100 vegetarian foods, and 36 region-specific inhalants, allowing patients to moderate exposure to allergens. Includes separate IgE & IgG profiles. Various add-on panels are also available, including a 24-spice panel.

The Inhalants Profile is an ELISA test of IgE antibodies to 36 region-specific pollens and environmental inhalants.

The Cotinine Assay examines urine to determine the presence of this nicotine metabolite, an indicator of exposure to second-hand smoke. Useful in cases of recurrent infections or allergy in children of smokers.
Bronchitis
Cardiology
Atherosclerosis

Description
Atherosclerosis is the common form of arteriosclerosis in which deposits of yellowish plaques (atheromas) containing cholesterol, lipid material, and lipophages are formed within the intima and inner media of large and medium sized arteries. Complications of atherosclerosis account for 1/2 of all deaths, and 1/3 of deaths in persons between ages 35-65.

Causes
The cause of atherosclerosis is biochemical, physiologic, and environmental factors that lead to thickening and occlusion of the lumen of arteries. Atherosclerosis is considered to be a disease of aging since some degree of atherosclerosis is universal.

Risk factors include: Hypertension; Tobacco smoking; Diabetes mellitus; Obesity; Male gender; Physical inactivity; Increasing age; Family history of premature atherosclerosis; Decreased high-density lipoprotein (HDL) cholesterol; and Increased low-density lipoprotein (LDL) cholesterol.

Three mechanisms have been identified as the most probable causative factors in the development of atherosclerosis: Oxidation of LDL cholesterol; Homocysteine overload; and Abnormal platelet aggregation (clotting inside an artery).

Linus Pauling proposed that atherosclerosis was due to sub-clinical scurvy (vitamin C deficiency). Vitamin C is needed to make collagen that forms (and repairs) blood vessels. Pauling also proposed that a deficiency of lysine allowed lipoprotein (A) to attach to the blood vessel walls and form plaques.

Conventional Lab Tests
Atherosclerosis is associated with elevated serum cholesterol, high HDL, and low LDL.

Specialty Lab Tests
The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status.

Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.

The Cotinine Assay examines urine to determine the presence of cotinine, a nicotine metabolite, which is an indicator of exposure to second-hand smoke. This test is useful in cases of recurrent infections or allergy in children of smokers.
Cholesterol

Description
Hypercholesterolemia is serum cholesterol $> 200$ mg/dL, with high risk at 240 mg/dL or more. The high density lipoprotein fraction of cholesterol (HDL) is protective, whereas the low density lipoprotein (LDL) is atherogenic.

Causes
The primary causes of high cholesterol are: Diet; Heredity; Obesity; Sedentary life-style; and Stress. Secondary causes include: Hypothyroidism; Diabetes mellitus; Nephrotic syndrome; Obstructive liver disease; Progestins; Anabolic steroids; Diuretics except indapamide (Lozol); Beta blockers except those with intrinsic sympathomimetic activity (ISA); and Some immunosuppressant drugs.

Naturopathic Approach
The naturopathic approach to hypercholesterolemia focuses on supplements that have been shown to lower cholesterol in scientific studies, including Red yeast rice, Policosanol, vitamin B3, and Guggul. In addition, the detoxification system should be assessed as the P450 enzyme system clears both cholesterol and toxins.

Conventional Lab Tests
Standard lipid panels include serum cholesterol, and lipoproteins HDL, LDL, and VLDL.

Specialty Labs
The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status.
The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage.
Congestive Heart Failure

Description
Congestive heart failure (CHF) is the principal complication of heart disease. It is a pathophysiologic state produced by an abnormality in cardiac pump function (either transient or prolonged). The heart is unable to transport blood in a sufficient flow to meet the metabolic needs of the peripheral tissues. This produces a wide variety of clinical circumstances ranging from acute left ventricular dysfunction (due to tachyarrhythmia, bradyarrhythmia, and acute myocardial infarction) to chronic left ventricular dysfunction (due to chronic volume/pressure overload as seen in valvular heart disease).

Two physiologic components explain most of the clinical findings of CHF: an inotropic abnormality which results in diminished systolic emptying (systolic failure); a compliance abnormality in which the ability of the ventricles to accept blood is impaired (diastolic failure). Most cases of heart failure have findings consistent with both mechanisms.

Causes
Causes of congestive heart failure include: Myocardial infarction; High output states; Rheumatic heart disease (mitral and aortic valvular disease); Cardiomyopathy - alcohol and non-alcohol related; Hypertensive heart disease; Aortic stenosis or regurgitation; Volume overload; Beta-blockers or other cardiac depressants

Risk factors for congestive heart failure include: Iatrogenic inappropriate reduction of intensity of therapy; Patient non-compliance; Intercurrent arrhythmia; Pulmonary embolism; Administration of cardiac agent with negative inotropic effect; Inappropriate physical, emotional, or environmental stress; Thyrotoxicosis, pregnancy, or any condition associated with increased peripheral metabolic demand.

Conventional Lab Tests
Conventional lab tests include arterial blood gases (for respiratory alkalosis), BUN (for azotemia), erythrocyte sedimentation rate (ESR), Urinalysis protein (for proteinuria), creatinine, bilirubin, and urine sodium (for dilutional hyponatremia)

Specialty Lab Tests
The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Hypertension - High Blood Pressure

Description
Hypertension is defined as a sustained elevated blood pressure (systolic blood pressure of 140 mm Hg or greater and/or diastolic blood pressure of 90 mm Hg or greater). Hypertension is a strong risk factor for cardiovascular disease. Men tend to run higher pressures than females but more importantly have a significantly higher risk of cardiovascular disease at any given blood pressure.

Causes
Over 90% of hypertension has no identified cause. These can be labeled essential or primary hypertension. Secondary causes of hypertension include four areas: Renal parenchymal (Glomerulonephritis; Pyelonephritis; Polycystic kidneys); Endocrine (Primary hyperaldosteronism; Pheochromocytoma; Hyperthyroidism; Cushing's syndrome); Vascular (Coarctation; Renal artery stenosis); and Chemical (Oral contraceptives; NSAID's; Decongestants; Antidepressants; Sympathomimetics; Many industrial chemicals; Corticosteroids; Ergotamine alkaloids; Lithium; Cyclosporine).

Risk factors include: Family history; Obesity; Alcohol; Excess dietary sodium; Stress; and Physical inactivity.

Conventional Lab Tests
Standard lab tests include hemoglobin and hematocrit or CBC, Complete urinalysis (sometimes reveals proteinuria), Potassium, calcium and creatinine, Cholesterol and lipoproteins (HDL, LDL, VLDL), Fasting blood glucose, and Uric acid.

Specialty Lab Tests
The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.

The Adrenocortex Stress Profile evaluates bioactive levels of the body's important stress hormones, cortisol and DHEA. This profile serves as a critical tool for uncovering biochemical imbalances that can underly anxiety, chronic fatigue, obesity, diabetes and a host of other clinical conditions. It's also a crucial tool for monitoring DHEA and/or cortisone therapy.

Naturopathic Approach
The naturopathic approach to high blood pressure focuses on supplements that support and strengthen heart function (Hawthorne), and cardiovascular nutritional support (CoQ10, taurine, magnesium). In addition an exhaustive search for a cause is recommended.
Vascular Diseases
Hemorrhoids

Description
Hemorrhoids are varicosities of the hemorrhoidal venous plexus caused by dilation of the veins. External hemorrhoids are located below the dentate line and are covered by squamous epithelium. Internal hemorrhoids are located above the dentate line and are not visible.

Causes
Risk factors for hemorrhoids include: Pregnancy; Colon malignancy; Liver disease; Portal hypertension; Constipation; Occupations that require prolonged sitting; Loss of muscle tone in old age; Rectal surgery; Episiotomy; Anal intercourse; and Obesity.

The Naturopathic Approach
A comprehensive approach to treating hemorrhoids would include both strengthening and repairing the veins, and clearing the liver of toxins (the hemorrhoidal venous plexus flows through the portal system into the liver).

Conventional Lab Tests
No lab is specific.

Specialty Lab Tests
The Comprehensive Digestive Stool Analysis (CDSA) evaluates digestion and absorption, bacterial balance and metabolism, yeast and immune status. The CDSA is used in the evaluation of various gastrointestinal symptoms or systemic illnesses that may have started in the intestine. It is recommended for patients with irritable bowel syndrome, indigestion, malabsorption, and other GI-related problems. The CDSA includes: Digestive Function Analysis, Microbiology Analysis, Bacteriology Culture, Fecal Fat Analysis, and a Yeast Culture.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage. This test measures the clearance of challenge substances in two salivary specimens; the products of detoxifying reactions are also assessed in an overnight urine specimen. In the Comprehensive version of this profile, the urine specimen is analyzed for levels of lipid peroxides. In addition, various oxidative markers are assessed from fasting blood specimens taken the morning after the challenge. These tests are sensitive indicators of biological detoxification status.
Intermittent Claudication

Description
The term claudication is derived from the Latin word claudicare, to limp. Claudication is the feeling of muscle fatigue after a period of minimal exercise of an extremity. The feeling may progress to a cramp-like pain, usually in the calf muscles. It is always relieved by resting the extremity. It can be reproduced by undergoing a similar exercise pattern. It may occur in the arms, but is more common in the legs, calf > thigh.

Causes
Causes of claudication include: Lower extremity claudication - blockage of superficial femoral artery, secondary to arteriosclerosis in 95% of cases; Other causes of arterial blocks - embolus, popliteal entrapment, adventitius cystic disease of popliteal artery, thromboangiitis obliterans; Thigh and hip claudication - blockage of aortic and iliac vessels; Upper extremity claudication - similar blocks of subclavian, axillary, and brachial artery. Patients with lumbar canal stenosis often present with similar complaints. This is referred to as pseudoclaudication.

Risk factors for claudication include: Smoking; Diabetes; Hypertension; Hyperlipidemia; Obesity; and Preexisting heart disease.

Conventional Lab Tests
Conventional lab tests would include those for Diabetes (fasting glucose); Hypertension and Hyperlipidemia (cholesterol and lipoproteins).

Specialty Lab Tests
The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.

The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status.

The Cotinine Assay examines urine to determine the presence of cotinine, a nicotine metabolite, which is an indicator of exposure to second-hand smoke. This test is useful in cases of recurrent infections or allergy in children of smokers.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Varicose Veins

Description
Varicose veins are elongated, dilated, tortuous superficial veins with congenitally absent valves, or valves that have become incompetent. Varicose veins affects legs where the blood flows upwards back into the heart. About 20% of adults have varicose veins. Women are predominantly affected.

Causes
Varicose veins can be caused by faulty valves in one or more perforator veins in the lower leg causing secondary incompetence at the saphenofemoral junction. Increased venous pressure from any cause can cause varicosities. Deep thrombophlebitis (inflammation of the veins with thrombus formation) can cause varicose veins. In many individuals, no cause or precipitating factor found.

Risk factors include: Pregnancy; and Occupations requiring prolonged standing, restrictive clothing (e.g., very tight girdles).

Conventional Lab Tests
None are considered helpful.

Specialty Lab Tests
The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status.
Varicose Veins
Gastrology
Candida

Description
Candida albicans and related species is a fungus that causes a variety of infections. Mucous membrane infections include oral candidiasis (thrush), esophagitis, and vaginitis. Candidal paronychia begins around the nail as a painful red swelling that later develops pus. Subungual infections are characterized by distal separation of one or several fingernails (onycholysis) with white or yellow discoloration of the subungual area. Candida is a cause of gastritis and stomatitis, infectious arthritis, fungal pneumonia, endocarditis, pyelonephritis, and urethritis. Candida is a common cause of diaper rash.

Causes
Candida is associated with broad-spectrum antibiotics (notably tetracycline), high salivary concentrations of glucose (as in diabetes mellitus), immunosuppression, neutropenia (low white blood cell count), AIDS and HIV, and Cushing’s syndrome (excess cortisol). Genital candidiasis is associated with oral contraceptive use.

A cellular immunodeficiency characterized by persistent Candida infection of the mucous membranes, scalp, skin, and nails, is often associated with an endocrinopathy, particularly hypothyroidism. Associated findings in some cases include bronchiectasis, hepatitis, and biotin deficiency with carboxylase enzyme deficiency.

The most common signs of vitamin B2 deficiency are pallor and maceration of the mucosa in the angles of the mouth (angular stomatitis) and vermilion surfaces of the lips (cheilosis), followed by superficial linear fissures that may leave scars on healing. When these lesions are infected by Candida albicans, grayish white exuberant lesions, termed perlèche, result.

Conventional Lab Tests
Diagnosis is based on blood cultures.

Specialty Labs
The Anti-Candida Antibody assays blood sample for IgG, IgM & IgA antibodies against Candida albicans. The Candida Antibody assays blood for IgG levels to Candida albicans.

The Candida Intensive Culture assays blood and stool for immune reactivity to Candida albicans infection using the Yeast Culture & Sensitivity and Candida Antibody to create a comprehensive profile.
Crohn’s Disease

Description
Crohn’s disease is an idiopathic inflammatory disease of the small intestine and colon involving all layers of the bowel. It is a slowly progressive and recurrent disease with a tendency to obstruct the bowel, fistulize, and involve adjacent structures in the inflammation. Crohn’s disease occasionally occurs at all other sites in the GI tract.

Causes
Crohn’s disease is often idiopathic (of unknown cause). It is aggravated by bacterial infection; the inflammatory cascade, and by smoking cessation. Risk factors for Crohn’s disease include cigarette smoking. Specific nutrient deficiencies are also common: B12, fat soluble vitamins, and folate.

Conventional Lab Tests
Standard lab tests include erythrocyte sedimentation rate (ESR), CBC (anemia is common), Albumin (decreased in severe cases), Serum electrolytes, B12 and folate levels.

Specialty Lab Tests
The Comprehensive Digestive Stool Analysis (CDSA) evaluates digestion and absorption, bacterial balance and metabolism, yeast and immune status. The CDSA is used in the evaluation of various gastrointestinal symptoms or systemic illnesses that may have started in the intestine. It is recommended for patients with irritable bowel syndrome, indigestion, malabsorption, and other GI-related problems. The CDSA includes: Digestive Function Analysis, Microbiology Analysis, Bacteriology Culture, Fecal Fat Analysis, and a Yeast Culture.

The Parasitology evaluates stool for presence of parasites using microscopic examination. It is indicated for patients with sudden changes in bowel pattern, especially those who have been abroad or camping.

The Anti-Gliadin Antibody Assay assays a single saliva specimen for immune reaction to gluten.

Cotinine Assay examines urine to determine the presence of this nicotine metabolite, an indicator of exposure to second-hand smoke. Useful in cases of recurrent infections or allergy in children of smokers.

The Essential and Metabolic Fatty Acid Analysis measures a total of 24 fatty acids and 17 fatty acid ratios. Inflammatory disorders, a direct result of clinical imbalances in fatty acid metabolism, are one of the most common diagnoses observed by clinicians.

The Vitamin Profile examines a blood sample, using vitamin-sensitive and specific microbes to determine levels of vitamins in the body. The test is indicated when insufficiencies are suspected. Available for 12 or 17 vitamins.
Irritable Bowel Syndrome

Description

Irritable Bowel Syndrome (IBS) is altered bowel habits, abdominal pain, and gaseousness, in the absence of organic pathology. It can be divided into four types: Alternating diarrhea with constipation; Diarrhea predominant; Constipation predominant; and Upper abdominal bloating and discomfort. Risk factors include: Other members of the family with the same or similar gastrointestinal disorder; History of childhood sexual abuse; and Sexual or domestic abuse in women.

Causes

The cause of IBS is unknown, although patients show some gut motility abnormalities with increased response to stress and stimulants, and an increase in the 3 cycles/minute smooth muscle contractions of the abdomen which accompany normal digestion.

Conventional Lab Tests

Standard lab tests include CBC, ESR, and a stool culture for ova and parasites.

Specialty Lab Tests

The Comprehensive Digestive Stool Analysis (CDSA) evaluates digestion and absorption, bacterial balance and metabolism, yeast and immune status. The CDSA is used in the evaluation of various gastrointestinal symptoms or systemic illnesses that may have started in the intestine. It is recommended for patients with irritable bowel syndrome, indigestion, malabsorption, and other GI-related problems. The CDSA includes: Digestive Function Analysis, Microbiology Analysis, Bacteriology Culture, Fecal Fat Analysis, and a Yeast Culture.

The Comprehensive Parasitology Profile evaluates stool for presence of parasites and levels of beneficial flora, and imbalances in flora, pathogenic bacteria, and yeast. It is recommended for patients with abdominal pain, chronic diarrhea, and other GI-related symptoms.

The Comprehensive Allergy (Antibody) Profile assays blood for immediate and delayed reactions to 96 combined foods or 100 vegetarian foods, and 36 region-specific inhalants, allowing patients to moderate exposure to allergens. Includes separate IgE & IgG profiles. Various add-on panels are also available, including a 24-spice panel. The 24 Spice Profile evaluates IgE and IgG antibodies for 24 frequently used culinary herbs and spices.
Peptic Ulcer Disease

Description
Peptic ulcer disease is a chronic ulcer in the lining of the gastrointestinal tract. There are several locations: duodenal, gastric, esophageal, and ectopic.

Duodenal ulcers are located in the duodenal bulb. Multiple ulcers, and if distal to the bulb raise the possibility of Zollinger-Ellison syndrome. Duodenal ulcers are 4 times more common than gastric ulcers. Gastric ulcers are most commonly located along the lesser curvature of the antrum near the incisura and in the pre-pyloric area. Gastric ulcers are 3-4 times as common as duodenal ulcers among NSAID users.

A peptic ulcer in the distal esophagus may be part of Barrett's epithelial change due to chronic reflux of gastroduodenal contents. Ectopic gastric mucosal ulceration may develop in patients with Meckel's diverticula or other sites of ectopic gastric mucosa.

Causes
The cause of duodenal and gastric ulcers is multifactorial. H. pylori gastritis is present in >90% of duodenal and >75% of gastric ulcers (H. pylori appears to be a requisite factor). An imbalance between aggressive factors (e.g., gastric acid, pepsin, bile salts, pancreatic enzymes) and defensive factors maintaining mucosal integrity (e.g., mucus, bicarbonate, blood flow, prostaglandins, growth factors, cell turnover) may allow H. pylori to grow. Ulcerogenic drugs (e.g., NSAID's) harm the gastric mucosa. Zollinger-Ellison syndrome causes excessive gastric acid secretion which damages gastric mucosa.

Peptic ulcers are strongly associated with cigarette smoking (more than 1/2 pack/day). Other risk factors include: drugs (e.g., NSAID use), family history of ulcer, and Zollinger-Ellison syndrome (gastrinoma). It is possibly associated with: Corticosteroids (high dose and/or prolonged therapy); blood group O; HLA-B12, B5, Bw35 phenotypes; stress; lower socioeconomic status; and manual labor. It is poorly or not associated with dietary spices, alcohol, caffeine, and acetaminophen.

Conventional Lab Tests
Standard lab tests include a CBC (Anemia is uncommon in absence of hemorrhage), Fecal occult blood, serum gastrin (to rule out Zollinger-Ellison syndrome), Gastric analysis (to rule out achlorhydria, acid hypersecretion), Secretin stimulation test (paradoxical rise seen in Zollinger-Ellison syndrome), and Serum pepsinogen.

Specialty Lab Tests
The Helicobacter pylori Antibody Assay identifies H. pylori IgG antibodies in serum sample. H. pylori is the leading cause of peptic ulcers, chronic gastritis, and increased risk of gastric cancer.

The Bacterial Overgrowth of the Small Intestine Breath Test is a simple, non-invasive test detects bacterial overgrowth in the small intestine, a common condition that often underlies chronic symptoms of malabsorption, including bloating, gas, diarrhea, irregularity, and abdominal pain. Bacterial overgrowth of the small intestine is a serious digestive disorder that can inhibit nutrient absorption and lead to many health problems. Although widespread, it is frequently unsuspected in cases of chronic bowel problems and carbohydrate intolerance because its symptoms often mimic other disorders. Often this condition is associated with reduced intestinal motility—a slower transit of foodstuffs through the bowels caused by fiber inadequacy or digestive imbalances.
Ulcerative Colitis

Description
Ulcerative colitis is one of a group of inflammatory bowel diseases of unknown etiology characterized by intermittent bouts of inflammation of all or portions of the colon. Ulcerative colitis presents with recurrences of rectal bleeding and various constitutional symptoms (such as arthritis and inflammation of the eyes). The predominant age for ulcerative colitis is between the ages of 15 and 35 years. There is a positive family history in 8-11%. Ulcerative colitis is more common in Jews.

Causes
The cause is unknown, although genetic, infectious, immunologic, and psychological factors have all been suggested.

Conventional Lab Tests
Conventional lab tests are non-specific. CBC with Differential (anemia may reflect chronic disease as well as iron deficiency from blood loss, leukocytosis occurs during exacerbations), ESR, Electrolytes (hypokalemia is common), Liver tests (AST, ALT, GGT), Albumin, and D-Xylose. Diagnostic tests include Sigmoidoscopy and Colonoscopy.

Specialty Lab Tests
The Comprehensive Digestive Stool Analysis (CDSA) evaluates digestion and absorption, bacterial balance and metabolism, yeast and immune status. The CDSA is used in the evaluation of various gastrointestinal symptoms or systemic illnesses that may have started in the intestine. It is recommended for patients with irritable bowel syndrome, indigestion, malabsorption, and other GI-related problems. The CDSA includes: Digestive Function Analysis, Microbiology Analysis, Bacteriology Culture, Fecal Fat Analysis, and a Yeast Culture.

The Comprehensive Parasitology Profile evaluates stool for presence of parasites and levels of beneficial flora, and imbalances in flora, pathogenic bacteria, and yeast. It is recommended for patients with abdominal pain, chronic diarrhea, and other GI-related symptoms.

Food Allergy (Antibody) Profile is an ELISA test of IgE and IgG antibodies for 96-combined foods or 100 vegetarian foods.

The Anti-Gliadin Antibody Assay assays a single saliva specimen for immune reaction to gluten.
Ulcerative Colitis
Liver and Gallbladder
Comprehensive Detoxification Program

Description

We are exposed to many toxic substances in our daily life, including chemical food additives, food colorings, preservatives, alcohol, drugs, pesticides, paints, etc. The liver, gastrointestinal tract (through stool) and skin (though sweat) are the main organs of detoxification. Several chronic diseases can occur if you are over-burdened by toxins.

Specialty Lab Tests

The Standard Detoxification Profile analyzes saliva and urine after challenge doses of caffeine, aspirin, and acetaminophen, in order to assess the Phase I and Phase II functional capacity of the liver to convert and clear toxic substances from the body. The Comprehensive Detoxification Profile includes the Standard Detoxification Profile and markers for oxidative stress and important antioxidants.

The Elemental Analysis examines hair, blood and urine samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

The Anti-Chemical Antibodies Profile assays blood for systemic exposure and sensitivity to formaldehyde, tremolitic anhydride, toluene, phthalic anhydride and benzene ring.

The Oxidative Stress Analysis identifies markers of hydroxyl radical activity, urine lipid peroxides, reduced glutathione, superoxide dismutase, and glutathione peroxidase, following a challenge dose of aspirin and acetaminophen. This test is offered by itself or included in the Comprehensive Detoxification Profile. It is especially useful in cases of chronic fatigue, xenobiotic exposure, and chronic illnesses.

The Amino Acids Analysis examines fasting blood or 24-hour urine samples for 40+ amino acids and provides information on a wide spectrum of metabolic and nutritional disorders, including: protein inadequacy, gastrointestinal insufficiencies, inflammatory responses, vitamin and mineral dysfunctions, detoxification impairments, cardiovascular disease, ammonia toxicity, food and chemical sensitivities, depression, neurological dysfunction, and inborn errors of metabolism. Results can provide valuable biochemical information about many disorders, including chronic fatigue, learning disabilities, depression and immune problems.
Endocrine
Diabetes

Description

People with diabetes have difficulty processing glucose, a sugar the body uses for energy. This results in rising blood levels of glucose, and eventual spilling into the urine. At the same time, however, the cells of the body are starved for glucose.

Causes

Secondary diabetes can be caused by Pancreatic disease (pancreatitis, cystic fibrosis); Hormonal disorders (pheochromocytoma, multiple endocrine adenomatosis); Inborn errors of metabolism (glyco- gen storage disease, Type I); Genetic disorders with insulin resistance (acanthosis nigricans); Hereditary neuromuscular disease; Progeroid syndromes; Obesity (Prader-Willi syndrome); Cytogenetic syndromes (trisomy 21, Klinefelter's and Turner's syndromes); and Acute poisonings (salicylate poisoning can cause hyperglycemia and glycosuria, and may mimic diabetic ketoacidosis).

Diabetes is associated with other endocrine diseases, including Cushing’s syndrome, acromegaly, pheochromocytoma, glucagonoma, primary aldosteronism, or somatostatinoma, resulting from the influence of the primary endocrine abnormality on insulin effectiveness and secretion.

Substances that cause glucose intolerance may cause hyperglycemia (particularly in patients prone to diabetes). Hormones: glucagon, glucocorticoids, growth hormone, epinephrine, estrogen and progesterone (oral contraceptives), and thyroid preparations. Drugs: thiazide diuretics, furosemide, acetazolamide, diazoxide, beta-blockers, alpha-agonists, calcium channel blockers, phenytoin, phenobarbital sodium, nicotinic acid, cyclophosphamide, l-asparaginase, epinephrine-like drugs (decongestants and diet pills), nonsteroidal anti-inflammatory agents, nicotine. Foods: caffeine, sugar-containing syrups, and fish oils.

Conventional Lab Tests

Standard labs include blood glucose, electrolytes, venous pH, Urinalysis for glucose and ketones, CBC (WBC may be elevated), Hemoglobin A1c level, C-peptide insulin level, Islet-cell antibodies, T4 and thyroid antibodies. Additional tests include an oral glucose tolerance test (possibly with insulin levels, if diagnosis is questionable), intravenous glucose test (for possible early detection of subclinical diabetes). HLA-typing may also be considered.

Specialty Lab Tests

Glucose/Insulin Tolerance Test employs a glucose challenge and blood samples over a 4 hour period to assess the relationship of insulin and glucose.

The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.
Diabetes, Type I or IDDM

Description
People with diabetes have difficulty processing glucose, a sugar the body uses for energy. This results in rising blood levels of glucose, and eventual spilling into the urine. At the same time, however, the cells of the body are starved for glucose. In type I diabetes (childhood-onset, or insulin-dependant diabetes mellitus - IDDM) the pancreas is unable to make insulin, which moves glucose into cells.

Causes
Autoimmunity is a primary cause of Type I diabetes. Antibodies to pancreatic islet cells are present in 75% of diabetics, which results in the destruction of insulin-secreting beta cells. Viral infections (mumps, Coxsackie, CMV, and hepatitis viruses) appear to incite the development of autoimmune beta-cell destruction. Patients with certain autoimmune endocrine diseases (Graves’ disease, Hashimoto’s thyroiditis, and idiopathic Addison’s disease) have an increased prevalence of IDDM.

Genetics plays an important role in Type I diabetes, although the mode of genetic expression is not clear. Associated genes are located on major histocompatibility complex on chromosome 6. HLA DR3 and DR4 are individually associated with increased risk factor of 4. If both susceptibility genes are present, the relative risk factor increases to 12. HLA B8 and B15 also associated with increased risk. The inherited defect causes an alteration in immunologic integrity, placing the beta cell at special risk for inflammatory damage. The mechanism of damage is autoimmune. The presence of a specific 64K protein which may be responsible for antibody formation.

Diet may play a role in Type I diabetes. Dietary nitrites cause beta cell damage, resulting in Type I diabetes. Breast feeding may provide a degree of protection against the disease while diets high in dairy products are associated with increased risk. Type I diabetes is also associated with childhood exposure to cow’s milk.

Convnetial Lab Tests
Standard labs include blood glucose, electrolytes, venous pH, Urinalysis for glucose and ketones, CBC (WBC may be elevated), Hemoglobin Alc level, C-peptide insulin level, Islet-cell antibodies, T4 and thyroid antibodies. Additional tests include an oral glucose tolerance test (possibly with insulin levels, if diagnosis is questionable), intravenous glucose test (for possible early detection of subclinical diabetes). HLA-typing may also be considered.

Specialty Lab Tests
Glucose/Insulin Tolerance Test employs a glucose challenge and blood samples over a 4 hour period to assess the relationship of insulin and glucose.

The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.
Diabetes, Type II or NIDDM

Description
People with diabetes have difficulty processing glucose, a sugar the body uses for energy. This results in rising blood levels of glucose, and eventual spilling into the urine. At the same time, however, the cells of the body are starved for glucose. The characteristic symptoms of diabetes are polydipsia, polyphagia and polyuria - excessive thirst, excessive eating, and excessive urination.

Type 2 diabetes mellitus is called adult-onset or non-insulin-dependent diabetes mellitus (NIDDM). In this form the body doesn’t respond properly to insulin. Hyperglycemia results from both an impaired insulin secretory response to glucose and decreased insulin effectiveness (insulin resistance). There is a delayed and decreased rise in plasma insulin following glucose ingestion despite their higher plasma glucose levels. Type II (NIDDM) accounts for 80% of diabetic cases.

Causes
The cause of Type II diabetes is often unknown (idiopathic). Other causes include: pancreatic destruction from surgery, hemachromatosis, or cancer; Hypophosphatemia (low phosphate); Glycogen synthetase deficiency; and Glucokinase deficiency associated with a genetic defect on chromosome 20. Genetic factors and obesity are important risk factors for type II diabetes.

Conventional Lab Tests
Standard labs include fasting blood sugar, blood glucose, electrolytes, venous pH, Urinalysis for glucose and ketones, CBC (WBC may be elevated), Hemoglobin A1c level, C-peptide insulin level, Islet-cell antibodies, T4 and thyroid antibodies. Additional tests include an oral glucose tolerance test (possibly with insulin levels, if diagnosis is questionable), intravenous glucose test (for possible early detection of subclinical diabetes). HLA-typing may also be considered.

Specialty Lab Tests
Glucose/Insulin Tolerance Test employs a glucose challenge and blood samples over a 4 hour period to assess the relationship of insulin and glucose.

The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.
Hypothyroidism

Description
Hypothyroidism is a clinical state resulting from decreased circulating levels of free thyroid hor-
mone or from resistance to hormone action. Myxedema connotes severe hypothyroidism. Hypothyroid-
ism is more common in women, and it predominantly affects people over the age of 65.
Signs include: Dry, coarse skin; Dull facial expression; Coarsening or huskiness of voice; Perior-
bital puffiness; Swelling of hands and feet; Bradycardia; Hypothermia; Reduced systolic blood pressure;
Increased diastolic blood pressure; Reduced body and scalp hair; Delayed relaxation of deep tendon
reflexes; Macroglossia; Dilutional hyponatremia; Anemia (usually normochromic, normocytic);
Enlarged heart on chest x-ray (often due to pericardial effusion)
Symptoms include: Onset may be insidious, subtle; Weakness, fatigue, lethargy; Cold intol-
erance; Decreased memory; Hearing impairment; Constipation; Muscle cramps; Arthralgias; Paresthesias;
Modest weight gain (10 pounds [4.5 kg]); Decreased sweating; Menorrhagia; Depression; Hoarseness;
and Carpal tunnel syndrome.

Causes
Hypothyroidism may be associated with Type II autoimmune polyglandular syndrome, which is
associated with HLA-DR3, DR4. Secondary hypothyroidism frequently results from treatment for
Graves disease, which may be familial.
Causes include: Post-ablative (most common) follows radioactive iodine therapy or thyroid sur-
gery. Delayed hypothyroidism may develop in patients treated with thioamide drugs (propylthiouracil,
methimazole) 4 to 25 years later. Primary hypothyroidism may develop as a result of autoimmune thy-
roiditis, or be idiopathic. With goiter, hypothyroidism is most commonly due to autoimmune disease,
such as Hashimoto's thyroiditis; or heritable biosynthetic defects, iodine deficiency (rare in the US), or
drug induced (iodides, lithium, phenylbutazone, aminosalicylic acid). Suprathyroid hypothyroidism,
may be due to deficiency of thyrotropin-releasing hormone (TRH) from the hypothalamus or thyroid-
stimulating hormone (TSH) from the pituitary. Transient hypothyroidism may result from silent thyroidi-
tis (most common in post partum period) and subacute granulomatous thyroiditis
Risk factors include: increasing age; and Autoimmune diseases

Conventional Lab Tests
Standard labs include: total serum thyroxine (T4) - decreased, T3 resin uptake - increased, TSH -
elevated, Free T4 index (= T3 resin uptake x total serum T4) - low. Severe hypothyroidism can cause
anemia, elevated cholesterol, CPK, LDH, AST, and hyponatremia.

Specialty Lab Tests
The Comprehensive Thyroid Assessment provides a thorough analysis of thyroid secretion and
metabolism, including peripheral thyroid conversion and thyroid autoimmunity. By measuring hypersen-
sitive thyroid-stimulating hormone (TSH), free serum thyroxine (fT4), free triiodothyroine (fT3),
Reverse T3 (rT3), anti-thyroglobulin antibodies (anti-TG), and anti-thyroid peroxidase antibodies (anti-
TPO).
Hypothyroidism
Urinary Stones

Description

Urinary calculia (stones) can be formed from several materials, including calcium (the most common form), uric acid, magnesium ammonium phosphate (struvite), and cystine stones.

Calcium stones can be caused by several mechanisms, including primary parathyroidism, sarcoidosis, vitamin D intoxication, hyperthyroidism, renal tubular acidosis, multiple myeloma, metastatic cancer, and primary hyperoxaluria. Idiopathic hypercalciuria is a hereditary condition, is present in 50% of men and 75% of women who form calcium stones. Several conditions predispose to forming calcium stones.

Decreased urinary citrate (hypocitricuria) promotes calcium stones because citrate normally binds 50% of urinary calcium as a soluble calcium citrate salt.

Excessive urinary oxylate (hyperoxaluria) is caused by excess ingestion of oxalate-containing foods (e.g., rhubarb, spinach, cocoa, nuts, pepper, and tea) or excess oxalate absorption due to a variety of enteric diseases (e.g., bacterial overgrowth syndromes, chronic pancreatic or biliary disease, or ileojejunal surgery).

Excess urinary uric acid (hyperuricosuria) promotes urinary stone formation because uric acid crystals provide a nidus on which calcium oxalate crystals can orient themselves and grow. These patients can form what appear to be pure calcium stones or mixed calcium and uric acid stones, because the uric acid nidus is not measurable by commercial laboratories. The cause of hyperuricosuria is usually excess consumption of purine, in the form of meat, fish, and poultry. Uric acid stones occur because of increased urine acidity in which undissociated uric acid crystallizes. Increasing the urine pH to between 6 and 6.5 with oral alkalinizing agents (such as sodium bicarbonate, or sodium or potassium citrate) or reducing purine intake and increasing water intake, are usually effective.

Magnesium ammonium phosphate stones (struvite) indicates the presence of urinary tract infection, with urea-splitting bacteria, usually of the Proteus species. The stones are loci of infection and must be treated as infected foreign bodies. In contrast to the other types of stones, infection stones occur mostly in women. Fastidious attention to even small numbers of urea-splitting bacteria as well as treatment of any metabolic causes of stone may delay the need for surgery.

Cystine stones are associated with defects in the transport of the amino acids cystine, lysine, arginine, and ornithine. Clinical disease is due solely to the insolubility of cystine, which forms stones. Three types of inheritance have been described. Conventional medical consists of a high fluid intake, at least 3 liters daily. Raising urine pH with alkali is helpful, provided the urine pH exceeds 7.5. A low-salt diet can reduce cystine excretion up to 40 percent. Captopril, which has a free sulfhydryl group to bind cysteine, has been used in a limited number of patients with some success. Low-methionine diets have not proved to be practical for clinical use, but patients should avoid protein gluttony.

Conventional Lab Tests

Urinalysis (hematuria nearly 100%; if pH < 5.5 means uric acid, if pH > 7.5 means struvite); Chemistries (Calcium, phosphorus, electrolytes, uric acid, creatinine); Parathyroid hormone if serum calcium is high; Urine cystine if stone is not visible on plain x-ray; Urine culture if pyuria or fever is present.
Gynecology
Amenorrhea

Description
Amenorrhea is defined as the absence of menses. Primary amenorrhea occurs when menarche has not occurred by age seventeen. Secondary amenorrhea is the cessation of menses for three cycles in a non-pregnant woman.

Causes
Causes of primary amenorrhea include: Imperforate hymen; Agenesis of the uterus and upper 2/3 of the vagina; Turner's syndrome; Constitutional delay; Secondary amenorrhea; Physiological - pregnancy, corpus luteal cyst, breast-feeding, menopause; Suppression of the hypothalamic-pituitary axis - post pill amenorrhea, stress, intercurrent illness, weight loss, low body mass index; Pituitary disease - ablation of the pituitary gland, Sheehan's syndrome, prolactinoma; Uncontrolled endocrinopathies - diabetes, hypo- or hyperthyroidism; Polycystic ovarian disease (POD), (Stein-Leventhal syndrome); Chemotherapy; Pelvic irradiation; Endometrial ablation (Asherman's syndrome); Drug therapy - systemic steroids, danazol, GRH-RH analogs; and Premature ovarian failure.

Risk factors for amenorrhea include: Over-training (e.g., long-distance runner, ballet dancer); Eating disorders; and Psycho-social crisis.

Conventional Lab Tests
Lab tests include: Estradiol, FSH, LH, Prolactin, Pregnancy test, T4, TSH, and Glucose. Diagnostic procedures include Laparoscopy, Ultrasound, and Radiologic evaluation of the sella turcica.

Specialty Lab Tests
Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

In addition to analysis of hormones included in the Female Hormone Profile, the Comprehensive Female Hormone Profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are influenced by cortisol, DHEA, and melatonin.

The Adrenocortex Stress Profile evaluates bioactive levels of the body's important stress hormones, cortisol and DHEA. This profile serves as a critical tool for uncovering biochemical imbalances that can underly anxiety, chronic fatigue, obesity, diabetes and a host of other clinical conditions.

The Comprehensive Melatonin Profile analyzes 3 saliva samples for the secretion pattern of melatonin. Melatonin imbalance has been associated with Seasonal Affective Disorder, infertility, sleep disorders, and compromised immune function.

IGF-1 (Insulin-like Growth Factor-1 or Somatomedien C) mediates many of the in vivo cell division and metabolic effects of growth hormone. IGF-1 is a valuable diagnostic tool for the evaluation of suspected growth hormone disorders.
Dysmenorrhea (Menstrual Cramping)

Description

Dysmenorrhea is defined as pelvic pain occurring at or around the time of menses. It is a leading cause of absenteeism for women under age 30. Primary dysmenorrhea is without pathological physical findings. Secondary dysmenorrhea has pain occurring prior to or during menses, often more severe than primary, having a secondary pathologic (structural) cause. 40% of adult females have menstrual pain, and 10% are incapacitated for 1-3 days each month. Primary dysmenorrhea usually affects teens to early 20's. Secondary dysmenorrhea affects women in their 20's to 30's.

Causes

The cause of primary dysmenorrhea is considered to be elevated production (2-7 times normal) of prostaglandins and other mediators in the uterus which produce uterine ischemia through platelet aggregation, vasoconstriction and dysrhythmic contractions with pressures higher than the systemic blood pressure.

The causes of secondary dysmenorrhea include: Congenital abnormalities of uterine or vaginal anatomy; Cervical stenosis; Pelvic infection; Adenomyosis; Endometriosis; and Pelvic tumors - especially leiomyomata (uterine fibroids).

Risk factors for primary dysmenorrhea include: Nulliparity; Positive family history. Risk factors for secondary dysmenorrhea include: Pelvic infection; Sexually transmitted diseases; and Endometriosis.

Conventional Lab Tests

Standard lab tests are non-contributory, except with acute infections where the white blood cell count is elevated and blood cultures are positive. Diagnostic procedures include an ultrasound (to rule out secondary abnormalities) and laproscopy (to define anatomy).

Specialty Lab Tests

The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

In addition to analysis of hormones included in the Female Hormone Profile, the Comprehensive Female Hormone Profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are influenced by cortisol, DHEA, and melatonin.

The Women’s Hormonal Health Assessment provides an in-depth understanding of sex steroid metabolism. Measurements are made of progesterone, sex-hormone-binding globulin (SHBG), DHEA-S, testosterone, estrone (E1), estradiol (E2), estriol (E3), 2-hydroxyestrone, and 16-alpha-hydroxyestrone.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Endometriosis

Description

Endometriosis is heterotopic islands of uterine mucosa (endometrium) found in many locations.; Pelvic sites - peritoneal surfaces (bladder, cul-de-sac, pelvic side walls, broad ligaments, uterosacral ligaments, fallopian tubes, and uterus), lymph nodes, ovaries, bowel; Distant sites - vagina, cervix, abdominal wall, arm, leg, pleura, lung, diaphragm, kidneys, spleen, gallbladder, nasal mucous membranes, spinal canal, stomach, breast

Causes

Causes of endometriosis include: Retrograde menstruation (Sampson's theory); Lymphatic/vascular metastases (Halban's theory); Direct implantation; Coelomic metaplasia (coelomic epithelium undergoes metaplasia forming functioning endometrium)

Risk factors for endometriosis include: Hereditary/genetic predisposition; Personality traits (achieving, egocentric, overanxious, perfectionist, intelligent, underweight - but validity of these observations lacking); Delayed childbearing; Luteinized unruptured follicle syndrome (granulosa/theca cells undergo luteinization but actual follicular rupture fails to occur, thereby predisposing to limited progesterone secretion into peritoneal cavity thus allowing refluxed endometrial cells to implant and proliferate).

Conventional Lab Tests

Standard lab tests are of no special value, although CA-125 levels may be elevated. Laparoscopy is recommended. Biopsy of endometriotic lesions usually demonstrate both endometrial glands and stroma. Vaginal and abdominal ultrasound can identify only endometriomas of ovaries. MRI can identify pelvic masses (endometriomas). Hysterosalpingography is useful for tubal occlusion proximally or distally and perianexial adhesions.

Specialty Lab Tests

Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

In addition to analysis of hormones included in the Female Hormone Profile, the Comprehensive Female Hormone Profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are influenced by cortisol, DHEA, and melatonin.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Fibrocystic Breast Disease

Description
Fibrocystic breast disease is a generalized term for benign breast disorders such as lumps and pain. It is, however, a misnomer since it has neither a well-defined set of symptoms, nor a clear etiology. The term benign breast disease is preferred. Benign lumps are usually smooth, regular, and mobile. It is estimated that at least 50% of women have benign breast symptoms during their lifetime. Symptoms tend to occur in menstruating women.

Causes
The etiology of benign breast disease is unknown. Possible causes include: Luteal phase defect in progesterone; Increased estrogen (17 beta estradiol); Hyperprolactinemia; End organ hypersensitivity to estrogen; Sensitivity to methylxanthines; and Dietary fat intake. The effect of consumption of methylxanthine-containing substances (coffee, tea, cola, and chocolate) is controversial.

Conventional Lab Tests
Standard lab test begin with cytology of the nipple discharge. Diagnostic imaging includes mammography and ultrasound (which can differentiate cystic from solid lesions). Fine needle aspiration and biopsy differentiates cystic from solid lesions. Excisional biopsy is indicated for solid lumps that are not clearly benign.

Specialty Lab Tests
The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

In addition to analysis of hormones included in the Female Hormone Profile, the Comprehensive Female Hormone Profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are influenced by cortisol, DHEA, and melatonin.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Menopause

Description
Menopause is defined as the cessation of spontaneous menstrual cycles. There are two stages of menopause: climacteric and postmenopause. During the climacteric period there is a decline in ovarian function. Although a woman may continue to have periodic uterine bleeding, such cycles may be anovulatory (without ovulation). During this time estrogen production diminishes and a woman may experience early signs of estrogen deficiency, such as vasomotor symptoms, even though she still has periodic bleeding. The average age of menopause is 51. It is unrelated to the age of the menarche (first menses). Virtually all women will be postmenopausal by age 58. The postmenopause period occurs after menopause and usually lasts for more than a third of a woman's total life.

Symptoms of menopause include a cessation of menses - either abruptly or preceded by a period of irregular cycles and/or diminished bleeding. Vasomotor symptoms (hot flashes, sweating) are common, as are psychologic symptoms - depression, nervousness, insomnia. Atrophy of epidermal tissue can affect several areas. Vaginal atrophy causes dyspareunia (painful menses). Urinary tract atrophy causes stress or urge urinary incontinence. Skin atrophy causes wrinkles.

Menopause is also associated with osteoporosis (which can cause fractures), and arteriosclerosis - coronary artery disease.

Causes
There are three main causes of menopause: Physiologic - when due to depletion of oocytes; Surgical - when due to removal of functioning ovaries because of disease or incidental to hysterectomy; and Medical - as a result of treatment of endometriosis (danazol [Danocrine] or GnRH analogues) or of breast cancer (antiestrogens). Menopause may also occur after cancer chemotherapy and be permanent or reversible.

Conventional Lab Tests
Lab tests are usually not required because the patient’s age and symptoms can readily establish the diagnosis.

Specialty Lab Tests
Menopause Profile examines four salivary samples over a 2-week period to determine levels of β-estradiol, progesterone, and testosterone for women who are peri- or post-menopausal. In addition to the analysis of hormones included in the Menopause Profile, the Comprehensive Menopause Profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are affected by the influences of cortisol, DHEA, and melatonin.

The Bone Resorption Assessment is a simple, direct urinary assay of pyridinium and deoxypyrindinum crosslinks, useful in identifying current bone loss, lytic bone disease, and efficacy of bone support therapies.

The revolutionary Cardiovascular Assessment is on the cutting edge of molecular medicine and is based on the latest advancements in cardiovascular disease (CVD) research. The Comprehensive Cardiovascular Assessment analyzes blood for levels of HDL, LDL and total cholesterol, ratios, triglycerides, lipoprotein(a), homocysteine, apolipoprotein A1, apolipoprotein B, fibrinogen, and C-reactive protein. Together, these markers provide a thorough assessment of cardiovascular health status. Using this state-of-the-art assessment, you can now better identify individuals who don't show abnormalities in traditional markers of CVD—those who comprise almost 50% of all heart attack victims.
Menorrhagia

Description

Menorrhagia is defined as excessive amount or duration of menstrual flow, at more or less regular intervals. The average normal menstrual flow is about 30 mL per cycle. Abnormal bleeding is common, about 50% of cases occur after 40 years of age. Dysfunctional bleeding is fairly common in adolescence and near menopause.

Menorrhagia is distinguished from, but may overlap with, Metrorrhagia (irregular or frequent flow, noncyclic), Menometrorrhagia (frequent, excessive, irregular flow; menorrhagia plus metrorrhagia), Polymenorrhrea (frequent flow, cycles of 21 days or less), Intermenstrual bleeding (bleeding between regular menses), and Dysfunctional uterine bleeding - DUB (abnormal endometrial bleeding of hormonal cause and related to anovulation).

Causes

Causes of menorrhagia include: Hypothyroidism; Endometrial proliferation/excess/hyperplasia: Anovulation, oligo-ovulation, Polycystic ovarian disease (PCOD), Stein-Leventhal syndrome, Ovarian tumor, Obesity, Hormone (estrogen) therapy; Endometrial atrophy: Postmenopausal, Prolonged progestin or oral contraceptive administration; Local factors: Endometrial polyps, Endometrial neoplasia, Adenomyosis/endometriosis, Uterine myomata (fibroids), Intrauterine device (IUD), Uterine sarcoma; Coagulation disorders: Thrombocytopenia, platelet disorders, von Willebrand’s disease, Leukemia, Ingestion of aspirin or anticoagulants, Renal failure/dialysis.

Risk factors include: Obesity, Anovulation, Estrogen administration (without progestin), Prior treatment with progestational agents or oral contraceptives increases the risk of endometrial atrophy, but decreases the risk of endometrial hyperplasia or neoplasia.

Conventional Lab Tests

Conventional lab tests include: a Pregnancy test and CBC to assess severity of blood loss, and exclude thrombocytopenia and leukemia. In selected cases: TSH - elevated in hypothyroidism; Platelet count, bleeding time, prothrombin time (PT), partial thromboplastin time (PTT) for coagulation screen; Creatinine, BUN; Serum progesterone.

Specialty Lab Tests

Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

In addition to analysis of hormones included in the Female Hormone Profile, the Comprehensive Female Hormone Profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are influenced by cortisol, DHEA, and melatonin.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Premenstrual Syndrome, PMS

Description
Premenstrual syndrome is a constellation of symptoms that occurs prior to menstruation and is severe enough to interfere significantly with the patient's life. The premenstrual symptom complex can be divided into four subgroups.

The most common subgroup, PMS Type A, consists of premenstrual anxiety, irritability and nervous tension, sometimes expressed in behavior patterns detrimental to self, family and society. Elevated blood estrogen and low progesterone have been observed in this subgroup.

The second-most-common subgroup, PMS Type H, is associated with symptoms of water and salt retention, abdominal bloating, mastalgia and weight gain. The severe form of PMS Type H is associated with elevated serum aldosterone.

PMS Type C is characterized by premenstrual craving for sweets, increased appetite and indulgence in eating refined sugar followed by palpitation, fatigue, fainting spells, headache and sometimes the shakes. PMS Type C patients have increased carbohydrate tolerance and low red-cell magnesium.

PMS Type D is the least common but most dangerous because suicide is most frequent in this subgroup. The symptoms are depression, withdrawal, insomnia, forgetfulness and confusion. PMS Type D has been associated with low estrogen and high progesterone levels, and high lead levels in hair tissue and chronic lead intoxication.

Conventional Lab Tests
There are no specific lab tests for PMS.

Specialty Lab Tests
The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

The Elemental Analysis provides a convenient and accurate window for gauging both long and short-term toxic exposure and nutrient deficiencies. The test includes measures of pervasive and potentially damaging toxins such as lead, mercury and cadmium, along with crucial mineral nutrients like zinc, calcium, and magnesium. Test reports come with a unique index that clearly displays the likelihood of external contamination for each element, placing results into their proper perspective and ensuring the highest degree of accuracy.
Uterine Fibroids

Description

Uterine leiomyomas or fibroleiomyomas (uterine fibroids) are well circumscribed, pseudo-encapsulated benign tumors composed mainly of smooth muscle but with varying amounts of fibrous connective tissue. There are three major types: Submucous: 5% of total, susceptible to abnormal uterine bleeding, infection and occasionally protrude from cervix; Subserous: Common, may become pedunculated and rarely parasitic; and Intramural: Common, may cause marked uterine enlargement.

Causes

Uterine fibroids may arise from totipotential cells normally giving rise to muscle and connective tissue cells, or they may arise from small immature smooth muscle cell nests. There is a positive correlation with estrogen stimulation (i.e., uterine fibroids are not seen before menarche, may grow rapidly during pregnancy, with use of oral estrogen, and with estrogen producing tumors. Myomas regress following pregnancy and after menopause.)

Risk factors for uterine fibroids include: Later reproductive and perimenopausal age groups. The incidence is 3-9 times higher among African-Americans.

Conventional Lab Tests

Standard lab tests include a pregnancy test; CBC with differential count; SED rate; and a CA-125 (which may be slightly elevated in some cases of uterine myomas, but generally is more useful in differentiating myomas from various gynecologic adenocarcinomas).

Diagnostic imaging includes ultrasonography (which shows a characteristic hypoechoic appearance). A CT scan or MRI may help to differentiate complex cases. An Intravenous pyelogram (IVP) or barium enema may be ordered.

Presumptive diagnosis can be made by abdominal and pelvic examination. A fractional D & C aids in ruling out cervical, uterine carcinomas. Hysteroscopy may help diagnose submucous myomas. Laparoscopy may be useful in complex cases and in ruling out other pelvic pathology.

Specialty Lab Tests

The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of ß-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

In addition to analysis of hormones included in the Female Hormone Profile, the Comprehensive Female Hormone Profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are influenced by cortisol, DHEA, and melatonin.

The Women’s Hormonal Health Assessment provides an in-depth understanding of sex steroid metabolism. Measurements are made of progesterone, sex-hormone-binding globulin (SHBG), DHEA-S, testosterone, estrone (E1), estradiol (E2), estriol (E3), 2-hydroxyestrone, and 16-alpha-hydroxyestrone.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.
Uterine Fibroids
Prenatal Support

Description
The prenatal period encompasses the nine months after conception to the birth of your child. Many people, however, begin a prenatal nutritional program when they first plan on having a child.

Conventional Lab Tests
Laboratory tests for pregnancy should include a CBC; STS (syphilis); serum test for hepatitis B virus; culture for gonorrhea and chlamydia; blood typing for the major blood groups and Rh factor and screening for antibodies; a rubella antibody titer (unless a previous titer was positive); a complete urinalysis and screening test for bacteria in the urine; and a Papanicolaou test of the cervix. Black patients should be tested for sickle cell trait or disease.

At 15 to 16 weeks, an alpha-fetoprotein (AFP) test should be offered. At 28 weeks all women should be screened for abnormal carbohydrate metabolism with the glucose tolerance test. The first examination should also include a full pelvic exam with a cytologic smear. Follow-up visits should occur at 4-week intervals until 32nd week of pregnancy, at 2-week intervals until the 36th week, and then weekly until delivery.

Ultrasonography is the imaging method of choice in obstetrics. Many obstetricians believe at least one ultrasonic examination should be performed in each pregnancy to ensure that progress is satisfactory.

Normal Weight Gain
Weight gain during pregnancy should be about 25 to 30 pounds total, or 2 to 3 pounds per month. About 250 kcal should be added to the patient’s daily diet to provide for fetal nutrition. Although protein should supply most of these calories, the diet should be well balanced, including fresh fruits and vegetables.

What to Avoid
It is well known that alcohol and tobacco have a detrimental effect on the fetus. X-ray exposure should be avoided during pregnancy, especially during the first 3 months. Drugs, including aspirin, should be discouraged. Antibiotics during pregnancy should also be avoided. According to some studies, excessive consumption of wheat and caffeine should be avoided.

What to Add
Most women need an iron supplement during pregnancy. Ferrous sulfate 300 mg orally 2x/day is usually recommended. Iron citrate or picolinate can be substituted for those seeking higher quality and absorbability. Folic acid (800 mcg per day) is well-known to prevent neural tube defects.

The RDA’s during pregnancy are increased, with the most important being 60 grams of protein a day. For comparison, four ounces of meat (beef, chicken, turkey, pork) contains about 28 grams of protein. One large egg contains 14 grams. The easiest way to get adequate protein is to drink an extra protein shake or two a day. Most protein powders offer about 15 grams of protein per serving.

Essential fatty acids (high quality oils) and riboflavin (Vitamin B2) have been shown to prevent pre eclampsia.

Specialty Lab Tests
Several studies have shown that high homocysteine levels are associated with increased risk of pre eclampsia.
Men
Benign Prostatic Hypertrophy

Description

Benign prostatic hypertrophy is a growth of prostate which may result in bladder outlet obstruction. It is a universal pathologic phenomenon seen in older men (50% of men over the age of 50; and 80% of men over the age of 70).

Causes

The exact etiology (cause) is unknown, but evidence suggests BPH arises from a systemic hormonal alteration which may or may not act in combination with growth factors stimulating stromal or glandular hyperplasia.

Risk factors for BPH include: Intact testes (BPH is rare in eunuchs); and Aging (BPH is rare in men under the age of 40 years). No dietary, environmental, or sexual practices have been implicated yet.

Conventional Lab Tests

BPH is a pathologic diagnosis - lab data is only suggestive. Prostate specific antigen (PSA) may be elevated but usually < 10 ng/mL (10 µg/L). Urinalysis shows pyuria and pH changes due to chronic residual urine. Urine culture is positive (sometimes due to chronic residual urine). Increased post-void residual (> 100 cc). Elevated serum creatinine (if obstructive uropathy present).

Specialty Lab Tests

The Male Hormone Profile analyzes 4 saliva samples over a 24-hour period for levels of testosterone. Elevated levels suggest androgen resistance, while decreased levels can result from such causes as hypogonadism, hepatic cirrhosis, lipid abnormalities and aging.

The Comprehensive Male Hormone Profile profile includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how testosterone is influenced by cortisol, DHEA, and melatonin.
Amyotrophic Lateral Sclerosis

Description

Amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig’s Disease, is a rapidly progressive neuromuscular disease caused by the destruction of nerve cells in the brain and spinal cord. This causes loss of nervous control of the voluntary muscles, resulting in the degeneration and atrophy of the muscles. Eventually the respiratory muscles are affected which leads to death from an inability to breathe.

Causes

There are three types of ALS: sporadic, familial, and Guamian. The most common form is sporadic. A small number of cases are inherited genetic disorders (familial). A large number of cases, however, occur in Guam and other Pacific territories. The familial type of ALS is caused by a genetic defect in superoxide dismutase, an antioxidant enzyme that continuously removes the highly toxic free radical, superoxide.

The causes of sporadic and Guamian ALS are unknown. Several hypothesis have been proposed including: Glutamate toxicity; Oxidative stress; Mitochondrial dysfunction; Autoimmune disease; Infectious diseases (Lyme disease, poliomyelitis, HIV, and Tertiary syphilis); Toxic chemical exposure (pesticides); Heavy metals toxicity (lead, mercury, aluminum, and manganese); Calcium and magnesium deficiency; Carbohydrate metabolism; and Growth factor deficiency.

Conventional Lab Tests

There are no specific lab tests for ALS, although there may be a deficiency in hexosaminidase.

Specialty Lab Tests

The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

The Anti-Chemical Antibodies Profile assays blood for systemic exposure and sensitivity to formaldehyde, tremolitic anhydride, toluene, phthalic anhydride and benzene ring.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

The Oxidative Stress Analysis identifies markers of hydroxyl radical activity, urine lipid peroxides, reduced glutathione, superoxide dismutase, and glutathione peroxidase, following a challenge dose of aspirin and acetaminophen. This test is offered by itself or included in the Comprehensive Detoxification Profile. It is especially useful in cases of chronic fatigue, xenobiotic exposure, and chronic illnesses.

The Cellular Energy Profile evaluates organic acids that play a pivotal role in the generation of cell energy. The test can reveal metabolic distress associated generalized pain and fatigue, which may arise in response to toxic exposure, nutrient imbalances, digestive dysfunction and other causes. Plants synthesize and store energy from sunlight and nutrients. How efficiently the human body recovers this energy from plants or animals that eat plants can have a profound effect on physiological function.

IGF-1 (Insulin-like Growth Factor-1 or Somatomedin C) (serum) mediates many of the in vivo cell division and metabolic effects of growth hormone. IGF-1 is a valuable diagnostic tool for the evaluation of suspected growth hormone disorders.
Insomnia

Definition
Insomnia is a broad term for difficulties with sleep, including the inability to fall asleep or to stay asleep. Brief periods of insomnia are common, and it is estimated that one-third of adults suffer from some form of insomnia.

Causes
About half of all cases of insomnia do not have an identifiable cause (i.e. idiopathic insomnia). Specific causes of insomnia include: Substance abuse: caffeine, alcohol, recreational drugs, long-term sedative use, stimulants, decongestants, and bronchodilators; Disruption of circadian rhythms: usually caused by working late-night shifts or travel across time zones; Menopause: Insomnia is present in 30-40% of menopausal women; Older age: Elderly people experience a normal decrease in depth, length and continuity of sleep; Medical illness: gastro-esophageal reflux disease (GERD), fibromyalgia, hyperthyroidism, dementia, arthritis and other painful conditions are associated with insomnia. Transient situational insomnia is caused by stress at work or school, or by family illness. Insomnia may also be caused by hormonal imbalances in cortisol and melatonin. Melatonin is formed from serotonin, which is formed from tryptophan or 5-HTP.

Melatonin is the main modulator of neuroendocrine function and regulates the Hypothroid-Pituitary-Adrenal axis. Patients with low cortisol exhibit decreased melatonin levels with a disrupted circadian rhythm. Melatonin has a pivotal role in regulating body temperature, the sleep-wake cycle, female reproductive hormones, and cardiovascular function. Hence disrupted secretion rhythms are widespread in many degenerative illnesses.

Conventional Lab Tests
There are no specific lab tests for insomnia. Diagnosis can be confirmed by polysomnography, particularly if sleep apnea is suspected.

Specialty Lab Tests
The Adrenocortex Stress Profile evaluates bioactive levels of the body's important stress hormones, cortisol and DHEA. This profile serves as a critical tool for uncovering biochemical imbalances that can underlie anxiety, chronic fatigue, obesity, diabetes and a host of other clinical conditions. Four salivary samples of cortisol are taken over a 24-hour period.

The Comprehensive Melatonin Profile analyzes 3 saliva samples for the secretion pattern of melatonin. Melatonin imbalance has been associated with Seasonal Affective Disorder, infertility, sleep disorders, and compromised immune function.

The Menopause Profile examines four salivary samples over a 2-week period to determine levels of β-estradiol, progesterone, and testosterone for women who are peri- or post-menopausal.
Memory Loss

Definition
Memory loss is considered a symptom of an underlying disease.

Causes
Alzheimer’s disease, Amnesia, Dementia, Depression, Dissociative disorders, Epilepsy, Huntington’s chorea, Hypertriglyceridemia, Hypothyroidism, Multiple sclerosis, Multiple chemical sensitivity, Pick’s disease, Schizophrenia, Sleep apnea, Brain injury (head trauma, concussion, stroke, electric shock), Brain anoxia (oxygen deprivation), Infections (Limbic encephalitis, HIV, Syphilis, Lyme disease, Chronic meningitis, Whipple’s disease), Toxic exposure (Carbon monoxide), Drug intoxication (Amphetamine, Triazolam). Alcohol causes a mild impairment of recent memory.

Early thiamin (vitamin B1) deficiency causes fatigue, irritation, poor memory, sleep disturbances, precordial pain, anorexia, abdominal discomfort, and constipation. Continued carbohydrate ingestion gradually exhausts thiamine stores in critical areas of the thalamus and brainstem reticular formation.

Pellagra (niacin, vitamin B3 deficiency) is typically associated with dermatitis, dementia, and diarrhea. Fatigue, insomnia, and apathy may precede the development of an encephalopathy characterized by confusion, disorientation, hallucination, loss of memory, and eventually, organic psychosis.

Cobalamin (vitamin B12) deficiency without hematologic abnormalities is surprisingly common, especially in the elderly. These patients may present with neuropsychiatric abnormalities, including peripheral neuropathies, gait disturbance, memory loss, and psychiatric symptoms.

Aluminum is readily absorbed into blood and accumulates in brain, bone, and erythroid tissues and can cause disabling neurologic, skeletal, and hematologic manifestations including malaise, memory loss, asterixis (involuntary jerking), dementia, twitches, and other manifestations of metabolic encephalopathy, including seizures and death.

Chronic exposure to metallic mercury produces a characteristic intention tremor and mercurial encephalopathy, a constellation of findings including excitability, memory loss, insomnia, timidity, and sometimes delirium.

Cognitive function can be impacted in several ways, including: The damaging effects of years of free radical exposure (oxidative stress); Hormonal imbalances and decreased levels of key hormones, especially pregnenolone, DHEA and melatonin; Declining energy output of brain cells (mitochondrial stress); Essential fatty acid deficiencies (the brain is composed almost entirely of fatty acids).

Specialty Lab Tests
The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

The Vitamin Profile examines a blood sample, using vitamin-sensitive and specific microbes to determine levels of vitamins in the body. The test is indicated when insufficiencies are suspected. Available for 12 or 17 vitamins.

The Female Hormone Profile analyzes the levels of ß-estradiol, progesterone, and testosterone. The Comprehensive version includes the Adrenocortex Stress Profile and the Comprehensive Melatonin Profile to reveal how the sex hormones are influenced by cortisol, DHEA, and melatonin.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate). In the Comprehensive version, the urine is analyzed for levels of lipid peroxides. In addition, various oxidative markers are assessed from fasting blood specimens taken the morning after the challenge.

© 2003
Ronald Steriti, ND, PhD
Multiple Sclerosis

Description

Multiple sclerosis is a recurrent (occasionally progressive) inflammatory demyelenization of the white matter of the brain and spinal cord resulting in multiple and varied neurological symptoms. The usual course is intermittent, progressive and relapsing. Multiple sclerosis predominantly affects young men between the ages of 16 and 40.

Causes

The cause is unknown. Several theories have been proposed. The autoimmune theory (autoimmune attack of myelin basic protein by T cells or tumor necrosis factor alpha) is supported by HLA linkage, hereditary pattern, immunocytes in plaques, and changes in peripheral blood immunocytes. The viral theory is supported by increasing incidence of disease at higher latitudes, clusters of cases with families, geographical clusters of cases, and animal studies of infectious diseases of myelin. The combined theory involves an autoimmune disorder triggered by environmental exposure to toxin or virus early in life.

Risk factors for multiple sclerosis include: Living in temperate zone; Northern European descent; and a Family history of the disease.

Conventional Lab Tests

Tests of the cerebrospinal fluid show an abnormal colloidal gold curve, elevated gamma globulin IgG, mild mononuclear pleocytosis (less than 40 cells/mL), myelin debris, and normal or slightly elevated protein of 50-100 mg/100 mL (50-100 mg/dL [500-1000 mg/L]). Serology for syphilis is negative.

Tests to exclude other disorders include: Fluorescent treponemal antibody absorption (FTA-ABS); Sedimentation rate; Screens for clinically suspected vasculitic disorders; and Human T-lymphotropic virus-1 (HTLV-1) serology.

Specialty Lab Tests

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

In the Comprehensive version of this profile, the urine specimen is analyzed for levels of lipid peroxides. In addition, various oxidative markers are assessed from fasting blood specimens taken the morning after the challenge. These tests are sensitive indicators of biological detoxification status.

The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

The Anti-Chemical Antibodies Profile assays blood for systemic exposure and sensitivity to formaldehyde, tremolitic anhydride, toluene, phthalic anhydride and benzene ring.

The Oxidative Stress Analysis (Blood & Urine) identifies markers of hydroxyl radical activity, urine lipid peroxides, reduced glutathione, superoxide dismutase, and glutathione peroxidase, following a challenge dose of aspirin and acetaminophen. Offered by itself or included in the Comprehensive Detoxification Profile. Especially useful in cases of chronic fatigue, xenobiotic exposure, and chronic illnesses.
Restless Leg Syndrome

Description
Restless legs syndrome refers to an irresistible urge to move the legs when awake and inactive, especially when lying in bed just prior to sleep. This interferes with the ability to fall asleep. Often there is a creeping or crawling sensation deep within the calves or thighs, or sometimes even in the upper limbs, that is only relieved briefly by movement, particularly walking. The severity of this chronic, idio-pathic disorder may wax and wane with time and can be exacerbated by caffeine and pregnancy. Nearly all patients with restless legs also experience periodic limb movement disorder during sleep, although the reverse is not the case. Restless legs syndrome occurs most commonly in middle-aged women.

The restless sensation may be accompanied by myoclonic jerks of muscle. These myoclonic jerks are similar to the myoclonus observed in normal individuals entering REM sleep.

Causes
Restless leg syndrome often has a familial basis, with evidence of autosomal dominant inheritance. Restless leg syndrome can be caused by iron or folic acid deficiency anemia and renal failure. Certain conditions are characterized by a compulsion to move the extremities. Akathisia, or motor restlessness, occurs in Parkinson's disease and other disorders of the basal ganglia, including drug-induced movement disorders. Restless leg syndrome is also associated with fibromyalgia.

Conventional Treatment
Symptoms may respond to treatment with dopaminergic medication (such as levodopa or bromocriptine), benzodiazepines (diazepam or clonazepam), or opiates (codeine, propoxyphene, or oxycodone).

Conventional Lab Tests
Lab tests would include a complete blood count, tests for iron status (Iron or Ferritin; Iron or Transferrin Saturation; Total Iron Binding Capacity), folic acid levels, and kidney function tests (BUN, phosphorous, LDH, creatinine, creatinine clearance, uric acid, total protein, A/G ratio, albumin, globulins, calcium, glucose, and cholesterol).

Specialty Lab Tests
The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

Hormone testing is indicated by the relationship with pregnancy and predilection for middle-aged women. The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

The detoxification profile is indicated due to the association with caffeine. The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.
Seizures

Definition
Seizures are defined as sudden alteration of behavior, characterized by a sensory perception or motor activity without or with change in awareness or consciousness, due to aberrant cortical electrical activity. Partial seizures begin locally without impairment of consciousness, and with complex symptoms (with impairment of consciousness). Generalized seizures occur bilaterally, symmetrically and are without local onset. A third classification of seizures are unclassified epileptic seizures.

Causes
Causes of seizures include: Brain tumor, Cerebral hypoxia (breath holding, carbon monoxide poisoning, anesthesia), Cerebrovascular accident (infarct or hemorrhage), Convulsive or toxic agents (lead, alcohol, cocaine, camphor, chloraquine, pentylentetrazol, picrotoxin, strychnine), Eclampsia (during pregnancy), Exogenous factors (sound, light, cutaneous stimulation), Head injury, Hyperpyrexia (acute infection, heat stroke), Metabolic disturbances (hypoglycemia, hypoparathyroidism, phenylketonuria, uremia, hepatic failure, electrolyte abnormality) or Anaphylaxis (foreign serum or drug allergy). Convulsions may also occur as a withdrawal symptom after chronic use of alcohol, hypnotics, or tranquilizers.

Conventional Lab Tests
Conventional lab tests include serum tests for glucose, sodium, potassium, calcium, phosphorus, magnesium, BUN, and ammonia; Anticonvulsant levels (inadequate level of anticonvulsant medication is the most common cause of recurrent seizures in children, and many adults); Drug and toxic screens (including alcohol); and a complete blood count (which may be helpful in evaluating infection).

Specialty Lab Tests
The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

Glucose/Insulin Tolerance Test employs a glucose challenge and blood samples over a 4 hour period to assess the relationship of insulin and glucose. The test provides important information about hypoglycemia, hyperglycemia and insulin resistance.

The Comprehensive Allergy (Antibody) Profile assays blood for immediate and delayed reactions to 96 combined foods or 100 vegetarian foods, and 36 region-specific inhalants, allowing patients to moderate exposure to allergens. Includes separate IgE & IgG profiles. Various add-on panels are also available, including a 24-spice panel.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.

The Anti-Chemical Antibodies Profile assays blood for systemic exposure and sensitivity to formaldehyde, tremolitic anhydride, toluene, phthalic anhydride and benzene ring.

The Amino Acids Analysis examines fasting blood or 24-hour urine samples for 40+ amino acids and provides information on a wide spectrum of metabolic and nutritional disorders, including: protein inadequacy, gastrointestinal insufficiencies, inflammatory responses, vitamin and mineral dysfunctions, detoxification impairments, cardiovascular disease, ammonia toxicity, food and chemical sensitivities, depression, neurological dysfunction, and inborn errors of metabolism.
Trigeminal Neuralgia

Description

Trigeminal neuralgia (tic douloureux) is a disorder of the sensory nucleus of the 5th cranial nerve (trigeminal nerve) which causes bouts of severe lancinating pain along the nerve. Trigeminal neuralgia is often precipitated by stimulation of well-defined trigger paths, usually around the mouth and nose, and occasionally inside the mouth. Trigeminal neuralgia usually affects only one side (ipsilateral).

Causes

Trigeminal neuralgia is most commonly compression of the trigeminal nerve by arteries or veins of the posterior fossa. Inflammatory and degenerative changes are often found in the semilunar ganglion.

Causes of neuralgia include: Chronic intoxication (alcohol, arsenic, lead, other drugs); Viral infections (post-herpetic); Bacterial infections (Shigella, Brucella, Leptospirosis, Lyme, Secondary syphilis, Mycobacterium leprae); Metabolic and inflammatory disorders (diabetes, gout, rheumatoid arthritis, systemic lupus erythematosus); Vitamin deficiencies (B1, B12, B3, B6, E); Drug reaction (chloramphenicol, nitrofurantoin, sulfonamides, isoniazid) and serum sickness (an allergic reaction to drugs); Multiple sclerosis (optic neuritis).

Conventional Lab Tests

An MRI or CT scan is usually ordered to rule out neoplasm in cerebellopontine angle. An ESR is ordered to rule out arteritis. A VDRL for syphilis is sometimes ordered (secondary syphilis causes cranial nerve lesions).

Specialty Lab Tests

The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

The Anti-Chemical Antibodies Profile assays blood for systemic exposure and sensitivity to formaldehyde, tremolitic anhydride, toluene, phthalic anhydride and benzene ring.

The Vitamin Profile examines a blood sample, using vitamin-sensitive and specific microbes to determine levels of vitamins in the body. The test is indicated when insufficiencies are suspected. Available for 12 or 17 vitamins.
Dermatology
Acne

Description
Acne is an androgenically stimulated, inflammatory disorder of the sebaceous glands, resulting in comedones (whiteheads and blackheads), papules, inflammatory pustules and, occasionally, scarring. Virtually 100% of adolescents are affected to some degree, although only 15% will seek medical advice. Males tend to be more severely affected, due to the association with male hormones (androgens).

Causes
Acne is caused by androgens (testosterone and andosterone) which stimulate the rate of keratin turnover in the sebaceous gland. The keratin plug, visible as a comedone, causes an accumulation of sebum in the gland. The presence of Propionibacterium acnes stimulates an inflammatory response to the sebum, which results in papule and pustule formation.

Risk factors include: Adolescence; Male sex; Androgenic steroids (e.g. steroid abuse and some birth control pills); Oily cosmetics, including cleansing creams, moisturizers, oil-based foundations; Rubbing or occluding the skin surface, as may occur with sports equipment (helmets and shoulder pads), holding the telephone or hands against the skin; Drugs (iodides or bromides, lithium, phenytoins); Systemic corticosteroids; Virilization disorders; and a Hot, humid climate.

Conventional Lab Tests
No lab tests are recommended.

Specialty Lab Tests
The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

The Male Hormone Profile analyzes 4 saliva samples over a 24-hour period for levels of testosterone. Elevated levels suggest androgen resistance, while decreased levels can result from such causes as hypogonadism, hepatic cirrhosis, lipid abnormalities and aging.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Psoriasis

Description
Psoriasis is a genetically determined (sporadic) common, chronic, epidermal proliferative disease clinically characterized by erythematous, dry scaling patches, recurring remissions and exacerbations. Flares may be related to systemic and environmental factors. Psoriasis usually appears between ages 10 and 30, but can develop in infants and in the elderly. There are several clinical forms: Discoid or plaque psoriasis is the most common. Patches appear on scalp, trunk and limbs. The nails may be pitted and/or thickened. Guttate psoriasis occurs most frequently in children, numerous small papules over wide area of skin, but greatest on the trunk. Pustular psoriasis has small pustules over the body or confined to one area (i.e., palms and soles) or arranged in annular patterns (especially children). Inverse flexural psoriasis affects the flexural areas, lesions are moist and without scales (common in older people). Erythroderma (exfoliative psoriasis or red man syndrome) patients skin turns red, may result from a flare of pre-existing dermatosis. Ostraceous is grossly hyperkeratotic.

Causes
Risk factors for psoriasis include: Local trauma; Local irritation; Infection (streptococcal pharyngitis can stimulate acute guttate psoriasis, HIV); Endocrine changes; Stress (physical and emotional); Sudden withdrawal of systemic and/or potent topical steroids; Alcohol use; and Obesity.

Conventional Lab Tests
Standard lab tests include a latex fixation test; fungal studies (which may show a superimposed infection); Uric acid (increased in 10-20%); and a rheumatoid factor (to rule out arthritis). Leukocytosis and increased sedimentation rate often seen, especially in pustular psoriasis. In severe cases, anemia, B12, folate and iron deficiency can be present.

Specialty Lab Tests
The Yeast Culture & Sensitivity evaluates and quantitates presence of yeast and may include a sensitivity panel of drugs and botanicals on all pathogens.
The Detoxification Profile assesses the body’s capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body’s detoxification capacity and potential susceptibility to oxidative damage.
The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.
Scleroderma

Description
Scleroderma (progressive systemic sclerosis) is a chronic disease of unknown etiology, characterized by diffuse fibrosis, degenerative changes, and vascular abnormalities in the skin, articular structures and other organs (kidneys, lung, heart, gastrointestinal and skeletal muscles). The majority of manifestations have vascular features (e.g., Raynaud's phenomenon), but frank vasculitis is rarely seen. It can range from a mild disease, affecting the skin, to a systemic disease that can cause death in a few months. Scleroderma predominantly affects women (Female:Male = 4:1). Symptoms usually appear in the 3rd to 5th decade.

The CREST syndrome (calcinosis, Raynaud's phenomenon, esophageal dysmobility, sclerodactyly, telangiectasia) often occurs. Associated syndromes include Rheumatoid arthritis, Systemic lupus erythematosus, and Polymyositis.

Treatment is symptomatic and supportive. Dialysis may be necessary as the disease progresses.

Causes
The cause of scleroderma is unknown. Several mechanisms have been proposed, including alterations in immune response. There are some association with quartz mining, quarrying, vinyl chloride, and hydrocarbons. Treatment with bleomycin (an antibiotic which splits single and double-stranded DNA) has caused a scleroderma-like syndrome.

Conventional Lab Tests
Scleroderma results in several altered lab tests: Increased ESR; Normocytic Normochromic anemia; Positive ANA; Anti-centromere antibody; Anti-Scl-70 (topoisomerase antibody); Positive nucleolar immunofluorescence; Albuminuria; Microscopic hematuria; Eosinophilia; Hemolysis; Hypergamma-globulinemia. Respiratory function tests show decreased maximum breathing capacity; Increased residual volume; and a Diffusion defect. Positive rheumatoid factor test is found in 33%.

Specialty Lab Tests
The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

In the Comprehensive version of this profile, the urine specimen is analyzed for levels of lipid peroxides. In addition, various oxidative markers are assessed from fasting blood specimens taken the morning after the challenge. These tests are sensitive indicators of biological detoxification status.

Oxidative Stress Analysis (Blood & Urine) identifies markers of hydroxyl radical activity, urine lipid peroxides, reduced glutathione, superoxide dismutase, and glutathione peroxidase, following a challenge dose of aspirin and acetaminophen. Offered by itself or included in the Comprehensive Detoxification Profile. Especially useful in cases of chronic fatigue, xenobiotic exposure, and chronic illnesses.

The Anti-Chemical Antibodies Profile assays blood for systemic exposure and sensitivity to formaldehyde, tremolitic anhydride, toluene, phthalic anhydride and benzene ring.
Immune
Allergies

Description

Allergies are caused by the immune system’s over-reaction to everyday substances, which the body identifies as foreign invaders. The invaders are not viruses or bacteria. They are harmless substances: pollens, dust, mold spores or harmless microscopic bugs called dust mites that live in carpets, clothing and bedding. Hay fever (allergic rhinitis), one of the most common allergies, is triggered by pollens.

The acute allergic response is mediated by IgE receptors on mast cells that respond to specific antigens, such as dust or pollen. The antigen (foreign particle) and antibody unite and initiate a cascade of events in the mast cell culminating in its degranulation and production of inflammatory mediators including histamine, leukotrienes, prostaglandins, proteases and platelet activating factor. An immediate symptomatic response occurs followed by a more prolonged, persistent late phase reaction. This involves the infiltration into the reactive region of eosinophils, neutrophils, basophils and mononuclear cells.

Standard medical treatment for allergies involves taking decongestants and antihistamines. Decongestants open clogged nasal passages and have drying action. Antihistamines suppress the body’s release of histamine. Decongestants can cause insomnia and raise blood pressure. Antihistamines may cause drowsiness. Both may lose effectiveness after a while. They also interfere with, and according to some experts, weaken the immune system.

Specialty Lab Tests

The Food Allergy (Antibody) Profile is an ELISA test of IgE and IgG antibodies for 96-combined foods or 100 vegetarian foods.

The Comprehensive Allergy (Antibody) Profile assays blood for immediate and delayed reactions to 96 combined foods or 100 vegetarian foods, and 36 region-specific inhalants, allowing patients to moderate exposure to allergens. Includes separate IgE & IgG profiles. Various add-on panels are also available, including a 24-spice panel.

The Inhalants Profile is an ELISA test of IgE antibodies to 36 region-specific pollens and environmental inhalants.
Candida

Description

Candida albicans and related species is a fungus that causes a variety of infections. Cutaneous candidiasis syndromes include erosio interdigitalis blastomycetica, folliculitis, balanitis, intertrigo, paronychia, onychomycosis, diaper rash, perianal candidiasis, and the syndromes of chronic mucocutaneous candidiasis. Mucous membrane infections include oral candidiasis (thrush), esophagitis, and vaginitis. The most serious manifestation of candidiasis is hematogenously disseminated candidiasis (sometimes referred to as systemic candidiasis).

Causes

Most Candida infections are due to Candida albicans. However, other important human pathogens include C. tropicalis, C. krusei, C. stellatoidea, C. pseudotropicalis, C. guilliermondi, C. parapsilosis, C. lusitaniae, C. lambica, and Torulopsis glabrata. Candida species colonize human mucocutaneous surfaces, and most infections are endogenously acquired from this reservoir. Human-to-human transmission of Candida occurs in some settings.

Risk factors for hematogenously disseminated candidiasis include: Neutropenia, Antibacterial chemotherapy, Indwelling intravascular access devices, Prior hemodialysis, and Mucocutaneous candidiasis.

Conventional Lab Tests

Diagnosis of candida is established by isolating the organism from blood cultures.

Specialty Lab Tests

The Anti-Candida Antibody assays blood sample for IgG, IgM & IgA antibodies against Candida albicans. The Candida Antibody assays blood for IgG levels to Candida albicans.

The Candida Intensive Culture assays blood and stool for immune reactivity to Candida albicans infection using the Yeast Culture & Sensitivity and Candida Antibody to create a comprehensive profile.

The Glucose/Insulin Tolerance Test employs a glucose challenge and blood samples over a 4 hour period to assess the relationship of insulin and glucose. The test provides important information about hypoglycemia, hyperglycemia and insulin resistance.

The Anti-Gliadin Antibody Assay assays a single saliva specimen for immune reaction to gluten.
Chronic Fatigue Syndrome

Description
Chronic fatigue syndrome (CFS) is characterized primarily by profound fatigue, in association with multiple systemic and neuropsychiatric symptoms, lasting at least 6 months, and severe enough to reduce/impair daily activity.

Causes
The cause of CFS is unknown. Multiple immunologic abnormalities suggestive of viral reactivation syndrome have been reported, but no one source identified. Attention is given most to herpes (Epstein Barr Virus and Human Herpes Virus-6) and other enteroviruses, possibly in concert, possibly with environmental factors.

Several mechanisms have been proposed by researchers, including: Immune system activation, particularly by viruses; Oxidative stress and glutathione deficiency; Endocrine dysfunction, including adrenal fatigue, thyroid deficiency and hypothalamic-pituitary axis abnormalities; Neurotransmitter deficiencies; and Drug-induced fatigue.

Paul Cheney has proposed that CFS may be due to viruses, especially herpes viruses (like Epstein-Barr virus, cytomegalovirus, and human herpes virus 6), which make proteins that activates the immune system to fight bacteria instead of viruses. In this way the viruses are able to “fool” the immune system and remain untouched by the bodies natural defenses.

Dr. Martin L. Pall has proposed that chronic infections cause a chain of events leading to excessive inflammation and free radical production. Chronic infections induce excessive production of inflammatory cytokines, which induce nitric oxide synthase to synthesize excessive amounts of nitric oxide, which reacts with superoxide to produce the potent oxidant peroxynitrite (nitrogen dioxide), which acts to increase the levels of both nitric oxide and superoxide which react to produce more peroxynitrite.

Conventional Lab Tests
Initial lab studies include: Chemistry panel; CBC; Urinalysis; and Thyroid function tests. Additional studies include: ESR; ANA; VDRL; Rheumatoid factor; Purified protein derivative; Serum cortisol; HIV; Immunoglobulin; and Epstein-Barr serology.

Specialty Lab Tests
The Adrenocortex Stress Profile accurately measures unbound levels of both cortisol and DHEA, and provides a complete circadian analysis of cortisol activity. Controlled collection times allow for accurate baseline testing and effective monitoring of hormone replacement therapy.

The Detoxification Profile from Great Smokies Diagnostic Laboratory assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

Oxidative Stress Analysis (Blood & Urine) identifies markers of hydroxyl radical activity, urine lipid peroxides, reduced glutathione, superoxide dismutase, and glutathione peroxidase, following a challenge dose of aspirin and acetaminophen. Offered by itself or included in the Comprehensive Detoxification Profile. Especially useful in cases of chronic fatigue, xenobiotic exposure, and chronic illnesses.
Musculoskeletal
Bursitis

Description

Bursitis is defined as inflammation of bursa. A bursa is a sac that is formed or found in areas subject to friction, such as locations where tendons pass over bony landmarks. The most common sites are subdeltoid (upper arms), olecranon (elbows), prepatellar (knees), trochanteric (legs), and radiohumeral (lower arms). They essentially lubricate the region with synovial fluid. Large bursae usually communicate with joints and are responsible for retaining the synovial fluid in place. Bursae are fluid-filled sacs that serve as a cushion between tendons and bones. Bywaters, an English rheumatologist, found at least 78 bursae symmetrically placed on each side of the body.

Causes

Individuals who engage in repetitive and vigorous training or others who suddenly increase their level of activity (e.g., "weekend warriors") are at higher risk of developing bursitis. Also, improper or over-zealous stretching may lead to injury.

Bursitis may be acute or chronic, and its etiology is often unknown. There are many types of bursitis, including infectious, traumatic, inflammatory or gouty. Less often rheumatoid disease or tuberculosis as well as gout and pseudogout.

Conventional Lab Tests

Standard lab testing aids in differentiating soft tissue disease from rheumatic and connective tissue disease: CBC; ESR; Serum protein electrophoresis; Rheumatoid factor (RF); Serum uric acid; Calcium; Phosphorus; Alkaline phosphatase; VDRL; and Joint fluid analysis (when available)

Specialty Lab Tests

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

In the Comprehensive version of this profile, the urine specimen is analyzed for levels of lipid peroxides. In addition, various oxidative markers are assessed from fasting blood specimens taken the morning after the challenge. These tests are sensitive indicators of biological detoxification status.
Carpal Tunnel Syndrome

Description
Carpal tunnel syndrome is the most common cause of peripheral nerve compression. The median nerve is compressed as it traverses the carpal tunnel in the wrist and hand. The tunnel is composed of the carpal bones dorsally and the transverse carpal ligament ventrally. It contains flexor tendons and the median nerve.

Carpal tunnel syndrome tends to affect the dominant hand but over half the patients experience bilateral symptoms. The predominant age is 40 to 60 and it is more common in women (Female:Male = 3-6:1).

Symptoms include tingling or prickling sensations in the fingers and burning pain in the fingers particularly at night (acroparesthesias). Symptoms characteristically are confined to the thumb, index and middle finger but many patients do not distinguish this localization and feel the entire hand is affected.

Causes
Causes include disorders which affect the musculoskeletal system in the region of the wrist, including trauma or Colles' fracture, degenerative joint disease, rheumatoid arthritis, ganglion cyst, scleroderma. Hypothyroidism and diabetes are frequently associated with this condition which also occurs with increased frequency during pregnancy. Other miscellaneous causes includes acromegaly, lupus erythematosus, leukemia, pyogenic infections, sarcoidosis, primary amyloidosis and Paget's disease. Hyperparathyroidism and hypocalcemia are also associated.

Risk factors include jobs which involve repetitive flexion and extension of the wrist may influence the development of carpal tunnel syndrome. Occupation as a seamstress, and more recently, that of computer operator may aggravate carpal tunnel syndrome. There is, however, no universal agreement that carpal tunnel syndrome is job related.

Conventional Lab Tests
No lab tests are specific. Glucose levels and thyroid tests may be helpful.

Specialty Lab Tests
The Comprehensive Thyroid Assessment provides a thorough analysis of thyroid secretion and metabolism, including peripheral thyroid conversion and thyroid autoimmunity. By measuring hypersensitive thyroid-stimulating hormone (TSH), free serum thyroxine (fT4), free triiodothyroine (fT3), Reverse T3 (rT3), anti-thyroglobulin antibodies (anti-TG), and anti-thyroid peroxidase antibodies (anti-TPO).

The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.

The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of ß-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.
Fibromyalgia

Description
Fibromyalgia is a rheumatic disorder characterized by achy pain, tenderness, and stiffness of muscles, areas of tendon insertions, and adjacent soft-tissue structures. These symptoms may be primary, or concomitant with another associated or underlying condition. Fibromyalgia is often related to overuse. Any of the fibrous muscular tissues may be involved, but those of the occiput, low back (lumbago), neck (neck pain or spasm), shoulders, thorax (pleurodynia), and thighs (aches and charley horses) are especially affected.

Fibromyalgia occurs mainly in females. It may be induced or intensified by physical or mental stress, poor sleep, trauma, exposure to dampness or cold, and occasionally by a systemic, usually rheumatic, disorder. A viral or other systemic infection (e.g., Lyme disease) may precipitate the syndrome.

Causes
Fibromyalgia is considered to be multifactorial. Several mechanisms have been proposed: Cellular energy imbalances; Adrenal Stress; IGF-1 deficiency; Amino Acid Imbalances; Toxic exposure; Thyroid dysfunction; Allergies; Gastrointestinal dysfunction; Melatonin disturbance.

Specialty Lab Tests
The Adrenocortex Stress Profile accurately measures unbound levels of both cortisol and DHEA, and provides a complete circadian analysis of cortisol activity. Controlled collection times allow for accurate baseline testing and effective monitoring of hormone replacement therapy.

The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.

In the Comprehensive Detoxification Profile, the urine specimen is analyzed for levels of lipid peroxides. In addition, various oxidative markers are assessed from fasting blood specimens taken the morning after the challenge. These tests are sensitive indicators of biological detoxification status.

The Comprehensive Thyroid Assessment provides a thorough analysis of thyroid secretion and metabolism, including peripheral thyroid conversion and thyroid autoimmunity. By measuring hypersensitive thyroid-stimulating hormone (TSH), free serum thyroxine (fT4), free triiodothyroine (fT3), Reverse T3 (rT3), anti-thyroglobulin antibodies (anti-TG), and anti-thyroid peroxidase antibodies (anti-TPO).
Gout

Description
Gout is an inflammatory reaction to urate crystals in joints, bones and subcutaneous structures. Initially, it is a hyperacute arthritis which may progress to a chronic arthritis. Rarely it may present as a chronic arthritis. Recognition of the crystals in fluid is pathognomonic. Gout occurs predominantly in men aged 30-60 years.

Causes
Primary gout, the most common form, is caused by an underexcretion or overproduction of uric acid. Secondary gout may be related to myeloproliferative diseases or their treatment, therapeutic regimens producing hyperuricemia, renal failure, renal tubular disorders, lead poisoning, hyperproliferative skin disorders, or enzymatic defects (e.g., deficient hypoxanthine guanine phosphoribosyltransferase, glycogen storage diseases)

Causes of gout include: Hyperuricemia; Dietary excess (e.g., anchovies, sardines, sweetbreads, kidney, liver and meat extracts); Inborn errors of metabolism; and Lead poisoning (Saturnine gout from moonshine).

Risk factors for gout include: Ethanol ingestion; Family history; Polynesian extraction (e.g., Samoan gout); Medications - aminophylline, caffeine, corticosteroids, cytotoxic drugs, diazepam, diphenhydramine, diuretics, L-dopa, dopamine, epinephrine, ethambutol, methaqualone, alpha-methyl dopa, nicotinic acid, probenecid (low dose), pyrazinamide, salicylates (< 10/dL blood levels), sulfipyrazone (low dose), vitamins B12 and C.; Diuretics may be responsible for 20% of secondary gout; Ketosis; Surgery or trauma; Obesity (50%); Hypertension (50%); Vascular disease; Diabetes; Renal failure; Hypothyroidism; Hyperparathyroidism; hypoparathyroidism; Hyperlipidemia types II, IV, V; Paget's disease; Hyperproliferative skin disorders (e.g., psoriasis); Lymphoproliferative disorders; Calcium pyrophosphate deposition disease; Sarcoidosis; Hemolytic anemia; Hemoglobinopathies; Pernicious anemia; Radiation treatment; Type I glycogen storage disease; Down syndrome; and Gut sterilization by antibiotics.

Conventional Lab Tests
Hyperuricemia may be present, although it is not diagnostic. WBC usually elevated with left shift during acute attacks. ESR usually elevated during acute attacks

Specialty Lab Tests
The Detoxification Profile assesses the body's capacity to carry out detoxification through functional challenges (caffeine, acetaminophen, and salicylate) which evaluate specific aspects of the detoxification process and free radical damage. These functional assessments provide a comprehensive profile of the body's detoxification capacity and potential susceptibility to oxidative damage.
Osteoarthritis

**Description**

Osteoarthritis (OA) is the most common form of joint disease. Osteoarthritis is the leading cause of disability in those over age 65. Osteoarthritis involves progressive loss of articular cartilage and reactive changes at joint margins and in subchondral bone.

**Causes**

Primary osteoarthritis is idiopathic (of unknown cause) and is divided into subsets depending on clinical features.

Secondary osteoarthritis can be caused by several mechanisms, including: Childhood anatomic abnormalities (e.g., congenital hip dysplasia, slipped femoral epiphyses); Inheritable metabolic disorders (e.g., alkaptonuria, Wilson's disease, hemochromatosis); Neuropathic arthropathy (Charcot's joints); Hemophilic arthropathy; Acromegalic arthropathy; Paget's disease; Hyperparathyroidism; Noninfectious inflammatory arthritis (e.g., rheumatoid arthritis, spondyloarthropathies); Gout, calcium pyrophosphate deposition disease (pseudogout); Septic or tuberculous arthritis; and Post-traumatic. Biomechanical, biochemical, inflammatory, and immunological factors are all implicated in pathogenesis of osteoarthritis.

Risk factors include: Age over 50; Obesity (weight bearing joints); Prolonged occupational or sports stress (Injury to a joint).

**Conventional Lab Tests**

Standard lab tests are not helpful.

Joint aspiration may be helpful to distinguish between OA and chronic inflammatory arthritides. OA shows cell count usually < 500 cells/mm³, predominantly mononuclear. Inflammatory arthritis shows cell counts usually > 2000 cells/mm³, predominantly neutrophils.

Synovial fluid may have a slightly increased white blood cell count, predominantly mononuclear. Calcium pyrophosphate dihydrate and/or apatite crystals may occasionally be seen in effusions and require polarized light microscopy or special techniques to see. X-rays are usually normal early. Later they often show narrowed joint space, osteophyte formation, subchondral bony sclerosis, and cyst formation. Erosions may occur on surface of distal interphalangeal (DIP) and proximal interphalangeal (PIP) joints when OA is associated with inflammation (erosive osteoarthritis).

**Specialty Lab Tests**

The Bone Resorption Assessment is a simple, direct urinary assay of pyridinium and deoxypyridinium crosslinks, useful in identifying current bone loss, lytic bone disease, and efficacy of bone support therapies.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.

The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of β-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.
Osteoporosis

Description
Osteoporosis is a multifactorial skeletal disease characterized by severe bone loss and disruption of skeletal micro-architecture sufficient to predispose to atraumatic fractures of the vertebral column, upper femur; distal radius, proximal humerus, pubic rami and ribs.

Causes
Postmenopausal osteoporosis (Type I) is the most common form in Caucasian and Asian women. It is due to excessive and prolonged acceleration of bone resorption following menopausal loss of estrogen secretion. Involutional osteoporosis (Type II) occurs in both sexes above age 75. It is due to a subtle, prolonged imbalance between rates of bone resorption and formation. A mixture of Types I and II are common.

Idiopathic osteoporosis is a rare form of primary osteoporosis occurring in premenopausal women and in men below age 75. Not related to secondary causes or risk factors predisposing to bone loss. The cause is unknown.

Secondary osteoporosis is severe bone loss sufficient to cause atraumatic fractures due to extrinsic factors such as corticosteroid excess, rheumatoid arthritis, chronic liver or kidney disease, malabsorption syndromes, systemic mastocytosis, hyperparathyroidism, hyperthyroidism, a variety of hypogonadal states, and others

Dietary risk factors for osteoporosis include inadequate calcium, excessive phosphate or protein; and inadequate vitamin D intake in the elderly. Physical risk factors for osteoporosis include immobilization, and a sedentary lifestyle. Social risk factors for osteoporosis include alcohol, cigarettes, and caffeine. Medical risk factors for osteoporosis include chronic diseases, and endocrine disorders. Genetic or familial risk factors include suboptimal bone mass at maturity, and "familial fast bone losers"

Drug induced risk factors for osteoporosis include corticosteroids, excess thyroid hormone replacement, chronic heparin, chemotherapy, loop diuretics, anticonvulsants, and radiation therapy.

Conventional Lab Tests
All "routine" tests usually normal. Alkaline phosphatase (bone specific and total) may be transiently increased following fractures. Serum osteocalcin, if high, indicates high turnover type.

Urine calcium levels are normal. Serum and/or urine protein electrophoresis are normal. Thyroid function tests and urinary free cortisol normal in primary types. Urinary pyridinium and N-telopeptide collagen crosslinks, if high, indicates high turnover type.

Specialty Lab Tests
The Bone Resorption Assessment is a simple, direct urinary assay of pyridinium and deoxypyridinium crosslinks, useful in identifying current bone loss, lytic bone disease, and efficacy of bone support therapies.

The Female Hormone Profile analyzes 11 saliva samples over a 28-day period for the levels of ß-estradiol, progesterone, and testosterone, providing clues about menstrual irregularities, infertility, endometriosis, breast cancer, and osteoporosis.

The Vitamin Profile examines a blood sample, using vitamin-sensitive and specific microbes to determine levels of vitamins in the body. The test is indicated when insufficiencies are suspected. Available for 12 or 17 vitamins.
Osteoporosis
Psychology
Attention Deficit Hyperactivity Disorder

Description

Attention deficit hyperactivity disorder (ADHD) is a behavior problem characterized by a short attention span, low frustration tolerance, impulsivity, distractibility, and usually, hyperactivity. This can result in poor school performance, difficulty in peer relationships, and conflict between parent and child.

Causes

Recent research indicates neurotransmitter abnormalities, e.g., decreased activity or stimulation in upper brainstem and frontal-midbrain tracts. Toxins, neurologic immaturity, and environmental problems have also been hypothesized.

Many factors generate symptoms that closely resemble ADHD, including sensitivities to food additives (artificial food colors, flavorings, and preservatives), intolerances to foods (corn, wheat, milk, soy, oranges, eggs, or chocolate), nutrient deficiencies and imbalances, heavy metal intoxication, and toxic pollutant burden. Also, evidence is mounting that abnormal thyroid responsiveness, perhaps engendered perinatally by environmental pollutants, is on the rise and predisposes to ADHD.

Sugar intake makes a marked contribution to hyperactive, aggressive, and destructive behavior. A large study found that 74 percent of hyperactive children manifested abnormal glucose tolerance in response to a sucrose meal.

Children exposed acutely or chronically to lead, arsenic, aluminum, mercury, or cadmium are often left with permanent neurological sequelae that include attentional deficits, emotional lability, and behavioral reactivity.

ADHD is associated with poor prenatal health (preeclampsia, drug and alcohol use, smoking). ADHD is associated with, but not caused by: Learning disabilities, Tourette's, Mood disorders, Oppositional defiant disorder, and Conduct disorder.

Lead poisoning and Medication reactions (decongestant, antihistamine, theophylline, phenobarbital) may cause similar symptoms.

Specialty Lab Tests

The Hair Elemental Analysis examines hair samples for levels of toxic and nutrient elements. Toxicity and nutrient insufficiencies are identified, allowing for precise intervention.

The Food Allergy (Antibody) Profile is an ELISA test of IgE and IgG antibodies for 96-combined foods or 100 vegetarian foods. Vegetarian food categories include dairy, eggs, fruits, nuts and grains, and vegetables.

The Comprehensive Allergy (Antibody) Profile assays blood for immediate and delayed reactions to 96 combined foods or 100 vegetarian foods, and 36 region-specific inhalants, allowing patients to moderate exposure to allergens. Includes separate IgE & IgG profiles. Various add-on panels are also available, including a 24-spice panel.

The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.

The Inhalants Profile is an ELISA test of IgE antibodies to 36 region-specific pollens and environmental inhalants.

The Cotinine Assay examines urine to determine the presence of cotinine, a nicotine metabolite, which is an indicator of exposure to second-hand smoke. This test is useful in cases of recurrent infections or allergy in children of smokers.
Anxiety and Panic

Description

Anxiety disorders are illnesses that cause people to feel frightened and apprehensive for no apparent reason. There are several types of anxiety: Acute situational anxiety (a response to recent stressful event, usually transient symptoms), Adjustment disorder with anxious mood (persistent, maladaptive reaction following psychosocial stress, lasting up to six months), Generalized anxiety disorder (Persistent underlying anxiety or adjustment disorder with anxious mood and significant symptoms of motor tension, autonomic hyperactivity and hypervigilance, lasting more than six months), Panic disorder (Recurrent unexpected attacks with at least one attack or more associated with persistent concern about additional attacks, worries about implications of the attack or a significant change in behavior related to the attack; often leads to agoraphobia), Post-traumatic stress disorder (Recurrent flashbacks or nightmares of catastrophic event by survivors, often associated with autonomic symptoms), Phobias (Intense recurrent fear of, and avoidance of, an object or situation or of public embarrassment), Obsessive-compulsive disorder (Persistent unwanted and disturbing thoughts and recurrent behavioral patterns which interfere with daily life).

Panic disorder is characterized by repeated episodes of intense fear of sudden onset, often occurring without warning and with varying frequency. Symptoms of panic disorder include chest pains, heart palpitations, sweating palms, dizziness, shortness of breath, a sense of unreality, or an uncontrollable fear of death. Panic disorder affects between three and six million Americans and is twice as likely to occur in women. Onset may occur at any age but generally begins in early adulthood.

Causes

Anxiety and panic attacks can be produced by caffeine and many drugs, including corticosteroids (Cortisone, Dexamethasone, Hydrocortisone, Prednisone); birth control pills (Brevicon, Demulen), progesterone (Provera); antidepressants (Wellbutrin, Diazepam, Prozac, Haldol, Paxil, Effexor); and many others.

Perhaps the most significant biochemical disturbance noted in people with anxiety and panic attacks is an elevation in lactic acid, which is formed from glucose (blood sugar) when there is a lack of oxygen (anaerobic glycolysis).

Conventional Lab Tests

Laboratory tests for anxiety are usually minimal, with more extensive workup depending on clinical picture. Laboratory tests often normal in anxiety disorders. Standard labs would include basic chemistry; CBC; urinalysis and thyroid function studies.

Specialty Lab Tests

The Metabolic Dysglycemia Profile includes two-hour pre- and post-prandial analyses of glucose and insulin tolerance, salivary assessment of bioavailable DHEA and cortisol, and fasting blood assays of hemoglobin A1c, fructosamine, and IGF-1. Available with an optional add-on lipid profile.

The Oxidative Stress Analysis identifies markers of hydroxyl radical activity, urine lipid peroxides, reduced glutathione, superoxide dismutase, and glutathione peroxidase, following a challenge dose of aspirin and acetaminophen.
Depression

Description
Depression results when a person experiences more frustration and anger than he or she can handle. Each person is capable of handling a different amount of frustration or anger. The result is an abnormal receptor-neurotransmitter relationship at the synapse mainly in the limbic system in the brain.

The presynaptic receptors deal primarily with the storage, release and uptake of the neurotransmitter. The primary neurotransmitters, both monoamines, are serotonin and norepinephrine. The available antidepressants, according to the latest theory, may increase the sensitivity of the post-synaptic receptor sites and decrease the presynaptic receptor sites. It is thought by some that the antidepressants may work by blocking the uptake of the neurotransmitters, thereby upgrading the synapse by having more available.

Bipolar depression describes mood disorders in which both manic and depressive episodes occur. Unipolar depression describes mood disorders in which only depressive episodes occur.

Causes
Causes of depression include: Impaired synthesis of the neurotransmitters; Increased breakdown or metabolism of the neurotransmitters; Increased pump uptake of the neurotransmitters. When a person experiences anger or frustration these chemicals are released at the synapse. The action potential is passed on from neuron to neuron. Following this the neurotransmitter is (1) reabsorbed into the neuron where it is either destroyed by an enzyme or actively removed by a reuptake pump and stored until needed or (2) destroyed by monoamine oxidase (MAO) located in the mitochondria.; Lack of these neurotransmitters causes certain types of depression, e.g., decreased norepinephrine causes dullness and lethargy, while decreased serotonin causes irritability, hostility and suicide ideation.

Risk factors for depression include: Females more likely to develop depressive illness than males; Strong family history (depression, suicide, alcoholism, other substance abuse); Presence of chronic disease, especially multiple diseases; Migraine headaches; Back pain; Chronic pain; Recent myocardial infarction; Peptic ulcer disease; Insomnia; Stressful situations; Adolescence; Advancing age; Retirement; Children with behavioral disorders, especially hyperactivity.

Methoxyhydroxyphenylglycol (MHPG), the metabolite of norepinephrine, can be measured in urine and in some laboratories in the CSF. Similarly the major CNS metabolite of serotonin, 5-hydroxyindoleacetic acid (5-HIAA), can be measured in the urine and CSF. These tests are not a good reflection of the levels in the central nervous system, but rather in the peripheral nervous system.

Specialty Lab Tests
The Amino Acids Analysis tests for 40+ amino acids and provides information on a wide spectrum of metabolic and nutritional disorders. Results can provide valuable biochemical information about many disorders, including chronic fatigue, learning disabilities, depression and immune problems.

The Essential and Metabolic Fatty Acids Analysis evaluates the level of red cell membrane or plasma fatty acids, imbalances which significantly affect inflammatory and other disorders. By knowing the various fatty acid levels, one can reestablish a balance using nutritional intervention.

The Comprehensive Thyroid Assessment provides a thorough analysis of thyroid secretion and metabolism, including peripheral thyroid conversion and thyroid autoimmunity. By measuring hypersensitive thyroid-stimulating hormone (TSH), free serum thyroxine (fT4), free triiodothyroine (fT3), Reverse T3 (rT3), anti-thyroglobulin antibodies (anti-TG), and anti-thyroid peroxidase antibodies (anti-TPO).
Depression
General
Pain

Description

Pain is felt when sensory neurons throughout the body react to pressure, mechanical trauma, heat, cold, and other stimuli. The sensory neurons also respond to prostaglandins, histamine, and other chemicals released by injured or inflamed body tissue. Whether sensory neurons are stimulated depends on how powerful, prolonged, and widespread the heat, pressure, or other stimuli are. When sensory neurons are stimulated, the nerves “fire,” sending off messages that travel along the nervous system to the brain. Acute pain is the pain that tells you something is harming, or about to harm, your body. Chronic pain may be a dull ache that never goes away. Often the source of chronic pain is unknown.

Aspirin is the most well-known remedy for pain. Unfortunately aspirin has a host of side effects, including heartburn, nausea, vomiting, ringing in the ears, loss of hearing, hives and itching. Other side effects include vomiting blood, blood in the urine or stool, drowsiness, confusion, loss of vision and jaundice. Aspirin should not be taken by those with a bleeding disorder, ulcers, gout, asthma, liver or kidney disease, women who are pregnant or breast feeding, or anyone soon to undergo surgery. Neither should you take aspirin if you are taking blood-thinning medications for prevention or treatment of stroke, heart attacks, atrial fibrillation or blood clots. And if you are on long-term aspirin therapy, you must have your blood tested regularly by a physician to make sure the medicine is not harming your liver.

Acetaminophen is an effective treatment for moderate pain and fever, but it does not act against inflammation, swelling, or redness. Potential side effects include trembling, light-headedness, fatigue, itching, fever, sore throat, unexplained bruises or bleeding, blood in the urine, and pains in the side or lower back. Long-term use may cause anemia, along with liver and kidney damage. Acetaminophen causes massive free radical damage to the liver that can be ameliorated with nutrients like N-acetyl-cysteine (NAC).

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) are used for pain, stiffness, and swelling of the joints, and for painful menstrual periods. Potential side effects include stomach pains, gastritis, peptic ulcers, gastrointestinal bleeding, headaches, nausea, dizziness, depression, drowsiness, ringing in the ears, vomiting, diarrhea, cramps, convulsions, blood in the urine and stool, chest tightness, rapid heartbeat, fainting, and chills. Ironically, these medicines can actually cause pain, the very thing they are taken to eliminate. Long-term use can damage the eyes and ears, and cause weight gain.

Specialty Lab Tests

The Cellular Energy Profile evaluates organic acids that play a pivotal role in the generation of cell energy. The test can reveal metabolic distress associated generalized pain and fatigue, which may arise in response to toxic exposure, nutrient imbalances, digestive dysfunction and other causes. Plants synthesize and store energy from sunlight and nutrients. How efficiently the human body recovers this energy from plants or animals that eat plants can have a profound effect on physiological function.

The Metabolic Analysis Profile assesses urine metabolites to evaluate four critical areas of metabolism: gastrointestinal function, cellular energy production, neurotransmitter processing, and amino acid-organic acid balance. Test results can be used to address chronic systemic complaints: fatigue and mood disorders to headaches, muscular/joint pain, and digestive problems. Analytes: Creatinine and 39 organic acids ratios to creatinine, including: 8 gastrointestinal metabolites, 13 cellular energy metabolites, 4 neurotransmitter metabolites, and 14 amino acid metabolites. Specimen Requirements: First morning urine collection; 2 tubes (samples frozen).
References and Index
References

Dambro, M. D. ed, Griffith’s: 5 Minute Clinical Consult 1996, Williams and Wilkins, Baltimore, MD

The Merck Manual of Diagnosis and Therapy, 16th ed

Harrison’s Textbook of Internal Medicine, 14th ed, McGraw-Hill

Various articles, Alternative Medicine Review
Index

A
Acne ........................................... 76
Allergies ..................................... 80
Amenorrhea ................................. 54
Anxiety ....................................... 94
Atherosclerosis ............................ 25
Attention Deficit Hyperactivity Disorder 93

B
Benign Prostatic Hypertrophy ........... 66
Bronchitis .................................... 21
Bursitis ....................................... 84
Candida ....................................... 37, 81
Carpal Tunnel Syndrome ................ 85
Cataracts ..................................... 11
Cholesterol ................................... 26
Chronic Fatigue Syndrome .............. 82
Claudication ................................. 32
Congestive Heart Failure ............... 27
Cramping, Menstrual ..................... 55
Crohn’s Disease ............................ 38

D
Depression .................................... 95
Diabetes ..................................... 46, 47, 48
Dysmenorrhea ............................... 55

E
Endometriosis ............................... 56

F
Fibrocystic Breast Disease ............... 57
Fibroids, Uterine ............................ 61
Fibromyalgia .................................. 86

G
Gout ............................................. 87

H
Hemorrhoids .................................. 31
High Blood Pressure ..................... 28
Hypercholesterolemia .................... 26
Hypertension ................................ 28
Hypothyroidism ............................. 49

I
Intermittent Claudication .............. 32
Irritable Bowel Syndrome ............. 39

M
Macular Degeneration .................... 12
Memory Loss ................................ 70
Menopause ................................. 58
Menorrhagia ................................. 59
Multiple Sclerosis ......................... 71

O
Osteoarthritis ............................... 88
Osteoporosis ................................ 89
Otitis Media ................................ 15

P
Pain ............................................. 98
Panic ......................................... 94
Peptic Ulcer Disease ..................... 40
Premenstrual Syndrome ............... 60
Psoriasis ..................................... 77

S
Scleroderma ................................. 78
Seizures ..................................... 73

U
Ulcerative Colitis ......................... 41
Urinary Stones ............................. 52
Uterine Fibroids ............................ 61

V
Varicose Veins ............................. 33