

OXIDATIVE STRESS

FREE RADICAL
OXIDATIVE STRESS
TEST

Instruction
Manual

Diagnox

SUMMARY

The Diagnox Oxidative Stress Test checks the concentration of free radicals by measuring malondialdehyde (MDA) levels in urine. MDA is a key by-product of lipid peroxidation, which occurs when free radicals attack cell membranes, causing oxidative damage. Monitoring MDA levels can help you gain insights into your body's oxidative stress, which is linked to aging, lifestyle factors, and various health conditions.

Oxidative stress plays a role in aging and conditions like cardiovascular diseases, cancer, diabetes, and neurodegenerative disorders^{1,2}. Measuring MDA in urine provides a snapshot of oxidative balance, enabling better health management and encouraging proactive steps for a healthier lifestyle.

INTENDED USE

The Diagnox® Oxidative Stress Test is intended for semi-quantitative measurement of MDA levels in human urine. This product is for general wellness monitoring and is not intended for diagnosing, treating, curing, or preventing any disease.

TEST PRINCIPLE

The test is based on a chemical reaction between MDA in urine and a reagent on the strip's test pad. This reaction produces a color change, which is visually compared to the included color chart to estimate MDA levels. This rapid test delivers results in just 3 minutes. Scientific data indicates that urine MDA levels correlate with free radical concentration in the body and are indicative of oxidative stress.

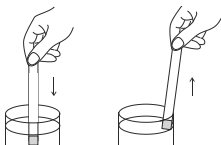
DIRECTIONS FOR USE

Remove the strip from the bottle for immediate use and replace the cap tightly.

(If the strip has been left out of the bottle for 20 minutes or more, take a new test strip. Do not touch the test pad.)

Step 1

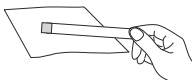
IMMERSE



Soak the reagent pad in freshly caught, well-mixed urine for no more than 1 second.

Step 2

WAIT



Tap excess urine off the test pad on a paper towel or a tissue and wait for 3 minutes for the reaction to complete.

Step 3

COMPARE



Three minutes after exposure to urine, compare the test pad's color to the color chart on the bottle to find the closest color match to interpret your test results. Correctly dispose of the analyzed strips as medical waste.

Note: The color of the test pad might continue to change after 4 minutes. Any color changes after this should be ignored.

WHAT DO THE RESULTS IMPLY?

RESULTS	INTERPRETATION
Normal	Indicates a balanced oxidative and antioxidant state.
Caution	Suggests elevated oxidative stress; consider lifestyle improvements.
High	Indicates significant oxidative stress; may warrant further evaluation.
Severe	Suggests severe oxidative damage. Chronically elevated levels of MDA signify a high likelihood of rapid aging or the development of various diseases. Consult a healthcare professional if concerned.

STORAGE & HANDLING

- Store in a dry place at 2-30°C (36-86°F). Do not freeze. Keep away from direct sunlight and moisture.
- Replace the cap tightly immediately after removing a strip.
- If the strip has been left out of the bottle for 20 minutes or more, use a new strip.
- Do not touch the test pad of the strip.
- Discard any discolored strips that may have deteriorated.
- Do not use after the expiration date printed on the label of the box.

WARNING AND PRECAUTIONS

- For urine testing only.
- Not for use on blood, saliva, or other bodily fluids.
- Keep out of reach of children.
- Avoid touching the test pad before use.
- Do not ingest the strip or reagent.
- Dispose of the used strip according to local regulations after testing.
- For external use only. Not to be taken internally.
- Do NOT use this product to diagnose or manage any disease or condition.
- This test is not intended to replace diagnostic tests or visits to your healthcare provider.

LIMITATIONS OF USE

- The product is not intended for the diagnosis, cure, mitigation, prevention, or treatment of a disease or condition. The product is not a substitute, nor should it discourage seeking professional medical advice, clinical diagnosis, or treatment.
- The intended use of this product is strictly limited to promoting general health and wellness awareness.
- This test is semi-quantitative and measures urine MDA levels. Scientific data indicates that urine MDA levels correlate with free radical concentration in the body and are indicative of oxidative stress.
- Usage errors or improperly timed readings can lead to inaccurate results.
- Certain substances, such as highly pigmented urine or medications, may interfere with test accuracy.
- MDA levels are not the sole indicator of health and wellness. Consult a healthcare professional if you have health concerns to determine if this test is appropriate for you.
- Results should be interpreted in the context of lifestyle and health status.

CARE TO KNOW

WHAT ARE FREE RADICALS?

Free radicals are unstable molecules with an unpaired electron, making them highly reactive⁴. They are produced naturally during metabolic processes such as energy production. However, external factors like pollution, radiation, and smoking can increase their production. In small amounts, free radicals play essential roles in immune response and cell signaling. Excessive free radicals, however, can cause oxidative stress, damaging lipids, proteins, and DNA, which may contribute to aging and various diseases.

WHAT IS OXIDATIVE STRESS?

Oxidative stress occurs when free radical production exceeds the body's antioxidant defenses, leading to cellular damage. Factors contributing to oxidative stress include:

- Smoking.
- A poor diet lacking antioxidants.
- Pollution and environmental toxins.
- Physical and emotional stress.

WHAT IS MDA?

Malondialdehyde or MDA is a stable end-product of lipid peroxidation and a reliable marker of oxidative damage^{1,2}. Scientific data suggests elevated urinary MDA reflects increased free radical activity and oxidative stress.

THE MULTIFACETED ROLE OF MDA

Aging: MDA reflects oxidative damage linked to aging, cellular decline, and age-related diseases. Oxidative stress accelerates aging, affecting skin and organs. Monitoring manages oxidative stress and promotes healthy aging^{1,2}.

Cardiovascular Diseases: High MDA levels reflect oxidative stress that damages blood vessels and promotes plaque formation, contributing to atherosclerosis and cardiovascular diseases^{1,3}.

Diabetes: Diabetes increases oxidative stress, raising MDA levels. Studies show that elevated MDA levels indicate heightened oxidative stress associated with complications such as neuropathy, retinopathy, and nephropathy^{2,3}.

Cancer: Oxidative stress and elevated MDA contribute to DNA damage and tumor growth. Research highlights MDA's utility as a biomarker for oxidative stress in cancer patients, aiding in therapeutic evaluations and understanding cancer progression^{2,4}.

Neurodegenerative Disorders: High MDA levels are linked to neuron damage in Alzheimer's and Parkinson's diseases. Studies highlight that oxidative stress contributes to neuronal degeneration, with MDA serving as a marker for tracking disease progression and outcomes^{2,5}.

Chronic Kidney Disease (CKD): Oxidative stress increases as kidney function declines. Elevated MDA levels are associated with worsening renal function and systemic oxidative burden^{3,4}.

Inflammatory Disorders: Conditions like arthritis and inflammatory bowel disease elevate MDA levels.

Respiratory Diseases: Asthma and COPD involve oxidative stress from pollutants or smoking. High MDA levels indicate lung damage, and testing can guide therapy evaluation.

Metabolic Syndrome: Metabolic syndrome, including obesity and hypertension, raises oxidative stress. Tracking MDA levels can support lifestyle interventions to reduce risk factors.

RECOMMENDATIONS TO REDUCE OXIDATIVE STRESS

Sufficient Sleep: Proper and regular sleep allows the body to repair and regenerate, helping to manage oxidative stress.

Balanced Diet: A diet rich in fresh fruits and vegetables provides antioxidants that neutralize free radicals. Avoid processed foods, especially excessive sugar and salt, which can promote oxidative damage.

Physical Activity: Regular, moderate exercise enhances antioxidant defenses and reduces oxidative stress. However, intense exercise can temporarily increase oxidative stress levels, so it is vital to maintain balance.

Relaxation Practices: Activities like yoga, meditation, and deep breathing reduce physical and mental stress, lowering free radical production and oxidative damage.



SCAN THIS QR CODE
TO DISCOVER MORE
EFFECTIVE WAYS TO
IMPROVE YOUR HEALTH.

MDA AND DIET

Diet affects oxidative stress and MDA levels. Antioxidant-rich foods lower MDA, while processed foods increase it. Monitoring can evaluate the effectiveness of dietary changes.

ANTIOXIDANT-RICH FOODS:

Fruits: Blueberries, strawberries, oranges, pomegranates, and grapes are packed with antioxidants like vitamin C and anthocyanins.

Vegetables: Spinach, kale, broccoli, and tomatoes offer antioxidants such as lutein, zeaxanthin, and lycopene.

Nuts and Seeds: Almonds, walnuts, chia seeds, and flaxseeds are rich in vitamin E, polyphenols, and omega-3 fatty acids.

Whole Grains and Legumes: Quinoa, oats, and beans provide flavonoids and other protective compounds.

Other Sources: Green tea, dark chocolate (70% cocoa or higher), and extra virgin olive oil contain polyphenols and catechins that combat oxidative stress.

Including these foods in your diet can enhance antioxidant defenses and improve overall cellular health.

REFERENCES

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