

**LABORATORY TESTING NECESSITY**  
**FOR DIAGNOSIS AND TREATMENT OF IPS**

Science marches on. Specific laboratory tests are required to diagnose and properly treat IPS.

- FACTS:**
- 1. Untreated or undertreated IPS will show abnormalities in some of the laboratory tests listed here, because constant pain changes hormone and neurotransmitter metabolism. Simple chronic pain and opioid addiction will not show significant abnormalities.**
  - 2. Abnormalities in the laboratory tests listed here must be corrected by specific treatment measures to obtain relief and recovery.**

<u>TESTS</u>	<u>SIGNIFICANCE</u>
<b><u>DIABETES SCREENING</u></b>	
<b>Glucose, Hemoglobin A1C</b>	Insulin and glucose metabolism are altered by IIPS. High glucose hemoglobin A1C indicates a diabetic or pre-diabetic state. Metformin is, for example, highly effective medication for many IPS patients.
<b><u>INFLAMMATORY MARKERS</u></b>	
<b>C-Reactive Protein (CRP), Erythrocyte Sedimentation Rate (ESR), Cytokine Panel (Leukotrienes, Tumor Necrosis Factor)</b>	Inflammation in the brain and spinal cord is a major factor in IPS. Elevated blood markers call for aggressive treatment.
<b><u>HORMONES</u></b>	
<b>Cortisol, DHEA, Pregnenolone, Testosterone</b>  <b>(Pregnenolone makes cortisol and progesterone.) (DHEA makes estradiol and testosterone.)</b>	A basic hormone panel requires the four hormones listed here. Low levels call for supplementation as these four are necessary for suppression of inflammation in the brain and spinal cord as well as regrowth of damaged neurologic tissue. DHEA and pregnenolone make other hormones.
<b><u>NEUROTRANSMITTERS &amp; PRECURSORS</u></b>	
<b>Dopamine, Tyrosine, Serotonin, Tryptophan, Gaba Aminobutyric Acid (GABA), Taurine, Glutamine</b>	This is the newest scientific and clinical advance in laboratory testing. Adequate levels of neurotransmitters are necessary for pain control. This concept is so important that Life Extension makes a panel available as part of the self-help movement.

The four categories of laboratory tests listed above should ideally be done as a baseline evaluation to diagnose IPS and develop a treatment plan. These tests should be repeated periodically such as bi-yearly. Also, any person with IPS or a disease known to produce IPS such as adhesive arachnoiditis, Ehlers-Danlos Syndrome, and RSD/CRPS who is doing poorly, should have these tests to determine the measures that need to be done.

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 336-338 S. Glendora Ave., West Covina, CA 91790-3043 phone: 626-919-7476 Fax: 626-919-7497  
 E-mail: [veractinc@msn.com](mailto:veractinc@msn.com) [www.arachnoiditishope.com](http://www.arachnoiditishope.com) [www.intractablepainsyndrome.com](http://www.intractablepainsyndrome.com)

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