MMC FACT SHEET 907

AMINE CONTENT OF FOODS

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Amines, as well as glutamates and salicylates, are organic compounds that can act on the human brain and blood vessels. These naturally-occurring components of food have been associated with a variety of symptoms including mental confusion, depression, and migraine headaches. Many patients note that certain foods can trigger migraine attacks and other psychological symptoms. Fortunately, identifying and avoiding amine-containing foods can help to significantly reduce pain and stress.

Amines arise as a result of protein breaking down; aged, overcooked and processed meats are high in amines. Browning, grilling, charring will increase amine level in comparison with food cooked by microwave or steaming. Amines also increase in ripening fruits that go soft, e.g. banana, avocado.

Glutamate is found in many foods in a natural protein-bound form. It is important in the enjoyable flavour of tomatoes, aged cheese and mushrooms, and most notably found in a Japanese seaweed sauce from which MSG was extracted. Glutamate is the most common neurotransmitter in the brain; that is, it is responsible for transporting chemical signals from neuron to neuron. However, if the level of glutamates is too high, neurons can misfire, causing physical and psychological problems, and in extreme cases, permanent damage.

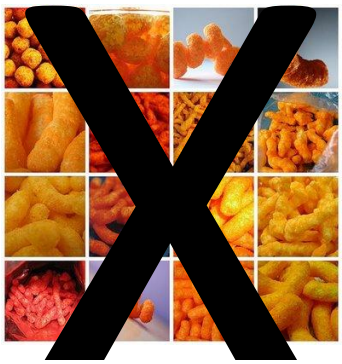
The table lists foods high in amines, with naturally occurring glutamates or added MSG marked *.

Those marked # also high in salicylates, which occur naturally in many fruits, vegetables, and herbs, but which in some people can cause distressing symptoms and health problems. A more complete list of salicylate contents can be found in the Fact Sheet 908, the Salicylate List.

The following amounts are equivalent:

- 1 serve from the MODERATE group
- 1/10 serve from the HIGH group
- 1/100 serve from the VERY HIGH group

1 Serve = 1 Cup = 250 ml



Nuts and Snacks				
Negligible	**Low**	**Moderate**	**High**	**Very High**
Plain Corn Chips # *	Almonds #	Brazil Nut #	Coconut #	Black Walnut #
Plain Potato Crisps # *	Cashews	Sesame Seeds	Peanut #	**Cheese Or Spicy Flavoured Snack Foods # ***
Tacos # *	Macadamia Nuts #	Sunflower Seeds	Pecan #	
	Pinenuts #			
	Pistachio #			

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Fruit

Negligible	Low	Moderate	High	Very High
Apple # Apricot # Gooseberry # Peach # Pear Rhubarb # Strawberry# Cherry #	Blackcurrant # Grapefruit # Honeydew # Redcurrant # Rockmelon #	Dates # Kiwifruit # Lime # Oranqe # Passionfruit # Pawpaw Tanqerine #	Avocado # Banana Fig # Grapes # Lemon # Mandarin # Pineapple # Plum # Raspberry #	
Amines increase in ripening fruits that go soft, e.g. banana, avocado				

Vegetables

Negligible	Low	Moderate	High	Very High
Asparagus # Cabbage Capsicum # Carrot # Celery Corn # * Cucumber # French Beans Green Peas Lettuce Lima Beans Onion # Potato Soy Bean Turnip # Zucchini #		Broccoli # * Cauliflower # Dill Pickle # Olives #	Egg Plant # Mushroom # * Tomato # *	Sauerkraut # Spinach #

Meat, Chicken, Fish and Eggs

Negligible	Low	Moderate	High	Very High
	Eggs Beef ^ Chicken (No Skin) ^ Fish (White Meat) ^ Lamb ^ Rabbit ^ Sausage Casing ^ Turkey (No Skin) ^ Veal ^	Canned Salmon Chicken Liver Chicken Skin Meat, Fish, Chicken Older Than 2 Days Frozen Chicken Frozen Meat Frozen Turkey Fresh Tuna	Aged Meats Bacon Canned Sardines Frozen Fish Gravy (Meat Juices) Ham Pork	Anchovies Beef Liver Brains, Kidney, Tripe Canned Tuna Dried, Smoked Or Pickled Fish Fish Roe Meat Pies, etc. # Pate # Salami # Sausages # Smoked Meat or Chicken
^ Buy fresh and eat within two days		Browning, grilling, charring increases amine level.		

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Condiments

Negligible	Low	Moderate	High	Very High
Herbs # Pepper # Spices #			Meat Extracts # * Soy Sauce * Vegemite * Vinegar Worcestershire Sauce #*	Marmite *

Beverages

Negligible	Low	Moderate	High	Very High
Carob Powder Coffee # Gin Lemonade Milk (Goat, Cow) Soy Milk Tea # Vodka Whisky		Ale # Champagne # Sake # Stout #	Beer # Chianti # Claret # * Fruit Wines # Port # * Red Wines # * Sherry # * White Wine #	Chocolate Flavoured Drinks Cocoa Cola Type Drinks # Orange Juice # Tomato Juice # Vegetable Juice #

Sweets

Negligible	Low	Moderate	High	Very High
Caramels Carob Golden Syrup Maple Syrup Sugar			Cocoa Milk Chocolate White Chocolate	Dark Chocolate

Dairy Foods and Soy Products

Negligible	Low	Moderate	High	Very High
Fresh Cottage Cheese ^ Fresh Ricotta ^ Yoghurt (plain or low amine fruit) ^ Soy Milk Tofu Tofu Ice Cream (with low amine fruit) Emmental Gouda * Gruyere * Jaalsberg			Mild Cheese	Tasty Cheese e.g.: Brie * Camembert * Cheddar Danish Blue Edam Leicester Limberger Mozarella Parmesan * Provolone Roquefort * Swiss Miso *