



SpectraCell MicroNutrient Testing

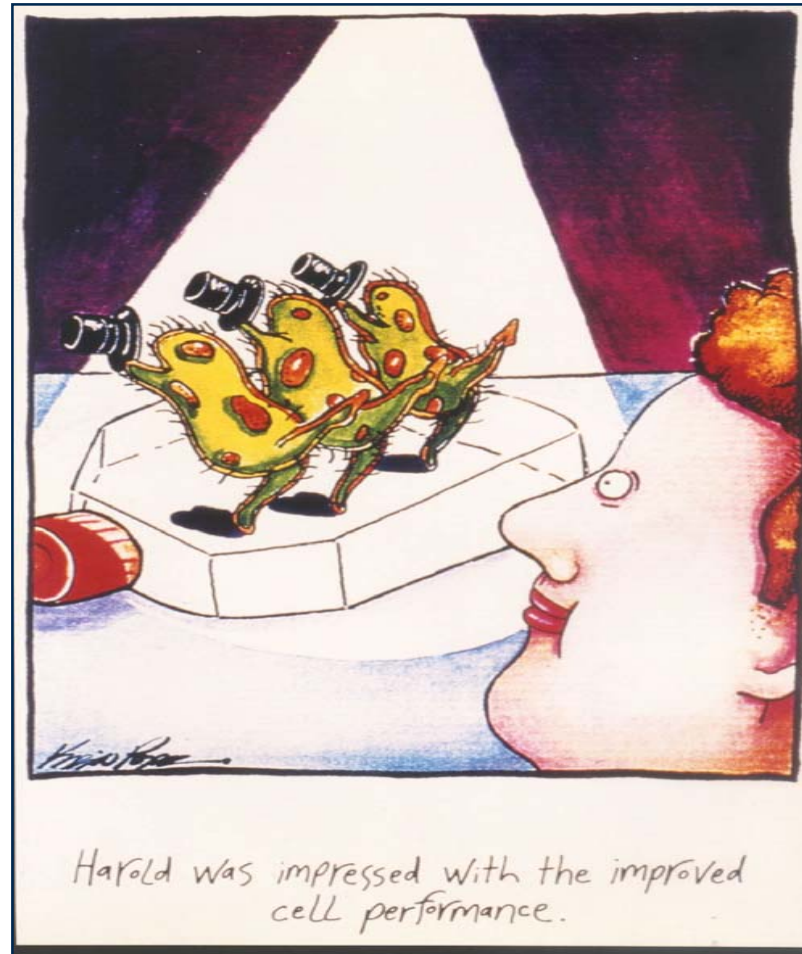


SPECTRACELL LABORATORIES
ADVANCED CLINICAL TESTING



**MicroNutrient
Testing**

SpectraCell's
MicroNutrient Test
gives an
ACCURATE
assessment of
cellular
performance.



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MicroNutrient
Testing

Overview

- **Who is SpectraCell?**
- **What is MicroNutrient Testing?**
- **How does it work?**
- **Why is it better?**
- **Billing information**



SpectraCell Laboratories

SpectraCell was established in 1993 in order to bring MicroNutrient Test technology to the medical community.

- Leader in individual nutritional testing
- CLIA certified laboratory
- Headquartered in Houston, Texas
- Own patented MicroNutrient Test



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MicroNutrient
Testing

Why the MicroNutrient Test is important...

“Because suboptimal vitamin status is associated with many chronic diseases, including cardiovascular disease, cancer and osteoporosis, it is important for physicians to identify patients with poor nutrition or other reasons for increased vitamin needs.”

Journal of American Medical Association June 19, 2002

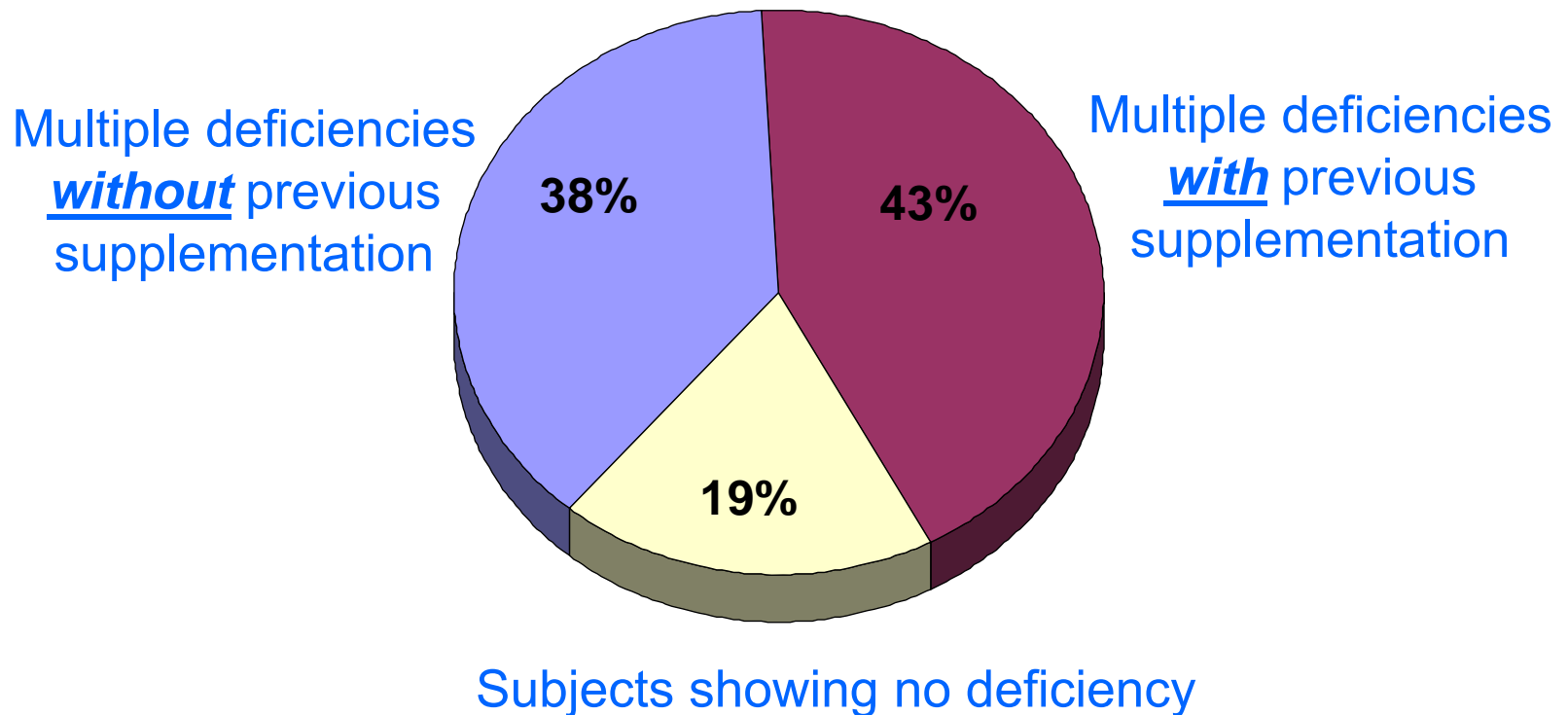


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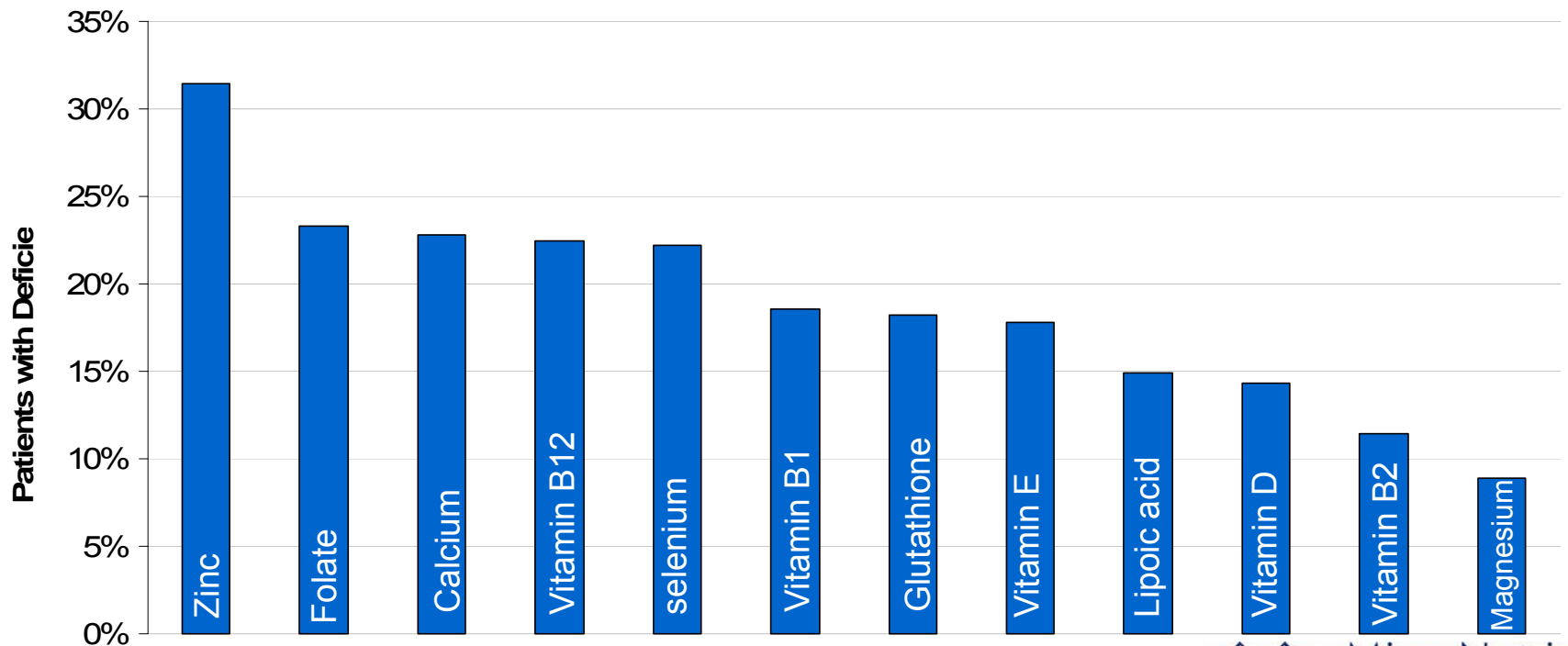
MicroNutrient
Testing

Why the MicroNutrient Test is important...



Why the MicroNutrient Test is important...

Functional Deficiencies



Why MicroNutrient Testing is important...

Many Factors affect Nutrient Status

Dietary Intake

Absorption

Transport

Storage

Receptors

Activation

Inhibition

Metabolism

Excretion

Hormonal Status

Genetic Influences

Disease

Lifestyle Factors

Pharmaceuticals

Gender

Socioeconomics

Culture/Ethnicity

Pregnancy

Exercise

Tobacco / Alcohol

Age



What does MicroNutrient Testing measure?

Intracellular status of 31 Important Micronutrients

VITAMINS

Vitamin A
Vitamin C
Vitamin D
Vitamin E
Vitamin B1
Vitamin B2
Vitamin B3
Vitamin B6
Vitamin B12
Biotin
Folate
Pantothenate

MINERALS

Calcium
Chromium
Copper
Magnesium
Selenium
Zinc

AMINO ACIDS

Asparagine
Carnitine
Glutamine
Serine

ANTIOXIDANTS

Coenzyme Q10
Glutathione
Cysteine

SPECTROX®

Total Antioxidant
Function

CARBOHYDRATE METABOLISM, FATTY ACIDS & METABOLITES

Lipoic Acid Oleic Acid
Choline Inositol
Fructose Sensitivity
Glucose/Insulin Metabolism



Why is the MicroNutrient Test better...

...than Hair Analysis?

Hair analysis is not an accurate indicator of nutritional state

- “The state of health of the body may be entirely unrelated to the physical and chemical condition of the hair”
- “There are no data that indicate that low concentrations of an element signify low tissue levels nor that high concentrations reflect high tissue stores.”

AMA Committee on Cutaneous Health and Cosmetics



Why is the MicroNutrient Test better...

...than Urine Analysis?

Urine tests only measure nutrient metabolites over a very short window, usually 24 hours

***SpectraCell's MicroNutrient Test measures
LONG-TERM nutrient status (3-6 months)***



Why is the MicroNutrient Test better...

...than Serum Analysis?

Serum testing measures nutrients levels in a very short window

The MicroNutrient Test measures LONG-TERM nutrient status over 3 – 6 MONTHS

Serum testing only measures nutrient status outside the cell in the serum

The MicroNutrient Test measures nutrient status WITHIN the patient's own cells determining ABSORPTION



Why is the MicroNutrient Test better...

...than Serum Analysis?

Serum only measures static nutrient levels, regardless of utilization

The MicroNutrient Test measures nutrient FUNCTION, a truer indication of cellular health

Serum measurements assume everyone has the same nutritional needs

The MicroNutrient Test = BIOCHEMICAL INDIVIDUALITY - the optimal nutrient level for one person may be suboptimal for another, thus accounting for differences in age, illness, medications and genetic factors.



Clinical Study



Use of MicroNutrient Testing in normalizing homocysteine in dialysis patients by directed repletion with apparent reduction of access thrombosis

- Hyperhomocysteinemia linked to deficiencies in vitamin B6, B12 & folic acid.
- Elevated homocysteine is an independent risk factor for thrombosis
- Elevated homocysteine levels are common in dialysis patients
- Access thrombosis is very common in dialysis patients

Goal: To determine if correction of *functional* nutritional deficiencies lowers homocysteine levels



Clinical Study *continued*

- 24 Total Patients
- Functional deficiencies measured using MicroNutrient Testing
- Serum deficiencies measured
- Individual repletion programs initiated and deficiencies corrected
- Homocysteine levels measured
 - Pre supplementation average homocysteine level (24.6 $\mu\text{mol/L}$)
 - Post supplementation average homocysteine level (12.8 $\mu\text{mol/L}$)



Clinical Study *continued*



Conclusion 1: Serum testing did not reveal the cellular deficiencies that SpectraCell's MicroNutrient Test revealed.

Conclusion 2: Homocysteine levels were reduced 48%. Incidence of access thrombosis was also dramatically reduced.



How does MicroNutrient Testing work?

Whole Blood is sent Overnight to SpectraCell

Specimens are delicate and must be processed within 24 hours

- Ship same day as collection
- Do NOT refrigerate
- Do NOT centrifuge

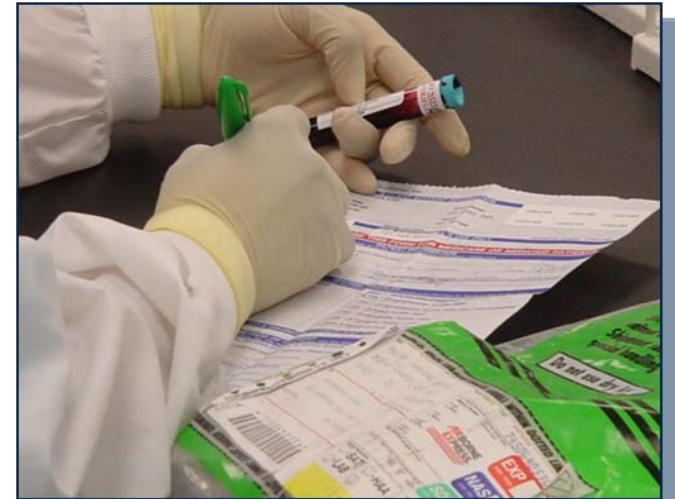


How does MicroNutrient Testing work?

Patient paperwork accompanies each specimen

Each specimen should have the following:

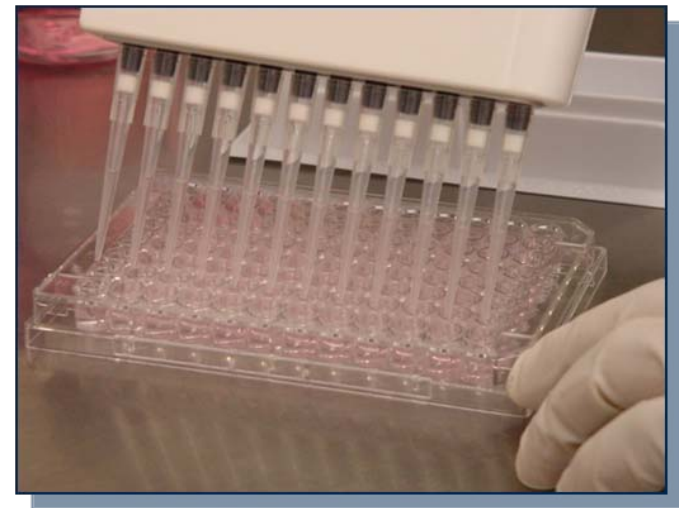
- Requisition form
- Copy of insurance card (to file claim)
- Payment (for prepay or co-pay option)
- ABN (if Medicare)



How does MicroNutrient Testing work?

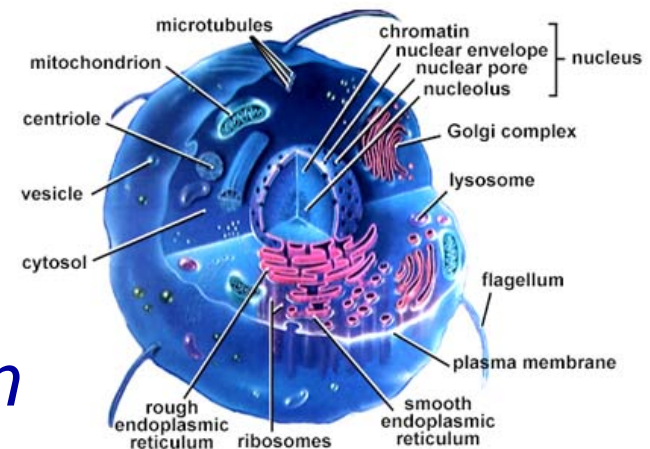
DAY 1 – Isolation of lymphocytes

- White blood cells are isolated
- Cells are introduced to a patented culture media
- Incubation and growth occurs



Why use lymphocytes?

- *Lymphocytes provide a long term nutritional marker*
- *Contain a genetic marker (nucleated cell)*
- *Closely tied with immune function*
- *Representative of overall health*



How does MicroNutrient Testing work?

DAY 2-3 – Mitogen stimulation & growth

- Control media contains minimal level of each nutrient to support optimal lymphocyte growth, or mitogenic response
(18 years research at UT-Austin for patented control media)
- Lymphocytes are introduced into several different wells
- Nutrients in cell culture are individually manipulated
- Each nutrient test is performed in triplicate
- Growth depends on intracellular reserves of nutrients



How does MicroNutrient Testing work?

DAY 4 – ^3H thymidine incorporation

- DNA from new cell growth is treated with radioactive marker (^3H)
- New cell growth is distinguished from original cells



How does MicroNutrient Testing work?

DAY 5 – Growth response measurement

- 200 growth measurements
- Deficiencies determined by differences in metabolic response (growth) when compared to control media



Test Kits

Kits are shipped to clients at no charge

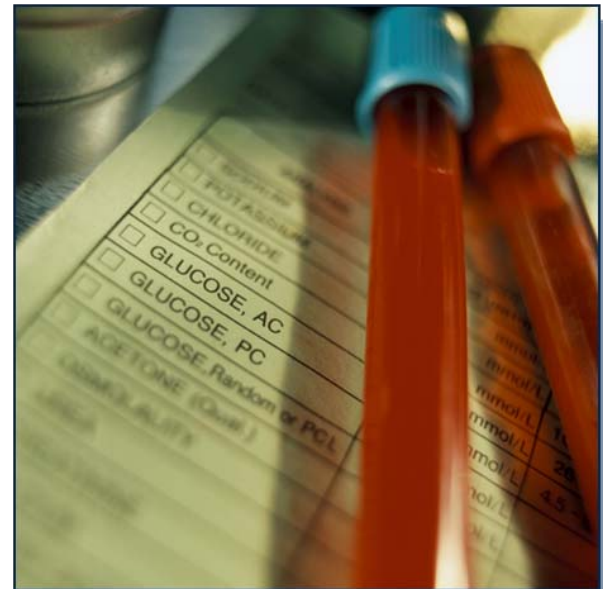
Each Kit Contains:

- Two 10 mL blue/black CPT tubes
- Pre-paid overnight shipping labels
- Shipping package
- Blood Draw instructions



Blood Draw and Shipping

- Blood is drawn in doctor's office or lab
- Samples sent overnight to SpectraCell
- No fasting is required
- Do not refrigerate
- Do not centrifuge
- Results in 2 weeks



SpectraCell's Report

- **Easy to read**
- **Comprehensive analysis**
- **Supplement recommendations**
- **Food sources for deficient nutrients**



Who Pays for the MicroNutrient Test?

- MicroNutrient Testing is covered by most PPO, EPO, POS and indemnity plans
- SpectraCell Accepts Medicare Assignment
- Medicare covers majority of assays
- SpectraCell offers Prepayment discounts and Co-pay options



Billing Information



OPTION 1 – Patient Copay with accepted insurance carriers

- *Patient pays \$110 co-pay to SpectraCell*
- *SpectraCell files insurance claim*
- *Patient's financial responsibility is met regardless of amount that insurance covers*



Billing Information



OPTION 2 – Balanced Billing

- *SpectraCell files insurance claim*
- *SpectraCell only bills patient for required deductible or co-payment*
- *Covered by most PPO, EPO, POS and indemnity insurance*



Billing Information



OPTION 3 – Prepayment Discount Policy

- *Test price = \$265*
- *Payment accompanies test specimen*
- *Doctor or patient pays test price*
- *Patient may file for insurance reimbursement*



Billing Information



OPTION 4 – Medicare

- *Many components are covered*
- *Patients may prepay for tests not covered*
- *ABN (Advanced Beneficiary Notice) must be attached to requisition for some tests.**

**See Medicare requisition for ABN requirements*



MicroNutrient Testing in your practice



Wide scope of medical applications...

Allergies

Alzheimer's

Arthritis

Autism

Cancer

Chronic Fatigue

Depression

Diabetes

HIV

Heart Disease

Hypertension

Macular Degeneration

Menopause

Obesity

Osteoporosis

Pregnancy

PMS

Sports Medicine



MicroNutrient Testing in your practice

MicroNutrient Testing is particularly useful...

Difficult Diagnoses

Depression

Fibromyalgia

Chronic Fatigue

Esoteric Symptoms

Low energy

Chronic pain

Personality changes

Weak immune system

Challenging Cases

Multiple diseases

High nutritional risk

- *HIV*

- *chemotherapy*

- *bariatric surgery*

***...Before subclinical nutrient deficiencies
become gross nutrient deficiencies***

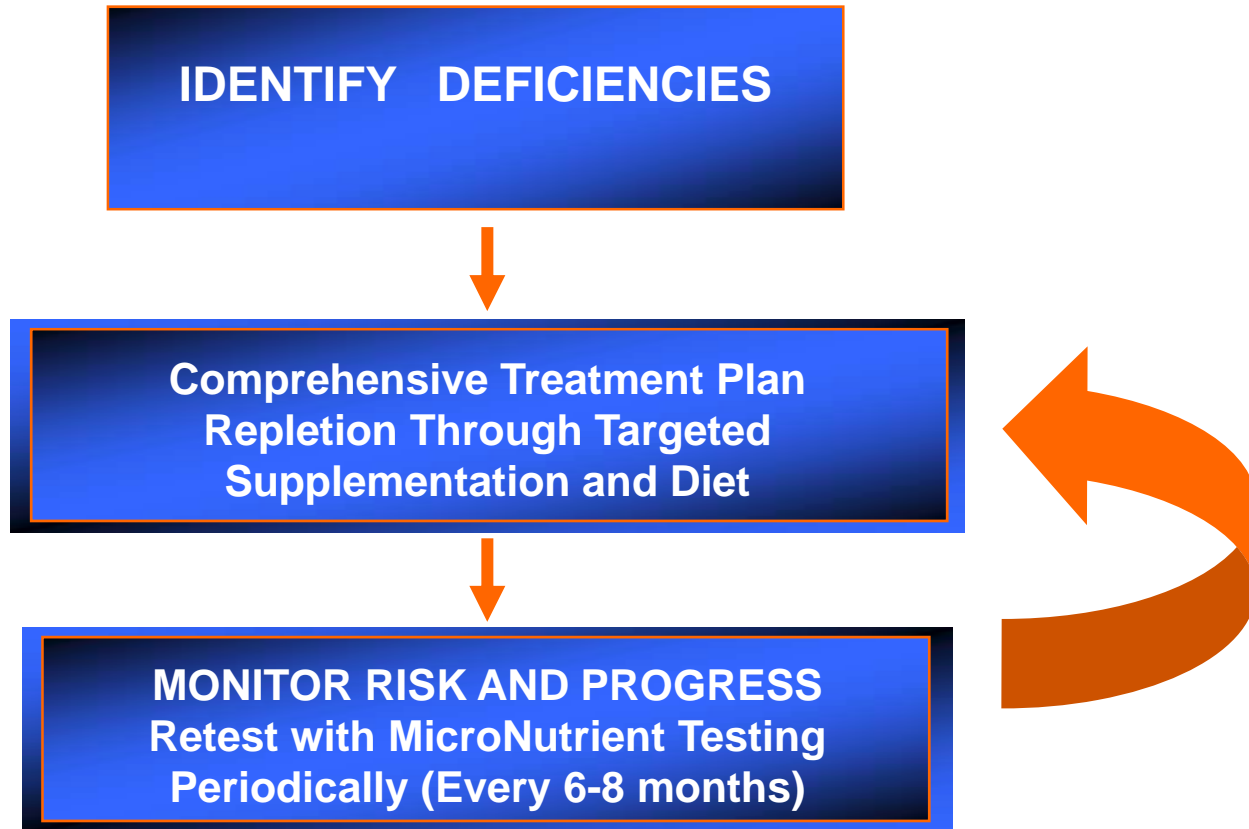


MicroNutrient Testing in your practice

Accurate nutritional assessment is important to all patients, but especially those suffering from cancer, heart disease, diabetes, osteoporosis, immune disorders, macular degeneration and those taking prescription medications.



MicroNutrient Testing in your practice



Case Study

This case demonstrates that SpectraCell's MicroNutrient Test often reveals nutrient deficiencies not otherwise revealed by other non-functional methods.

5 year old female with severe neuromuscular symptoms

- Symptoms
 - Difficulty holding head erect
 - Inability to balance with eyes closed
 - Lack of muscle tone
- Significant deficiency in B2 (riboflavin) revealed by MicroNutrient Testing
- Urinary excretion of B2 *did not uncover* deficiency
- Supplemented with 10mg B2 daily for several weeks
- Symptoms gone after repletion
 - Normal physical evaluation
 - Normal function in exercise and play



Case Study

This case confirms the ability of lymphocytes to reflect metabolic functions in other tissues (brain).

6 year old male with atypical organic brain syndrome and mild retardation (IQ = 68)

- Prescriptions: dylantin & mysoline to reduce seizures to 10 per day
- Functional deficiency in B2 (riboflavin) and glutamine
- Repletion: 25mg of B2 and 2g of glutamine per day
- Results
 - 10 weeks: Seizures changed to psychomotor and petit mal seizures
 - 16 weeks: No seizures reported



Case Study

This case illustrates how taking a multivitamin does not prevent nutrient deficiencies.

54 year old female with diabetic neuropathy

- Prescribed neurontin and amitriptyline for neuropathy
- Despite drugs, symptoms (burning & intermittent numbness) were increasing in severity
- SpectraCell results showed functional deficiency in vitamin B12 and choline (*Note: patient had been taking multivitamin prior to test*)
- Follow up showed deficiencies were corrected
- 1 ½ years after initial MicroNutrient Testing
 - symptoms gone
 - clinical examination showed marked improvement
 - neurontin and amitriptyline were discontinued per physician
- Follow up test done every 3 months to monitor nutritional status



What our clients have to say...



“SpectraCell offers a unique, scientifically based nutrient evaluation of specific deficiencies that allow targeted treatment with nutritional supplements. Patient and physician recognition of this valid testing will improve patient compliance, allow for tailored therapy and reduce numerous diseases.”

Dr. Mark Houston, M.D., M.S., SCH, ABAAM, FACP, FAHA
Hypertension Institute, St. Thomas Medical Center
Nashville, TN



What our clients have to say...



“In order to help my patients navigate the tumultuous seas of antioxidant supplementation, I have relied upon the Spectrox™ blood test for the better part of the last decade.”

Dr. Seth Baum, M.D.
Cardiologist
Boca Raton, FL



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What our clients have to say...



“As we all know, multiple supplements can be as overwhelming as prescription drugs and just as costly. I use the information from SpectraCell’s MicroNutrient Test to determine which of these would be the first line choices for that particular patient and their current situation.”

Dr. Diane Schwarzbein, M.D.
Endocrinology Institute of Santa Barbara
Santa Barbara, CA



SPECTRACELL LABORATORIES
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**MicroNutrient
Testing**



**SpectraCell's MicroNutrient
Test is an excellent diagnostic
tool, giving a true window to
intracellular health.**

