



Intestinal Permeability (Urine)

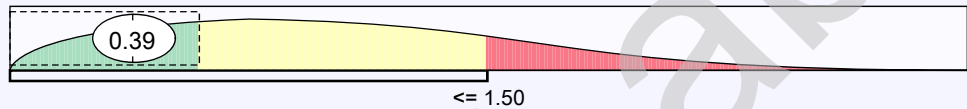


63 Zillico Street
Asheville, NC 28801
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Intestinal Permeability

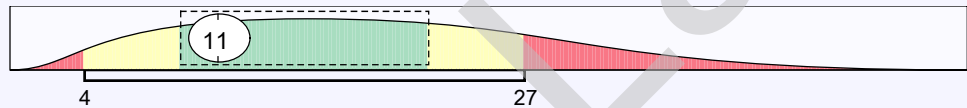
Lactulose Percent Recovery

Ref Range
%



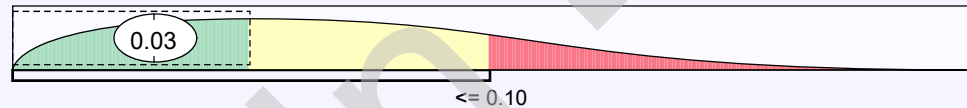
Mannitol Percent Recovery

Ref Range
%



Lactulose/Mannitol Ratio

Ref Range



Commentary

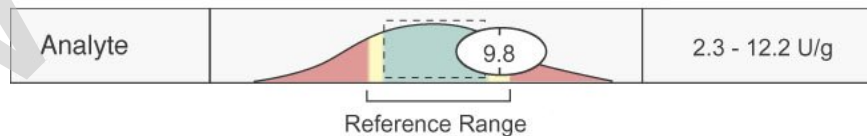
This test has been developed and its performance characteristics determined by Genova Diagnostics, Inc. It has not been cleared by the U.S. Food and Drug Administration.

Methodology: Enzymatic

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)

Result within Ref Range, but outside 1-SD



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

GENERAL CONSIDERATIONS FOR INTESTINAL PERMEABILITY TESTING

Intestinal permeability is the normal, stable, and transient level of exchange that happens between the gut lumen and the host. Impaired intestinal permeability involves compromise of the gut barrier resulting in a loss of intestinal homeostasis, functional impairments, and disease. Increased permeability can lead to the passage of foreign

Commentary

compounds entering the bloodstream, including bacterial and food antigens. Genova's Intestinal Permeability Assessment measures urine levels of the non-metabolized sugars lactulose and mannitol to determine the degree of intestinal permeability or malabsorption.

LACTULOSE PERCENT RECOVERY

Lactulose is a synthetic disaccharide. The percent recovery is a calculation of the change between the pre-drink lactulose level and post-drink lactulose level. There should be very little change in lactulose recovery, since it is a larger molecule that should not be absorbed through a healthy intestinal barrier.

- An elevated lactulose may indicate increased intestinal permeability between the cells (paracellular permeability).

MANNITOL PERCENT RECOVERY

Mannitol is monosaccharide that is a smaller molecule as compared to lactulose. The percent recovery is a calculation of the change between the pre-drink mannitol level and post-drink mannitol level. Some mannitol would be expected to be absorbed through the intestinal epithelial cells, as this represents healthy absorption.

- An elevated mannitol may indicate increased intestinal permeability through the cells (transcellular permeability).
- A low mannitol indicates decreased transcellular permeability and intestinal malabsorption.

LACTULOSE/MANNITOL RATIO

The lactulose/mannitol ratio is utilized in the literature to determine increased intestinal permeability. Normally, this ratio should be lower, indicating a healthy level of permeability.

- An elevated lactulose/mannitol ratio indicates increased intestinal permeability.