## Medications to Avoid

Analgesics / Antipyretics
acetanilid, acetophenetidin (phenacetin), amidopyrine (aminopyrine) *, antipyrine *, aspirin *, phenacetin, probenicid, pyramidone

Miscellaneous
alpha-methyldopa, ascorbic acid *, dimercaprol (BAL), hydralazine, mestranol, methylene blue, nalidixic acid, naphthalene, niridazole, phenylhydrazine, toluidine blue, trinitrotoluene, urate oxidase, vitamin K * (water soluble), pyridium, quinine *

Antimalarials
chloroquine *, hydroxychloroquine, mepacrine (quinacrine), pamaquine, pentaquine, primaquine, quinine *, quinocide

Cytotoxic / Antibacterial
chloramphenicol, co-trimoxazole, furazolidone, furmethonol, nalidixic acid, neoarsphenamine, nitrofurantoin, nitrofurazone, para-aminosalicylic acid

Cardiovascular Drugs
procainamide *, quinidine *

Sulfonamides / Sulfones
dapsone, sulfacetamide, sulfamethoxypyrimidine, sulfanilamide, sulfapyridine, sulfasalazine, sulfisoxazole

## Miscellaneous to Avoid

Fava Beans
(Few also avoid red wine, all legumes, blueberries [and yogurts containing these], soya products, tonic water, camphor).

## Safe to take

But only in normal therapeutic doses [!!!]

(Quoted from Ernest Beutler, M.D., "Glucose-6-Phosphate Dehydrogenase Deficiency," in *Erythrocyte disorders: Anemias due to increased destruction of erythrocytes with enzyme deficiencies*, p. 598.)

Acetaminophen (paracetamol, Tylenol, Tralgon, hydroxyacetanilide),
Acetophenetidin (phenacetin),
Acetylsalicylic acid (aspirin) *,
Aminopyrine (Pyramidon, amidopyrine) *,
Antazoline (Antistine),
Antipyrine *,
Ascorbic acid (vitamin C) *,
Benzhexol (Artane),
Chloramphenicol,
Chlorguanidine (Proguanil, Paludrine),
Chloroquine *, Colchicine,
Diphenhydramine (Benadryl),
Isoniazid, L-Dopa,
Menadione sodium bisulfite (Hykinone),
Menapthone, *p*-Aminobenzoic acid,
Phenylbutazone, Phenytoin,
Probenecid (Benemid),
Procain amide hydrochlonde (Pronestyl) *,
Pyrimethamine (Daraprim),
Quinidine *, Quinine *,
Streptomycin,
Sulfacytine, Sulfadiazine,
Sulfaguanidine,
Sulfamerazine,
Sulfamethoxypyridazine (Kynex),
Sulfisoxazole (Gantrisin),
Trimethoprim,
Tripelennamine (pyribenzamine),
Vitamin K *.

* These drugs appear in both lists. Most prefer to avoid them altogether. If you do take these, please remember to take only **normal therapeutic doses**.

# G6PD Deficiency Reference Guide

## What is G6PD Deficiency?

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is the most common human enzyme deficiency; it affects an estimated 400 million people worldwide.

G6PD deficiency is also known as "favism," since G6PD deficient individuals are also allergic to fava beans.

G6PD deficiency is a genetic condition that is inherited in an X-linked recessive fashion. This means that males are more likely to be affected by this condition than are females. Genetic testing is available to identify a deficiency in G6PD in both males and females.

It is very important to tell any doctor or other health professional (such as nurse or pharmacist) that you have G6PD Deficiency to avoid a possible harmful reaction to treatments they might prescribe.

## What happens if you have G6PD Deficiency?

Hemolytic anemia and prolonged neonatal jaundice are the two major problems associated with G6PD deficiency. Both of these problems are directly related to the inability of specific cell types to regenerate a molecule called nicotinamide adenine dinucleotide phosphate in its reduced form (NADPH); this reaction is normally catalyzed by the G6PD enzyme. Aside from neonatal jaundice, hemolytic anemia can only arise when a person with G6PD Deficiency is exposed to certain chemicals; otherwise, they live a normal life.

Hemolytic anemia is the decreased ability of red blood cells to transport oxygen throughout the body; consequently, if you are having a hemolytic crisis, you will probably feel tired and out of breath, and may have a dark colored urine. Certain oxidative drugs, infections, or fava beans (and the pollen from the fava bean plant) can cause this. When any one of these agents enters the red blood cell, hemoglobin becomes denatured, thus destroying its function as the principle oxygen carrying molecule.

In normal cells, NADPH would play a role in removing these harmful oxidants from the cell. Among the drugs contra-indicated for G6PD deficient individuals are aspirin and most anti-malarial drugs; fortunately, G6PD deficient individuals are resistant to malarial infection. Treatments for hemolytic anemia include nasal oxygen, bed rest, human haptoglobin products, folic acid, and blood transfusions.

Neonatal jaundice (a yellowing of the mucous membranes and other body tissues at birth) is a common condition in all newborns, but when it persists, G6PD deficiency is suspected. The newborn becomes jaundiced as a result of decreased activity of G6PD in the liver. This can be a potentially serious problem as it can cause severe neurological complications. Jaundiced babies are placed under special lights, called bili-lights, to alleviate the jaundice.

# Frequently Asked Questions

## How do I get G6PD Deficiency?

G6PD Deficiency is an inherited condition; therefore, you can not get it from being in contact with someone who has G6PD Deficiency. Since it is inherited, there is no cure.

## What are the chances of passing it on to my kids?

If the father is G6PD Deficient and the mother is not affected:

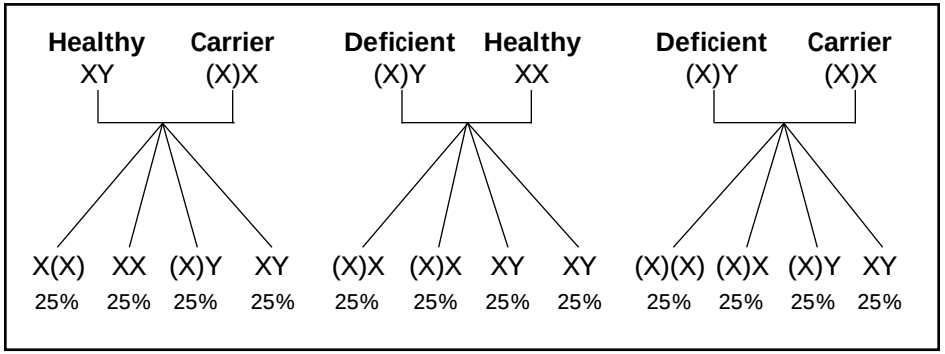
- Having a girl who is G6PD Deficient (0%)
- Having a boy who is G6PD Deficient (0%)
- Having a girl who is a carrier (no clinical symptoms) of G6PD Deficiency (100%)

If the father is G6PD Deficient and the mother is a carrier:

- Having a girl who is G6PD Deficient (50%)
- Having a girl who is a carrier (50%)
- Having a boy who is G6PD Deficient (50%)

If the father is unaffected and the mother is a carrier:

- Having a girl who is G6PD Deficient (0%)
- Having a girl who is a carrier (50%)
- Having a boy who is G6PD Deficient (50%)




Drawing from P. Marradi et al., "The Glucose-6-Phosphate Dehydrogenase (G6PD) Deficiency: A Review", *Medico e Bambino 8* (1993), 538-42.

## What precautions can I take to ensure my health living with G6PD Deficiency?

Do not take any of the medications listed in this brochure (or medications similar to them) without consulting a physician. Also avoid fava beans (and the plant). Always tell any health provider you see that you have G6PD Deficiency (and give them this list).

## What are the symptoms of hemolytic anemia? Am I having a reaction?

You will begin to feel tired, short of breath, have an irregular heart beat, and may have a dark orange urine.

## Can I donate blood if I have G6PD Deficiency?

No! Currently the Red Cross does not accept G6PD deficient blood.

## How would you call fava beans in other languages?

Arabic: Foolle;
Catalan: Fava;
Chinese: Tzan-Doo;
Dutch: Tuinboon;
Farsi (Persian): Ba-ghe-Leh;
English: Fava or Broad Bean;
French: Fève;
German: Favabohnen (Fava bean), Dicke Bohnen (thick bean), Saubohnen (sow bean);
Greek: Koukia ("Fava" is an appetizer made from dried fava beans);
Italian: Fava (pl. fave);
Malay: Kacang Kuda;
Spanish: Haba;
Turkish: Bakla ("Fava" is an appetizer made from dried fava beans);
Urdo (Pakistan and India): Lobhiya, Rajma, Jheam.
[Excerpted from the Favism & G6PD Deficiency Forum]

For a more thorough discourse, go to:
http://www.rialto.com/g6pd
http://www.rialto.com/favism
http://www.rialto.com/cgibin/htz?favforum.hts (discussion of common issues)

You may also join our mailing list where you can exchange opinions and consult with other members (http://www.rialto.com/favism/newslist.htm).

*Written by* Ramez Ethnasios (G6PD Site; ps98157@itsa.ucsf.edu)
*Edited and Set by* Chanan Zass (Favism Site; favism@rialto.com)



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