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**APNr 4095**

**Name** Jane Doe  
**D.o.B.** 10.11.1991  
**Sex** W  
**Address**

**Patient No.** 00000  
**Request ID** 00000  
**AANR** 964235  
**Received** 03.02.2021  
**Output Date** 11.02.2021

Height  cmWeight  kgBody Mass Index **Medical History:**

Keine Angaben

**Interpretation:**

The low diamine oxidase levels make a DAO-type histamine intolerance seem likely.

**THERAPEUTICAL RECOMMENDATIONS:**

If clinical symptoms are present, histamine-rich foods should be avoided. Supplementation of adequate micronutrients which increase histamine tolerance might be helpful. Histamine releasing preparations as well as DAO - inhibiting drugs should be avoided and replaced with alternative substances.

The following points should be observed in low -histamine diets:

1. Biogenic amines are thermostable and are therefore not destroyed by heating or freezing.
2. Fish and meat products should be eaten as fresh as possible, storage of these products increases histamine levels.
3. All foods which are produced under the influence of microorganisms should be eaten with care (i.e beer, cheese, sauerkraut).
4. Take special care regarding the histamine content of alcoholic beverages (various reed wines, sparkling wine and wheat beer are rich in histamine).
5. Often zinc, vitamin B6 and vitamin C deficiencies are found. Whilst zinc and vitamin B6 support histamine breakdown as essential co-factors of the diamine oxidase, vitamin C is an orthomolecular antihistaminic with an immune-regulating effect. Deficiencies can be corrected by administering food products rich in nutrients or via substitutes.

Kind regards

Dipl. Oec. Andrea Feneberg / Dipl. biol. Ingrid Frank

**ALLERGY**

Test Name	Result	Ref. Range	Units	Previous	Trend Line /Date
<b>Food Intolerances</b>					
<b>Histamine Intolerance</b>					
Diamine Oxidase	↓ 3.7		10 - 50	U/ml	

Laboratory diagnostics carried out and validated by MVZ Labor Bavariahaus, in the case of individual parameters by the authorised partner laboratory, where applicable.

**General Information:****Diaminoxidase**

Histamine is broken down by two enzymes, the extracellular Diamine oxidase (DAO, Histaminase) produced mainly in the intestine and the intracellular N-Methyltransferase mainly produced in the liver. Approximately 1% of the population are affected by histamine intolerance caused by an imbalance between histamine production and histamine breakdown, normally caused by excessive histamine in the diet or reduced DAO activity.

Histamine and other biogenic amines are found in all easily perishable foods and food products produced with the assistance of microorganisms (i.e. fish, cheese, raw sausage, smoked hams, sauerkraut, wine, beer and wine vinegar as well as in spinach, aubergine, avocado, mushrooms, yeast extracts, strawberries and bananas). Diamine oxidase is produced in the intestine and inactivates the amines before they pass through the intestinal wall. Large amounts of histamine or other biogenic amines (i.e. tyramine, tryptamine) can overload the system leading to histamine passing into the circulatory system. Acute symptoms such as dyspnoea, hypotension, reddening of the skin, sniffles, nettle rash with itching, nausea, stomach cramps, vomiting, diarrhoea and headaches can occur, just like in real allergies. In many cases of biogenic amine intolerance, zinc, vitamin B6 or vitamin C deficiency is also present. Vitamin B6 and zinc are essential cofactors for DAO and therefore support histamine breakdown.

Reduced DAO activity can also lead to a histamine overload and a pseudo allergic reaction. Red wine is not only rich in histamine but also inhibits DAO. Numerous medications inhibit DAO or lead to increased histamine release: Analgetics, antihypertensives, antiarrhythmics, beta-blockers, diuretics, antibiotics, anti-depressants, H2 receptor antagonists, x-ray contrast medium, etc. Chronic bowel diseases can lead to reduced DAO production, as well as viral hepatitis, liver cirrhosis, renal insufficiency, mastocytosis or chronic urticaria. Hereditary DAO gene defects have also been found in recent years.