TACA
THE AUTISM COMMUNITY in ACTION

BEGINNING LAB TESTING

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lab testing article

Our kids may look healthy on the outside, but only lab work can tell us how the body is really functioning. Therefore, most parents start by getting baseline testing through their pediatrician. If your pediatrician will not run these labs, your functional medicine doctor will.

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Lab Testing Basics

- The list below is simply an overview of labs to get started.
- The majority of these labs should be covered by your health insurance.
    - Please note that your doctor must put the correct code for insurance to cover the cost.
    - "Autism" is not a reason that insurance will accept.
    - For correct coding, explain your child's symptoms to the doctor and tie those symptoms to the lab request.
    - For example, "My child is getting ill often; therefore, I would appreciate immune dysfunction lab work."
- You cannot get all this bloodwork done at once. It will need to be spread out among different appointments.
- Pay attention to which labs require fasting.
- Make sure your child is well hydrated.

Basic Biomarkers

☐ **CBC**

- This measures several parts and features of the blood.
- Low white blood cell count indicates viral infections.
- High platelet count suggests inflammation.
- High eosinophil count suggests allergies and/or parasites.

☐ **Comprehensive Metabolic Panel (CMP)**

- Must be fasting.
- Tells us how the body is using food and energy and also shows liver function.
- Check AST/ALT ratio. Ratio greater than 2 indicates mitochondrial dysfunction.
    - See other lab work below to check for mitochondrial dysfunction

☐ **Thyroid**

- Hypothyroidism causes developmental delay and attention problems.
- Be sure the test TSH, Free T3, Free T4, Reverse T3 and antibodies.

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Immune Dysfunction Lab Testing

☐ **Sed rate (ESR) and C-Reactive Protein (CRP)**

- These are inflammation markers.
- Inflammation is linked to autism, and PANS & PANDAS.

☐ **Immune Panel**

- This includes IgG and subclasses, IgA, IgM.
- This is extremely important if your child gets sick often.

☐ **Food Allergy panel**

- This is IgE classic allergy testing. It does not show food sensitivities.
- Allergies cause inflammation.

☐ **Antinuclear antibodies (ANA)**

- Detects autoimmunity.

☐ **ASO / AntiDNAse B**

- These are strep antibody tests that show previous exposure to strep infection.

Nutritional Deficiency Lab Testing

☐ **Total Cholesterol**

- This is a fasting test.
- Low total cholesterol (under 145) can lead to depression and aggression.
- Individuals with autism are nearly twice as likely to have abnormal lipid tests results as those without autism.

☐ **Vitamin D**

- Low Vitamin D causes immune dysfunction, depression, sleep problems and more.
- A 2020 study of 1529 patients with autism showed that approximately 95% of them had Vitamin D deficiency.
- Most functional medicine practitioners like this level to be 50-80.

☐ **Iron Panel Including Ferritin (Iron Storage)**

- Low iron causes sleep problems, developmental delay, and pica.
- Studies show that kids with autism have lower than normal iron levels.

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☐ **Zinc and Copper**

- Low zinc (and high copper) is often found in kids with autism.
- Low zinc causes picky eating and developmental delay.
- Run copper and zinc together because they should have a 1:1 ratio.
- Zinc and copper are like a see saw. When one goes up, the other goes down.

☐ **Carnitine Panel**

- Low carnitine is an indication of mitochondrial dysfunction.

☐ **Magnesium level**

- Deficiency is associated with hyperactivity
- Order RBC magnesium level if possible. This tells you how much magnesium is in the red blood cells.

☐ **Chromium Level**

- Deficiency is associated with pica.

Metal Toxicity Lab Testing

☐ **Blood testing for Lead Exposure**

- Lead exposure causes developmental delay.

☐ **Blood testing for Arsenic Exposure**

- This can be found in baby food, juices, rice, chicken, and older decking.

Mitochondrial Dysfunction Lab Testing

☐ **Plasma Lactate**

- Elevated lactate is a marker of mito dysfunction

☐ **Plasma Amino Acids**

- Must be fasting
- Alanine >450 is a marker of mito dysfunction
- Alanine / lysine > 2.5 is a marker of mito dysfunction
- Elevated pyruvate is a marker of mito dysfunction
- Elevated Glutamic acid can be an indicator of too much glutamate

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☐ **Urine organic acids (Quantitative)**

- Abnormal urinary OAT: Elevated Krebs Cycle metabolites are a marker of mito dysfunction

☐ **Plasma Acylcarnitine panel (Quantitative)**

- 3 or more elevations are a marker of mito dysfunction

☐ **Free and total Carnitine**

- Low Carnitine (free and/or total) is a marker of mito dysfunction

☐ **Plasma Ammonia**

- Elevated Ammonia (>40 ug/dl) is a marker of mito dysfunction

☐ **Creatine Kinase**

- Elevated Creatine Kinase (>150 U/L) is a marker of mito dysfunction

☐ **Glucose**

- Must be fasting
- Low fasting glucose is a marker of mito dysfunction

☐ **Mitoswab**

- The Mitoswab is a cheek swab that needs a doctor's signature.
- You may only be able to obtain this through a functional medicine doctor.
- You can obtain a kit from the Mitoswab website.