



The most complete line of endocrine testing

Bone Resorption Assessment

Bone Resorption Assessment provides an accurate assessment of the rate of bone turnover in an individual. Testing allows the practitioner to identify those more likely to develop osteoporosis, to intervene before significant loss has occurred, and to monitor the efficacy of treatment regimens.

Osteoporosis:

- Leads to 1.5 million fractures per year
- Affects more than 50% of healthy American women aged 30-40 who are likely to develop vertebral fractures as they age
- It is important to identify individuals currently losing bone at an accelerated rate so that effective treatment can begin before significant bone loss has occurred.

Advantages of Urinary Bone Resorption Testing:

- Biochemical markers are convenient and inexpensive dynamic measures of bone turnover.
- Biomechanical markers provide immediate information on the rate of bone loss, thus helping to predict future losses.
- Static markers of bone mass, such as photon absorptiometry (bone scans), help to diagnose osteoporosis by establishing the amount of bone that has already been lost. They do not provide data on the rate of loss.
- Bone scans, unlike biochemical markers, are inconvenient for regular monitoring of therapies due to invasiveness and expense.

Measuring Bone Resorption:

Pyridinium crosslinks are stabilizers of collagen molecules. Bone collagen contains both pyridinoline (PYD), which is reflective of collagen loss of all types, and its component deoxypyridinoline (DPD), which specifically reflects bone collagen.

Presence in the urine of higher than normal amounts of PYD and DPD indicate a rapid rate of bone loss.

Crosslink excretion is greatly increased in patients with osteoporosis, as well as in a number of other conditions. These include Paget's disease, primary hyperparathyroidism and osteomalacia. Measurement of PYD crosslinks has also proven useful in arthritic diseases, connective tissue disorders, cancer metastasis and alcoholic bone disease.

• **Analytes:**

Urinary pyridinium crosslinks
(PYD +DPD)
deoxypyridinoline

• **Specimen Requirement:**

15ml of first morning urine

• **Before Patient Takes this Test:**

- No special preparation required
- See instructions inside test kit for urine collection



Genova
Diagnostics®

Improving Healthcare for Chronic Disease



Bone Resorption Assessment

Patient: **SAMPLE**
PATIENT

Order Number:

Age: 50

Completed:

Sex: F

Received:

MRN:

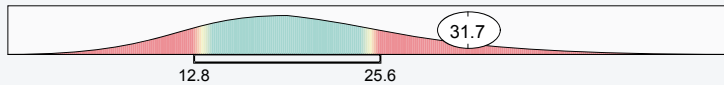
Collected:

SAMPLE REPORT

Chemistry Parameters

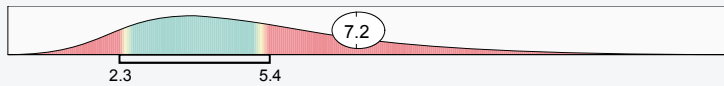
Pyridinium Crosslinks/Creatinine

Ref Range
nmol/mmol



Deoxypyridinoline/Creatinine

Ref Range
nmol/mmol



Commentary

Pyridinium crosslinks consist of both pyridinoline and deoxypyridinoline. Deoxypyridinoline is found predominantly in bone tissue, whereas pyridinoline is found in both bone and cartilage. Pyridinium crosslinks are released when bone is broken down (or resorbed). While not diagnostic of osteoporosis, these markers may be used to monitor bone resorption status and therefore are a useful gauge of treatment efficacy.

The level of pyridinium crosslinks is elevated. Abnormally high pyridinium crosslinks in urine suggest increased cartilage, connective tissue, and/or bone resorption. For example, pyridinoline might be elevated secondary to rheumatoid arthritis, lupus and other connective tissue disorders, osteoarthritis, or chronic alcohol ingestion. Similarly, periods of rapid growth or repair of connective tissue (adolescence post-trauma) lead to high levels.

The level of deoxypyridinoline (DPD) is elevated, indicating an increased rate of bone loss. In individuals with no underlying bone disease, this is an important marker in the development of osteoporosis. Elevations of DPD may also suggest a recent fracture, or a rapid state of bone development as is found in adolescence. A healthy diet high in calcium and other trace elements, adequate vitamin D and K, and regular exercise have been proven to decrease the rate of bone resorption and contribute to building of bone.

© Genova Diagnostics · CLIA Lic. #34D0655571 · Medicare Lic. #34-8475

This test reveals important information about:

- **Bone turnover rate**, which can indicate a need for preventive and early treatment strategies to help avoid development of osteoporosis and disabling fractures
- **Effectiveness of interventions**, based on post-treatment changes in biochemical markers
- **Possible need for further evaluation of other bone-loss related conditions**, such as Paget's disease, connective tissue disease, osteomalacia, and arthritis

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

Client Services

Genova Diagnostics

63 Zillicoa St.

Asheville, NC 28801-1074

800-522-4762 • Fax: 828-252-9303

More detailed publications with references are also available: www.GDX.net