

DAO Enzyme

PROMOTES BREAKDOWN OF DIETARY HISTAMINE[‡]

Histamine is a substance found in many foods, such as meats, spinach, fermented foods, avocados, nuts, tomatoes and chocolate. An **estimated 1-3% of the population cannot digest dietary histamine efficiently**, often because of low intestinal diamine oxidase (DAO), an enzyme in the GI tract that normally breaks down histamine. These individuals often experience gastrointestinal discomfort, headache, skin sensitivity or flushing after consuming histamine-containing foods.¹⁻⁶

Supplementation with DAO enhances DAO activity in the GI tract, promoting breakdown of dietary histamine and reducing gastrointestinal discomfort (occasional diarrhea, bloating and gas) associated with sensitivity to histamine-rich foods.³ DAO may also reduce skin symptoms associated with high intestinal histamine levels.⁶ **DAO Enzyme** delivers DAO in an acid-resistant capsule, which protects this enzyme from degradation in the stomach.



Promotes breakdown of dietary histamine in the GI tract



Reduces gastrointestinal discomfort (occasional diarrhea, bloating and gas) associated with sensitivity to histamine-rich foods[‡]



Eat with greater confidence when histamine may be present in food

WHO IS THIS SUPPLEMENT FOR?

Individuals who experience symptoms of histamine intolerance, such as occasional GI upset, skin sensitivity or flushing.

RESEARCH HIGHLIGHTS[‡]

DAO supplementation improved gastrointestinal, respiratory and skin symptoms associated with dietary histamine.

In an open-label pilot study, individuals with low DAO levels (< 10 U/ml) who received DAO (10,000 HDU) up to 3 times per day reported significant improvements in gastrointestinal, respiratory and skin symptom scores after 4 weeks. Subjects reported significant improvement in gastrointestinal comfort, including occasional diarrhea, bloating and gas, headache, respiratory and skin discomfort.³

DAO supplementation improved histamine-associated skin discomfort.

In a double-blind, placebo-controlled, crossover investigation of 22 patients, supplementation of 10,000 HDU DAO twice daily for 30 days improved dietary histamine-associated skin discomfort.⁶

DAO supplementation resulted in a significant reduction of histamine-associated symptoms scores.

In a randomized double blind crossover trial, 39 histamine intolerant subjects given an oral histamine challenge (75 mg histamine added to tea) in combination with either DAO (20,000 HDU) or placebo. DAO supplementation resulted in a significant reduction of histamine-associated symptom scores compared to placebo.⁵



[‡]This statement has not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

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MECHANISMS OF ACTION

DAO is the enzyme responsible for degrading histamine from ingested food or local production in the gut. DAO catalyzes the oxidative deamination of histamine, breaking it down into imidazole 4-acetaldehyde (Figure 1).

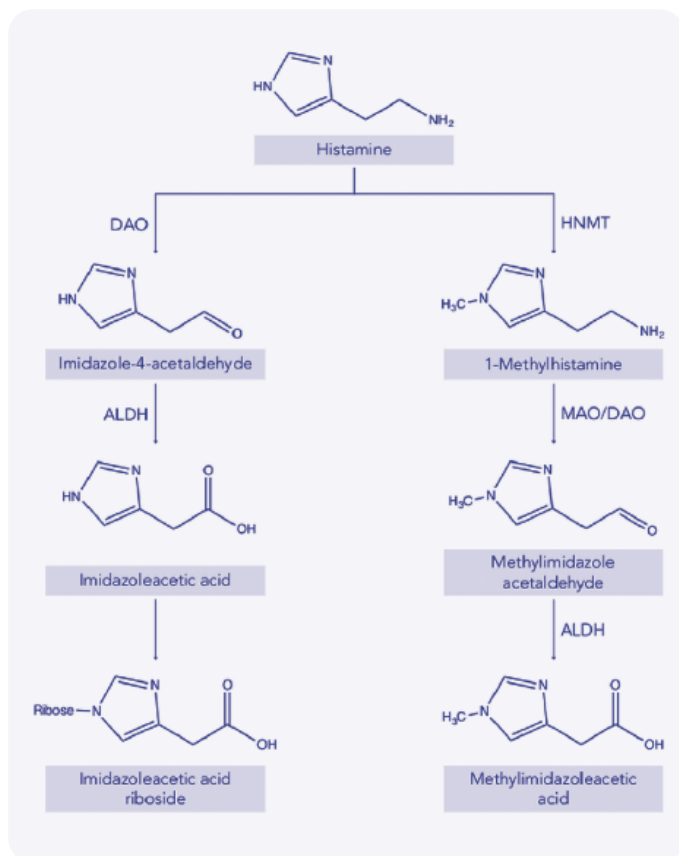


Figure 1. Two enzymes, DAO and HNMT, play distinct roles in degrading histamine. The clinical relevance of each enzyme depends on the location of histamine. Expressed primarily in the gut, DAO is an extracellular enzyme that provides front-line support by deaminating food-borne histamine to imidazole 4-acetaldehyde (left). Conversely, HNMT (histamine N-methyltransferase) is strictly an intracellular enzyme expressed in the CNS and various internal organs, where it methylates endogenous histamine to form 1-methylhistamine (right). Further metabolic steps are catalyzed by aldehyde dehydrogenase (ALDH) and monoamine oxidase B (MAO-B).⁷

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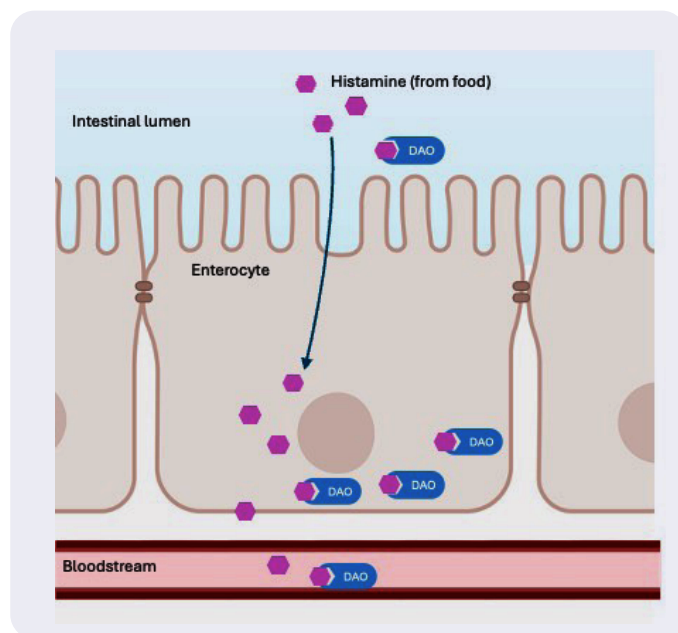


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Figure 2. Diamine oxidase (DAO) is expressed in the intestinal lumen, mucosa and bloodstream. Histamine released from food enters and diffuses through the enterocyte into the circulation, causing systemic symptoms in histamine intolerant individuals. DAO starts breaking down food-borne histamine before it enters the systemic circulation.[‡]

DAO Enzyme helps reduce gastrointestinal discomfort and may reduce skin sensitivity so your patients can eat with greater confidence when histamine may be present in food.[‡]

Supplement Facts

1 capsule, 2-3 times daily, with meal.

One (size 1) capsule contains:

Porcine kidney extract

(providing 0.55 mU diamine oxidase (DAO) activity)

Other ingredients: hypoallergenic plant fiber (cellulose), acid-resistant vegetarian capsule (cellulose, pectin, glycerol, purified water)

DAO Enzyme is manufactured by DR HEALTHCARE, S.L.U.

0.55 mU is equivalent to 26,676 HDU.

Gastrointestinal Health



DAO Enzyme

Quantity

Order Code

60

DAE6

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