Intestinal Permeability

sample type: **URINE**

The **Intestinal Permeability Assessment** is a powerful and noninvasive assessment of small intestinal absorption and barrier function in the bowel. The small intestine uniquely functions as a digestive/absorptive organ for nutrients as well as a powerful immune and mechanical barrier against excessive absorption of bacteria, food antigens, and other macromolecules. Both malabsorption and increased intestinal permeability ("leaky gut") are associated with chronic gastrointestinal imbalances as well as many systemic disorders.

Increased permeability of the small intestine can:

- Increase the number of foreign compounds entering the bloodstream.
- Allow bacterial antigens capable of cross-reacting with host tissue to enter the bloodstream, leading to auto-immune processes.
- Enhance the uptake of toxic compounds that can overwhelm the hepatic detoxification system and lead to an overly sensitized immune system.

Increased gut permeability has been observed in a range of disorders such as:

- Inflammatory Bowel Disease (IBD)
- Food allergy
- Inflammatory joint disease
- Chronic dermatologic conditions

Studies have demonstrated that the increased permeability observed in patients with ankylosing spondylitis, rheumatoid arthritis, and vasculitis may be an important factor in the pathogenesis of these disorders.

Decreased permeability, on the other hand, appears as a fundamental cause of malabsorption, subsequent malnutrition, and failure to thrive. In certain disease states of the small intestine, such as gluten-sensitive enteropathy, permeability to large molecules may increase while permeability to small molecules decreases, a result of damage to the microvilli. As a result, nutrients become even less available to assist in the detoxification of antigens flooding the system.

Possible causes of intestinal permeability include:

- Intestinal infection
- Ingestion of allergenic foods or toxic chemicals
- Deficient secretory IgA
- Trauma and endotoxemia
- NSAIDs

Testing Procedure:

The **Intestinal Permeability Assessment** directly measures the ability of two non-metabolized sugar molecules to permeate the intestinal mucosa.

The patient drinks a premeasured amount of **lactulose** and **mannitol**. The degree of intestinal permeability or malabsorption is reflected in the levels of the two sugars recovered in a urine sample collected over the next 6 hours.

- ***Analytes:***
  A measurement of urinary clearance of the challenge substances lactulose and mannitol, and lactulose/mannitol ratio
- ***Specimen Requirements:***
  15cc urine (before drink), 15cc aliquot of 6-hour urine (after drink)
- ***Before Patient Takes this Test:***
  – Make sure fasting glucose level is not high
  – Inform practitioner about medication use
  – Do not eat or drink anything for 8 hours
  – See instructions inside test kit for details

Genova Diagnostics®
Innovative Testing for Optimal Health

Intestinal Permeability

63 Zillicoa Street
Asheville, NC 28801
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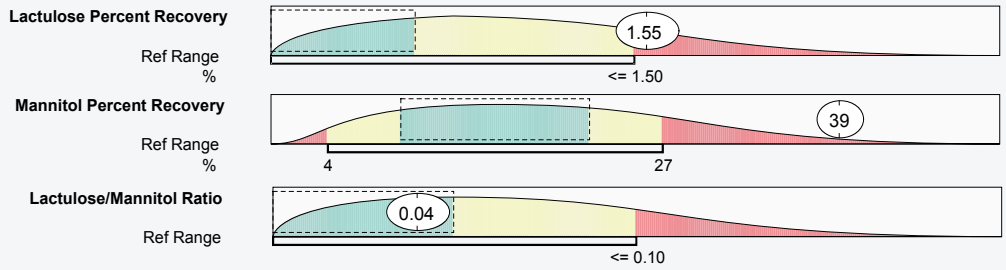
Patient: **SAMPLE PATIENT**
Age: 39
Sex: M
MRN:

Order Number:
Completed: April 14, 2004
Received: April 14, 2004
Collected: April 14, 2004

SAMPLE REPORT

Intestinal Permeability



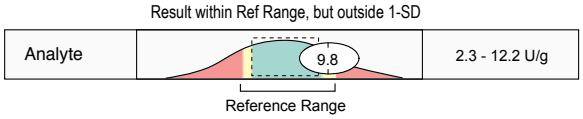
Commentary

The patient result for the "Before-Drink" sample was below the detection limit of the assay, (<0.08 mmol/L). Therefore, for the purpose of calculating the % recovery of mannitol post challenge a value of 0.079 was used as the "Before-Drink" value of mannitol for the calculation.

This test has been developed and its performance characteristics determined by GSDL, Inc. It has not been cleared or approved by the U.S. Food and Drug Administration.

The **Reference Range** is a statistical interval representing 95% or 2 Standard Deviations (2 S.D.) of the reference population.

One Standard Deviation (1 S.D.) is a statistical interval representing 68% of the reference population. Values between 1 and 2 S.D. are not necessarily abnormal. Clinical correlation is suggested. (See example below)



Commentary is provided to the practitioner for educational purposes, and should not be interpreted as diagnostic or treatment recommendations. Diagnosis and treatment decisions are the responsibility of the practitioner.

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This test reveals important clinical information about:

- ***Chronic "leaky gut"*** *that can lead to increased gut antigen exposure associated with food allergies and autoimmune disorders such as rheumatoid arthritis, ankylosing spondylitis, thyroid disease, and myasthenia gravis*
- ***Impaired permeability*** *associated with bacterial translocation and increased detoxification burden*
- ***Malabsorption,*** *leading to depletion of nutrients*
- ***Damage to gut barrier function*** *triggered by chronic inflammation, dysbiosis, NSAID use, alcohol, food allergy, or oxidative stress*
- ***The potential for relapse*** *in patients with Crohns disease or ulcerative colitis who are asymptomatic and in remission*

For test kits, clinical support, or more information contact:

Client Services
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Asheville, NC 28801-1074
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More detailed publications with references are also available: www.GDX.net

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