

## Systemic Dermatitis and Nickel Rich Foods

Nickel is a trace element found everywhere on earth, it is in the soil, water, air, and food that we eat. Exposure to nickel through one's diet can result in acute flares of allergic-dermatitis also known as systemic contact dermatitis. Increasing amounts of nickel consumed increases the chance that a nickel sensitive patient could develop a skin rash. The most common reactions being a generalized eczema-like rash, but sometimes it can be localized (involve only) to the hands.

Different types of foods inherently contain different amounts of nickel. This is a brief summary and guide to aid the consumer in navigating through which foods contain nickel and how to avoid high levels of nickel in our diets.

General instructions:

- Give the diet time to work; it may take a couple of months before a difference is noticed.
- Adults should consume **less than 150 µg of nickel per day**.
- **Children <12 years** and younger should consume **less than 100 µg/day** of nickel per day.
- In general avoid chocolate, oatmeal, granola, and legumes (such as peas, beans, lentils, soybeans, and peanuts to name a few).  
Avoid cooking acidic foods with stainless steel cookware, as this causes the release of the otherwise tightly bound nickel.

## Grains

Food Source	Nickel content (µg)	Serving Size
Bagel, plain	4.2	1 Bagel
Biscuits, baked	2.9	1 Biscuit
Bread, cracked wheat	5.7	1 slice
Bread, rye	3.7	1 slice
Bread, white, enriched	2.4	1 slice
Bread, whole wheat	6.0	1 slice
Corn flakes cereal	2.3	1 cup
Corn/hominy grits	1.4	1/4 cup
Corn/tortilla chips	12.3	1 cup

<b>Cornbread</b>	5.0	1 piece
<b>Crackers, butter-type</b>	2.8	6 crackers
<b>Crackers, graham</b>	2.7	2 large rectangular pieces
<b>Crackers, saltine</b>	1.2	5 crackers
<b>Cream of wheat</b>	2.3	1 cup
<b>Crisped rice cereal</b>	5.0	1 cup
<b>English muffin, plain</b>	4.6	1 muffin
<b>Fruit-flavored cereal, presweetened</b>	11.1	1 cup
<b>Granola with raisins</b>	40.7	1 bar
<b>Muffin</b>	1.2	1 muffin
<b>Oat ring cereal</b>	59.5	1 cup
<b>Oatmeal</b>	82.8	1 cup
<b>Pancakes</b>	11.7	3, 4" pancakes
<b>Popcorn, microwave, butter-flavored</b>	2.4	1 cup
<b>Pretzels, hard, salted</b>	3.9	10 twists
<b>Raisin bran cereal</b>	5.6	1 cup
<b>Rice, white</b>	7.8	1 cup
<b>Shredded wheat cereal</b>	3.3	1 cup
<b>Spaghetti</b>	6.7	1 cup
<b>Tortilla, flour</b>	4.6	1 tortilla
<b>Wheat germ</b>	82	1 cup

## Dairy

Food Source	Nickel content (ug)	Serving Size
Butter, regular (salted)	0.2	1 tbsp
Cheese, American	1.2	1 slice
Cheese, Swiss	0.1	1 slice
Cottage cheese, creamed, low-fat (2% milk fat)	0.9	1 cup
Eggs	0.4	2 large eggs
Half & half cream	0.5	1/2 cup
Macaroni and cheese, prepared from box mix	4.1	1 serving
Sour cream	0.1	2 tbsp
Yogurt, low-fat, fruit-flavored	2.3	1/2 cup

## Vegetables

Food Source	Nickel content (ug)	Serving Size
Asparagus	9.5	1 cup
Beets, canned	5.0	1 cup
Black olives	1.2	1 tbsp
Broccoli	8.3	1 cup
Brussels sprouts	5.0	1 cup
Cabbage	1.3	1 cup
Carrot	6.6	1 cup
Cauliflower	5.6	1 cup

<b>Celery</b>	2.6	1 cup
<b>Coleslaw</b>	2.8	1 cup
<b>Collards</b>	1.4	1 cup
<b>Corn</b>	4.3	1 large ear
<b>Cucumber</b>	2.4	1 cup slices
<b>Dill pickles</b>	1.3	1 medium pickle
<b>Eggplant</b>	0.7	1 cup
<b>Green beans</b>	28.3	1 cup
<b>Lettuce, iceberg raw</b>	9.1	1 cup
<b>Lettuce, leaf, raw</b>	4.5	1 cup
<b>Lima beans</b>	98.4	1/2 cup
<b>Mixed vegetables, frozen</b>	23.6	1 cup
<b>Mushrooms</b>	1.2	1 cup
<b>Okra</b>	4.7	1 cup
<b>Onion</b>	4.5	1 cup chopped
<b>Peas</b>	19.9	1/2 cup
<b>Pepper, sweet, green</b>	3.6	1 pepper
<b>Pinto beans</b>	98.8	1 cup
<b>Potato</b>	20.3	1 large potato
<b>Potato chips</b>	11.5	1 cup
<b>Potato, french-fried, fast-food</b>	22.9	1 medium serving
<b>Soup, tomato, canned</b>	21.5	1 cup
<b>Spinach</b>	2.5	1 cup
<b>Spirulina</b>	302.4	1 cup

<b>Squash, winter (Hubbard/acorn)</b>	9.8	1 cup
<b>Summer squash</b>	5.1	1 cup
<b>Sweet potatoes</b>	17.8	1 large potato
<b>Tomato</b>	3.4	1 tomato
<b>Tomato juice</b>	19.5	1 cup
<b>Tomato ketchup</b>	2.2	2 tbsp
<b>Tomato salsa</b>	12.5	1 cup
<b>Tomato sauce</b>	23.5	1 cup
<b>Turnip</b>	2.4	1 medium turnip
<b>White beans</b>	82.3	1 cup

## **Fruits**

<b>Food Source</b>	<b>Nickel content (ug)</b>	<b>Serving Size</b>
<b>Apple</b>	1.1	1 Medium apple
<b>Apricots, canned</b>	11.0	1 cup
<b>Avocado</b>	9.5	1 avocado
<b>Banana</b>	5.3	1 Large banana
<b>Cantaloupe</b>	12.6	1 cup
<b>Fruit cocktail, canned</b>	16.9	1 drink
<b>Grapefruit</b>	6.7	1 cup
<b>Grapes</b>	0.6	1 cup
<b>Orange</b>	4.1	1 medium orange
<b>Peach</b>	12.0	1 medium peach
<b>Peach, canned</b>	14.9	1 cup

<b>Pear</b>	5.2	1 medium pear
<b>Pear, canned</b>	8.0	1 cup
<b>Pineapple, canned</b>	20.5	1 cup
<b>Raisins</b>	11.2	1 cup
<b>Strawberries</b>	5.8	1 cup
<b>Watermelon</b>	9.0	1 cup

## **Meat**

<b>Food Source</b>	<b>Nickel content (ug)</b>	<b>Serving Size</b>
<b>Beef steak, loin/sirloin</b>	1.4	1 Steak
<b>Beef, ground</b>	7.5	3 oz
<b>Bologna (beef/pork)</b>	0.9	1 slice
<b>Burrito with beef, beans and cheese</b>	48.9	1 Burrito
<b>Catfish</b>	15.0	1 fillet
<b>Chicken breast</b>	3.7	1 breast
<b>Chicken filet sandwich, fast-food</b>	6.6	1 sandwich
<b>Chicken nuggets, fast-food</b>	9.8	5 pieces
<b>Chicken thigh</b>	0.7	1 thigh
<b>Chili con carne with beans, canned</b>	62.5	1 cup
<b>Clam chowder</b>	20.6	1 cup
<b>Egg, cheese, and ham on English muffin, fast-food</b>	8.1	1 sandwich
<b>Fish sticks</b>	8.1	4 sticks
<b>Frankfurter (beef/pork)</b>	2.1	1 link

<b>Ham, cured</b>	1.8	3 oz
<b>Lamb chop</b>	1.4	3 oz
<b>Lasagna with meat</b>	38.3	1 serving
<b>Liver (beef/calf)</b>	5.9	3 oz
<b>Luncheon meat</b>	0.5	2 slices
<b>Meatloaf, beef</b>	0.7	1 slice
<b>Mussels</b>	155.0	1 cup
<b>Pizza, cheese and pepperoni, regular crust</b>	10.1	1 slice
<b>Pork and beans, canned</b>	105.8	1 cup
<b>Pork bacon</b>	0.6	2 slices
<b>Pork chop</b>	1.2	3 oz
<b>Pork roast, loin</b>	1.1	1 chop
<b>Pork sausage</b>	25.2	1 sausage
<b>Quarter-pound cheeseburger on bun, fast-food</b>	10.4	1 cheeseburger
<b>Quarter-pound hamburger on bun, fast-food</b>	9.5	1 burger
<b>Salami, luncheon-meat</b>	1.2	3 slices
<b>Salmon</b>	9.2	1 fillet
<b>Shrimp</b>	0.9	1 cup
<b>Soup, bean with bacon/pork, canned</b>	42.8	1 cup
<b>Soup, chicken noodle, canned</b>	11.3	1 cup
<b>Soup, vegetable beef, canned</b>	11.5	1 cup
<b>Spaghetti with meat sauce</b>	25.5	1 cup
<b>Taco/tostada with beef and cheese</b>	12.9	1 taco

<b>Tuna, canned</b>	0.4	1 can
<b>Turkey breast</b>	2.2	1 breast

## **Desserts**

<b>Food Source</b>	<b>Nickel content (ug)</b>	<b>Serving Size</b>
<b>Breakfast tart/toaster pastry</b>	2.6	1 slice
<b>Brownie</b>	14.9	1 brownie
<b>Cake, chocolate with icing</b>	37.0	1 piece (1/8 of 18 oz cake)
<b>Candy bar, milk chocolate</b>	40.5	1 bar
<b>Candy, hard, any flavor</b>	0.4	5 pieces
<b>Chocolate chip cookies</b>	9.6	1 cookie
<b>Cocoa powder</b>	14.7	3 tbsp
<b>Doughnut, cake-type, any flavor</b>	14.6	1 doughnut
<b>Honey</b>	0.5	2 tbsp
<b>Ice cream vanilla</b>	0.2	1/2 cup
<b>Milk shake, chocolate, fast-food</b>	31.8	1 cup
<b>Pudding, flavor other than chocolate</b>	8.4	1 package
<b>Pumpkin pie</b>	13.6	1 piece
<b>Sandwich cookies with crème filling</b>	5.5	1 sandwich cookie
<b>Sherbet, fruit-flavored</b>	0.8	1/2 cup
<b>Sugar cookies</b>	0.9	1 cookie
<b>Sweet roll/Danish pastry</b>	3.0	1 pastry

<b>Syrup</b>	0.6	2 tbsp
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## **Drinks**

<b>Drink</b>	<b>Nickel content (ug)</b>	<b>Serving Size</b>
<b>Coffee</b>	1.4	1 cup
<b>Cranberry juice cocktail</b>	3.8	1 cup
<b>Cream substitute, non-diary</b>	3.0	1 cup
<b>Decaffeinated coffee</b>	1.7	1 cup
<b>Decaffeinated tea</b>	7.3	1 cup
<b>Infant formula, soy-based</b>	5.9	1 cup
<b>Lemonade, frozen concentrate</b>	1.0	1 cup
<b>Milk, chocolate</b>	19.8	1 cup
<b>Pineapple juice, frozen concentrate</b>	32.0	1 cup
<b>Prune juice</b>	34.8	1 cup
<b>Tea</b>	5.5	1 cup
<b>Wine, red/ white</b>	4.6	1 drink

## **Fats and Oils**

<b>Food Source</b>	<b>Nickel content (ug)</b>	<b>Serving Size</b>
<b>Margarine, regular (salted)</b>	0.9	1 tbsp
<b>Olive oil</b>	0.0	2 tbsp
<b>Peanut butter</b>	15.4	2 tbsp

<b>Peanuts</b>	34.6	1/2 cup
<b>Vegetable oil</b>	0.1	2 tbsp

## **Baby Food**

<b>Cereal, oatmeal</b>	<b>6.1</b>	<b>1 jar</b>
<b>Applesauce</b>	1.0	1 jar
<b>Bananas</b>	3.3	1 jar
<b>Beef and broth/gravy</b>	1.7	1 jar
<b>Carrots</b>	5.3	1 jar
<b>Cereal, rice</b>	0.6	1 jar
<b>Cereal, rice with apples</b>	1.4	1 jar
<b>Chicken and broth/gravy</b>	25.8	1 jar
<b>Chicken noodle dinner</b>	36.8	1 jar
<b>Fruit dessert/pudding</b>	6.9	1 jar
<b>Green beans</b>	18.0	1 jar
<b>Mixed vegetables</b>	15.0	1 jar
<b>Peaches</b>	29.6	1 jar
<b>Pears</b>	20.4	1 jar
<b>Peas</b>	25.5	1 jar
<b>Squash</b>	15.2	1 jar
<b>Sweet potatoes</b>	17.7	1 jar
<b>Teething biscuits</b>	22.6	1 jar
<b>Turkey and broth/gravy</b>	4.1	1 jar
<b>Vanilla custard/pudding</b>	4.3	1 jar

<b>Vegetables and beef</b>	23.8	1 jar
<b>Vegetables and chicken</b>	21.9	1 jar
<b>Vegetables and ham</b>	11.6	1 jar

## **Avoid**

<b>Food Source</b>	<b>Nickel content (ug)</b>	<b>Serving Size</b>
<b>Brownie</b>	14.9	1 brownie
<b>Cake, chocolate with icing</b>	37.0	1 piece (1/8 of 18 oz cake)
<b>Candy bar, milk chocolate</b>	40.5	1 bar
<b>Chocolate chip cookies</b>	9.6	1 cookie
<b>Granola with raisins</b>	40.7	1 bar
<b>Green beans</b>	28.3	1 cup
<b>Lima beans</b>	98.4	1/2 cup
<b>Milk shake, chocolate, fast-food</b>	31.8	1 cup
<b>Mussels</b>	155.0	1 cup
<b>Oat ring cereal</b>	59.5	1 cup
<b>Oatmeal</b>	82.8	1 cup
<b>Peanuts</b>	34.6	1/2 cup
<b>Pinto beans</b>	98.8	1 cup
<b>Pork and beans, canned</b>	105.8	1 cup
<b>Refried beans, canned</b>	125.0	1 cup
<b>Spirulina</b>	302.4	1 cup
<b>Sunflower seeds</b>	103.1	1 cup

<b>Syrup, chocolate</b>	36.2	2 tbsp
<b>Wheat germ</b>	82	1 cup
<b>White beans</b>	82.3	1 cup

- Nickel from drinking water and other beverages ranges from 1-10 µg per liter, and is generally considered negligible.

#### References:

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- 2.) Mislankar M, Zirwas MJ. Low nickel diet scoring system for systemic nickel allergy. *Dermatitis* 2013; 24: 190-5
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