10 Analysis of Multiple Analyte Patterns

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Among the endless potential analyte patterns found on Metametrix profiles, several are frequently encountered and have high clinical relevance. The text on the following pages gives a thumbnail outline of some conditions indicated by specific abnormality patterns. Frequently-used treatments are shown and some other tests that can provide confirmatory evidence are listed.

For further explanation of the rationales and scientific evidence regarding the association of specific analytes with each abnormality, see *Laboratory Evaluations for Integrative and Functional Medicine* by Richard S. Lord and J. Alexander Bralley (2008).

Doses specified under "Treatments" are usually considered to be adequate for repletion of adults.

B-Complex Vitamin Insufficiency

- Metametrix Profiles and Patterns:
  - » Organic Acids
    - Concurrent elevations of all five keto acids
      - Pyruvate
      - α-Ketoglutarate
      - α-Ketoisocaproate
      - α-Ketoisovalerate
      - α-Keto-β-methylvalerate
- Other Tests to Consider (Significant Findings):
  - » Adrenal Stress Panel (Low cortisol/DHEA)
- Treatments:
  - » B-complex vitamin formula

Niacin Insufficiency

- Metametrix Profiles and Patterns:
  - » Organic Acids
    - Pyruvate—High
    - Lactate—Low
    - Picolinate—Low
  - » Fatty Acids
    - Fatty Acids—High
- Other Tests to Consider (Significant Findings):
  - » Cardio profile (Hypertriglyceridemia)
- Treatments:
  - » Niacin, 50–3000 mg

Vitamin B_6 Insufficiency

- Metametrix Profiles and Patterns:
  - » Organic Acids
    - Xanthurenate—High
    - Kynurenate—High
  - » Amino Acids
    - Multiple essential amino acids—High (esp. leucine, isoleucine, valine, phenylalanine, tryptophan or glutamine)
  - » Homocysteine—High
- Other Tests to Consider (Significant Findings):
  - » RBC Essential Elements (Low RBC magnesium)
- Treatments:
  - » Pyridoxine HCl, 50–200 mg/d

Vitamin B_{12}/Folate Insufficiency

- Metametrix Profiles and Patterns:
  - » Amino Acids
    - Homocysteine—High
    - Phosphoethanolamine—High
  - » Organic Acids (Confirmatory)
    - Methylmalonate—High
    - Formiminoglutamate—High
- Other Tests to Consider (Significant Findings):
  - » GIfx (dysbiosis and/or malabsorption; elevated anti gliadin antibodies)
- Treatments:
  - » Vitamin B_{12}, 1000–5000 µg/d
  - » Folic acid, 400–800 µg/d

Lipoic Acid Insufficiency

- Metametrix Profiles and Patterns:
  - » Organic Acids
    - Concurrent elevation of pyruvate and lactate
- Treatments:
  - » α-Lipoic acid, 100–1800 mg/d

Tetrahydrobiopterin (BH_4) Insufficiency

- Metametrix Profiles and Patterns:
  - » Amino Acids
    - Phenylalanine—High and Tyrosine—Low
  - » Organic Acids
    - VMA, HVA and 5-HIAA—Low
- Other Tests to Consider (Significant Findings):
  - » Neopterin & Biopterin (Various patterns—refer to chapter 2 in *Laboratory Evaluations for Integrative and Functional Medicine*)
- Treatments:
  - » Folate up to 10,000 µg/d
  - » BH_4 (Sapropterin), 10–20 mg/kg/d
  - » L-Tyrosine, 500–1500 mg/d