

Why am I being tested?

Due to an existing medical condition (diabetes, symptoms, or a discovery during your physical exam), your doctor has decided to check your Autonomic Nervous System (ANS).

The ANS is responsible for the function of your involuntary motor functions involving your heart, lungs, eyes, gastrointestinal, and reproductive systems. Testing of the ANS has been recommended routinely for diabetics on an annual basis by the American Diabetes Association.

What is the Autonomic Nervous System?

The Autonomic Nervous System works in the background, involuntarily, to regulate your critical body systems such as blood pressure, digestive movement and release of digestive enzymes, hormone release, temperature regulation, bladder control and heart rhythm/contraction.

A healthy ANS is constantly reacting, in fractions of a second, to changes in emotional state (fear, relations, surprise) and physical activity or stimulus. This 'reacting' normally lessens with age and sometimes prematurely with medical conditions like diabetes or other medical conditions.

Terms you may also hear today?

Autonomic Nervous System Dysfunction: An impairment in the nerves that control involuntary muscle systems and some glands.

Diabetic Neuropathy: Neuropathy caused by diabetes mellitus. Typically associated with extended hyperglycemia.

Gastroparesis: A condition by which food is slowed or delayed moving through the gastrointestinal tract (stomach and small intestine).

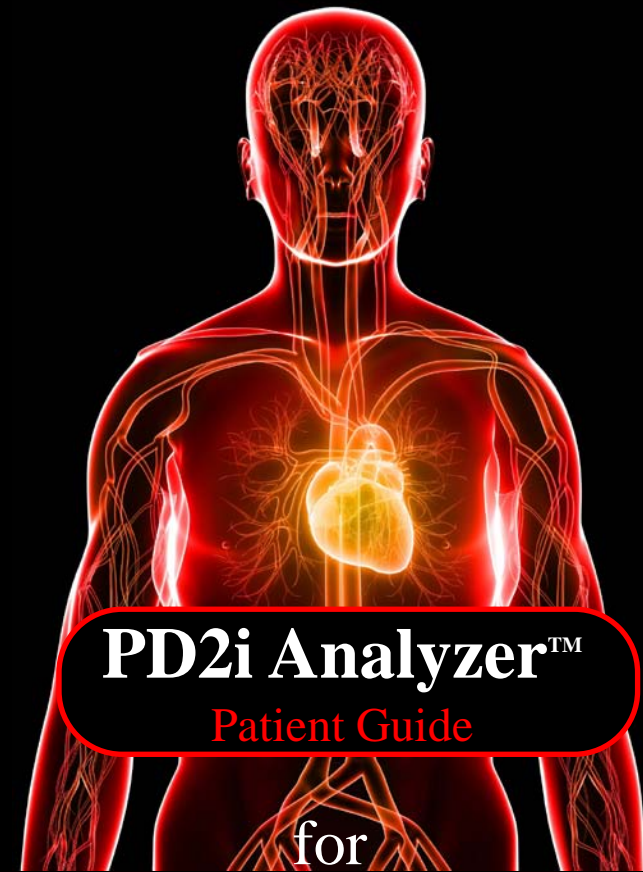
Hyperglycemia: A condition in which excessive amount of glucose (or sugar) circulates in the blood. Chronic levels can cause nerve or organ damage.

Hypoglycemia: A condition in which lower than normal glucose (or sugar) levels exist. Warning signs include sweating, tremor, or rapid heart rate.

Neuropathy: Damage to the nerves which is caused by diseases or side-effects of a systemic illness.



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Autonomic Nervous System Testing



What are some symptoms for Autonomic System Dysfunction?

The following is a list of symptoms that may be due to Autonomic Nervous System (ANS) malfunctions or Dysfunction. If you have experienced any of these, please discuss these with your doctor to determine if these are related to your ANS and the best course of diagnosis and treatment.

- ✓ Chest pain, or rapid heart rate
- ✓ Nausea, heartburn, or vomiting
- ✓ Weight loss
- ✓ Bloating
- ✓ Constipation or diarrhea
- ✓ Shortness of breath
- ✓ Unusual fatigue
- ✓ Sweating
- ✓ Tremors
- ✓ Dizziness or fainting
- ✓ Changes in your vision
- ✓ Sexual dysfunction
- ✓ Incontinence, uncontrolled urine flow

Please note, autonomic dysfunction is not the same as peripheral neuropathy which involves the sensory motor nerves of your arms and legs. Both may be related to diabetes. Peripheral neuropathy should be addressed separately.

What should I expect while being tested?



There are 4 stages to the PD2i® Test. These are simple tests that you have probably had done before – an EKG, Blood Pressure, and Spirometry.

The PD2i Analyzer™ gathers data of your heart's responses as it changes or how your ANS reacts. Your results are compared to other people about your age and sex.

The 4 stages are:

1. **Resting EKG** – You will sit quietly for 12 minutes while the PD2i Analyzer™ records your heart beats.
2. **Timed Breathing** – You will be asked to slowly inhale and exhale for 1 minute.
3. **Forced Exhalation** – You will be asked to blow out at a fixed pressure for 15 seconds.
4. **Posture Change**– You will be asked to rise from a sitting to a standing position for 2 minutes.

What do my results mean to me?

Your doctor will use these results with your other clinical information to determine the best diagnosis and treatment plan for you.

Autonomic Nervous System Dysfunction can be managed, if present. Discuss your options with your doctor. These may include:

- Weight loss
- Exercise
- Blood pressure reduction
- Hypoglycemic concerns
- Medications
- Glucose control

If you are undergoing anesthesia for any reason, it is important for the anesthesiologist to be aware of the presence of an ANS dysfunction, as it will help manage your surgery.

Knowing the status of your ANS may assist your physician in diagnosing the cause of any future symptoms that you may experience such as dizziness, palpitations, fatigue, bloating or irregularity or sexual dysfunction.

The American Diabetes Association recommends an annual Autonomic Nervous System test to monitor the effects of diabetes.