**GROUPS**

**BEVERAGES**
- Sparkling and mineral waters (Contrex®, Volvic®, Evian®)
- Soda: Coca-Cola®, Lemonade, Schweppes® (0,00mg/100ml)
- Fruit juice and nectar: Tropicana® (0,24mg/l), Carrefour® organic orange juice (0,025 mg/l), Grace® (1) strawberry juice (30%) (0,12mg/l)
- Coffee and tea: Express for cappuccino coffee (0,01mg/100g), Lipton® herbal tea (0,002 to 0,004mg/l cup of 150 ml)
- Chocolate beverages: Ovomaltine® chocolate powder (0,04mg/1 tablespoon = 20g)

**MEATS, OFFALS**
- Fresh and fatty fish, shrimps (*0,25mg/1 handful = 100g), smoked salmon (*0,05mg/2 slices = 80g), canned natural
- Meats & Cured seaFood
  - Lean and fatty fish, shrimps (*0,25mg/1 handful = 100g), smoked salmon (*0,05mg/2 slices = 80g), canned natural
  - All fresh, frozen, or canned meats, all poultries except duck, all game birds, rabbit
  - Cured meats: salami, sausages…

**SEAFOOD**
- Fresh and fatty fish, shrimps (*0,25mg/1 handful = 100g), smoked salmon (*0,05mg/2 slices = 80g), canned natural
- Green vegetables: fresh, natural, frozen, canned:
  - Fresh broccoli (0,18mg/200g), fresh green beans (0,28mg/200g), canned green beans (0,16mg/200g), field peas (0,30mg/200g), canned com (0,05mg/100g), carrots (0,04mg/100g), tomatoes (0,02 to 0,15mg/100g), tomato sauce (0,08mg/20 carton), parsley (0,07mg/100g)
  - Fresh mushrooms (0,4mg/100g), cooked soya (0,32 mg/100g)
  - Cooked lentils (0,60mg/200g)

**EGGS**
- All fresh, frozen, or canned meats, all poultries except duck, all game birds, rabbit

**VEGETABLES & DRIED VEGETABLES**
- Pasta, semolina, rice (except whole rice)
- Potatoes: Ex: French fries (0,1mg/100g), chips (0,029mg/10 chips, i.e. 23g)
- Bread: Ex: White bread (0,13mg/100g)

**FRUITS & DRIED FRUITS**
- Fresh and dried fruits

**BREAD & STARCHES**
- Whole, half-skinned, skinned, liquid, concentrated, fresh, pasteurized, powder, UHT sterilized milk, soya-based dairy

**DAIRY PRODUCTS**
- Whole, skimmed, semi-skimmed, semi-skimmed milk, milk, soya-based dairy products, yoghurts, cottage cheese…
- All cheeses except Parmesan: Ex: La vache qui rit (0,00mg/100g), Tenery cheese for toasted sandwiches (0,05mg/10g)

**SUGAR, DESSERTS & SUGAR-BASED PRODUCTS**
- Chocolate: Ex: white chocolate, milk chocolate (0,02mg/100g), Lindt Pyrénéens® milk chocolate (0,019mg/1 chocolate = 7g), Ferrero Rocher® (0,08g/100g = 12.5g), Milky Way® (0,03mg/1 bar), Milk chocolate: Ex: milk chocolate pudding (0,08g/100g), industrial milk chocolate mouse (0,07g/1 pot), chocolate Dany® (0,13mg/100g), hazelnut spread (0,05mg/100g), Chocolate breakfast cereals: Ex: Choco pops® (0,21mg/60g)

**FATS**
- All oils, butter, margarine, sour cream

<table>
<thead>
<tr>
<th>AUTHORIZED</th>
<th>WITH MODERATION</th>
<th>EXCEPTIONALY</th>
<th>TO AVOID</th>
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<tbody>
<tr>
<td>0,20mg/100g</td>
<td>0,03 to 0,6mg/100g</td>
<td>≥ 3 mg of copper/100g</td>
<td>Chocolate beverages: Van Houten® cocoa (4,8mg/100g)</td>
</tr>
<tr>
<td>0,30mg/100g</td>
<td>0,3 to 1 mg of copper/100g</td>
<td>Soy sauce (0,65mg/2 squares), Côte d'Or® black chocolate 70% (0,27mg/2 squares)</td>
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</tr>
<tr>
<td>0,6mg/100g</td>
<td>1 to 3 mg of copper/100g</td>
<td>Chocolate Viennese pastries: Ex: chocolate roll (0,18mg/10g)</td>
<td></td>
</tr>
<tr>
<td>2,5mg/100g</td>
<td>2 to 4 mg of copper/100g</td>
<td>Chocolate: Crunch® (0,45mg/100g), Nutella® (0,60mg/100g)</td>
<td></td>
</tr>
<tr>
<td>10mg/100g</td>
<td>≥ 3 mg of copper/100g</td>
<td>Chocolate: black (0,65mg/2 squares)</td>
<td></td>
</tr>
<tr>
<td>10mg/100g</td>
<td>≥ 3 mg of copper/100g</td>
<td>Chocolate: white (0,65mg/2 squares)</td>
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<th>COOKED FOODS</th>
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<td>0,05mg/100g</td>
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</table>
In the Wilson’s disease, the experts advise to reduce the food intake:

**FOODS TO AVOID OR TO CONSUME EXCEPTIONALLY BECAUSE THEY ARE VERY RICH IN COPPER:**

- **All livers (ex: a slice of veal liver can contain up to 18 mg of copper)**
- **Black chocolate:** the copper content of chocolate food stuffs depends on the percentage of cocoa. The higher the percentage of cocoa is, the higher the copper content of the product will be.
  - cocoa powder and black chocolate (more than 60% of cocoa) are not recommended.
- **Some fish and shellfish (see table)**
- **Peanuts, almonds, hazelnuts and nuts**
- **Alcohol:** because it can reach the liver

**PARTICULAR ASPECTS**

- **Alcohol**
  - Drinking alcohol is not recommended because it can reach the liver.
- **Water**
  - Drinkable water: can contain copper. You must check the composition with the service in charge of water supply in your city hall (Standard: < 1 mg per liter)
  - Spring water: the copper content may vary (Standard: < 1 mg per liter)

**PRACTICAL ADVICE**

- The green column foods are authorized.
- The yellow column foods can be eaten more freely.
- The red column foods must be avoided.

**NUTRITIONAL SUPPLEMENTS:**

If you have difficulties to eat, an appetite or weight loss, your doctor can prescribe you oral nutritional supplements. Be careful, some supplements are rich in copper. A list with the contents is available on the website: [http://cnrwilson.fr](http://cnrwilson.fr)

**IN CASE OF LIVER FAILURE:**

Proteins and salt intake is limited, according to your doctor’s advice.

**AFTER A LIVER TRANSPLANT:**

You can go back to a normal diet gradually.

**WILSON’S DISEASE NUTRITIONAL ADVICE**

This document cannot be exhaustive but took into account the patients’ most frequent requests.

The copper contents are determined from:

- The book: *The composition of foods – McCance and Widdowson’s.* -2002
- The dosages carried out by the toxicology laboratory of the Lariboisière Hospital (foods marked with an asterisk)

A NORMAL DIET BRINGS ABOUT 3 mg OF COPPER PER DAY

It is a disease for which we have efficient treatments allowing eliminating this excess copper from the body. This treatment combines drugs (D-Penicillamine, TRIENTINE, WILZIN) that must be taken throughout the life continuously, and a low copper diet.

The goal of this booklet is to provide you with advice to limit the quantity of copper in your food intake while respecting the nutritional balance.

The different foods (milk, meat, fish, vegetables, fruits, beverages...) are presented according to their copper content.

<table>
<thead>
<tr>
<th>Green column:</th>
<th>Authorized foods containing less than 0,30 mg of copper per 100g or food portion.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow column:</td>
<td>Foods to eat with moderation because they contain between 0,30 and 1 mg of copper per 100g or food portion.</td>
</tr>
<tr>
<td>Orange column:</td>
<td>Foods to eat exceptionally and to avoid until the stabilization of the disease because they contain between 1 and 3 mg of copper per 100g or food portion.</td>
</tr>
<tr>
<td>Red column:</td>
<td>Foods to avoid because they contain more than 3 mg of copper per 100g or food portion.</td>
</tr>
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</table>

This document is a translation of the French version, it has been prepared with the help of Orphan Europe.

**EUROWILSON is funded by the European Commission DG Sanco programme.**

**Before any prescription consult the full text of the summary of product characteristics (SPC).**

**Additional information:**

- **National Centre of Reference Wilson’s disease**
  - Lariboisière Hospital Group – Fernand Widal
  - Dietary Department
  - Mrs. HENRIO Charlotte – Mrs. GARCIN Estelle
  - Mail: cnr.wilson@lrbr.aphp.fr
  - Website: [http://cnrwilson.fr](http://cnrwilson.fr)

**Practical Advice**

- The green column foods are authorized.
- The yellow column foods can be eaten more freely.
- The green column foods must be eaten only exceptionally.
- The red column foods must be avoided.

The recommendations of this booklet shall allow you to create adapted menus. Don’t hesitate to contact the doctors or dieticians of the Wilson NOR if you need additional information.