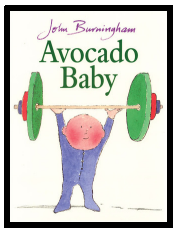
Carnitine and diet for Polios

by Tessa Jupp RN

What is carnitine? - It is part of the proteins of our foods. Protein is made up of amino acids and carnitine is one of them. The role of carnitine is to transport the long-chain fatty acids in our foods, across the inside of our body cells, the mitochondria, to produce energy, thru the Krebs cycle, for our muscles (and brain) to work.

Some parent must have known how important this is for muscles because there is actually a children's book written about a **"weak, floppy" baby who got strong, after being fed avocado!** In fact there is a condition called **"floppy baby syndrome"** and the **treatment is to give carnitine**.



Carnitine is so safe to take that it has been added to soy baby formula since 1985 because it is absent in soya and babies allergic to milk, using soya milk became floppy. Carnitine occurs naturally in breastmilk and other milks as well as many other protein foods in varying quantities.

Carnitine Content in Foods Chart (mg/100g)

kangaroo	**170**		**chicken**	**8.0**
lamb	**160**		**milk, cottage cheese**	**4.0**
roast beef	**140**		**yoghurt**	**4.0**
veal steak	**105**		**fish**	**3.7**
avocado	**100**		**ice-cream, cream**	**3.5**
mince beef	**50**		**mushroom**	**2.6**
sausages	**39**		**butter**	**1.1**
corned beef	**32**		**eggs**	**0.8**
pork	**24**		**nuts**	**0.5**
rabbit	**24**		**bread, rice, corn**	**0.4**
ham	**12**		**potato**	**0.2**

ref: Carnipure website

There are other sites with slight variations on these figures. A 2013 Polish study gives **kangaroo** as **637mg,** which I would believe, because kangaroo **is a much richer meat** and I find I don't need to eat as much of it to feel satisfied.

Another factor that needs to be taken into consideration is **how the food is cooked.** Roast beef gives more carnitine than veal steak (younger meat has less also) and mince is usually made from poorer quality meat. Corned beef or ham is less because of the processing and preservatives. **Boiling in water** would also leach some of the carnitine protein out into the water. Fine if the water is part of the meal, as in stews and casseroles or soups but not if thrown away. The same for the water we boil our vegetables in. It is full of liquified minerals, so is good to drink or for soup, gravy, sauces.

The **plates of food** opposite represent a visual interpretation I have done, on graphs from other research on the **amount of protein, fats** and carbohydrates needed per meal depending on the **blood group.** We do this instinctively as well if we disregard the health data we are loaded with these days. However polio people will need a bit more meat to get needed extra carnitine.

If you look at the chart again, you will see that the second column does not give us much carnitine in our diet. **Chicken, fish, milk and dairy products are poor carnitine sources,** and **plant foods are pretty negligible.** Avocado is the only exception.

A naturally fatty food, **avocado is known be a good source of carnitine** yet does not generally score well on charts. Carnipure only gives it 0.4mg but our experience rates it much higher, so I am rating it at 100mg. We have had polio members able to replace their carnitine dose with a couple of avocados a day when their avocado tree was in season, and then take carnitine supplement for the rest of the year.

Our bodies can make 25% of our carnitine needs. The other 75% we should be getting from our diet.

For polios needing anywhere from 500mg - 3,000mg daily, we would **need to eat half a kilo of steak to get 500g of carnitine or 6 kg of steak to get 3,000mg.** Clearly impossible! We do absorb more from foods than supplements but it is still too much to eat for polios.

But even if we are taking supplemental carnitine we still need the fatty acids in protein for the carnitine to transport into the cell - so we still need to eat protein foods. What we eat during the day helps to boost our muscle reserves and we lose it overnight while we sleep. So we need carnitine when we get up, maybe a top-up after lunch, and **we need some protein for every meal**.

Meal Suggestions

Breakfast: eggs, bacon, rissoles, fish patties, lamb's fry. If must have cereal, have porridge with egg whipped in.

Lunch: meat, chicken or fish with salad, soups with meaty chunks, home-made hamburger or steak sandwich & salads.

Dinner: small plate of soup, any variety or entrée. meat, chicken or fish with cooked veg (white, red/orange/yellow & green). **Red meat at least 4-5 times a week!** Pudding eg custard, rice, sago with added egg whipped in.

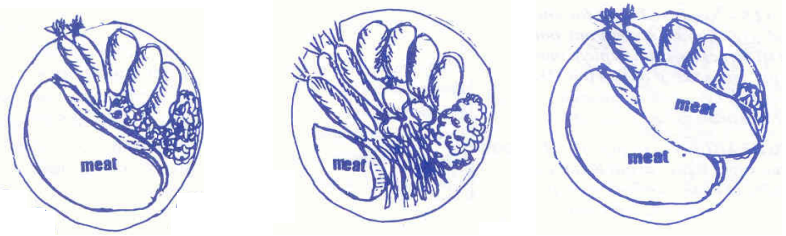


Plate for O Blood Group 49% Australian population

Plate for 'A1' Blood Group 31% Australian population

Plate for 'A2' Blood Group 7% Australian population

Meat proportions for plates - by blood groups

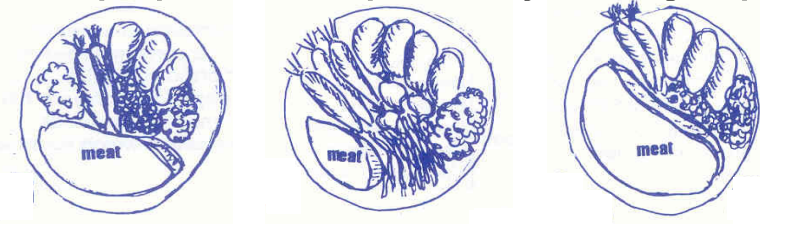


Plate for 'B' blood group 9% Australian population

Plate for 'A1 B' blood Group 3.8% Australian population

Plate for 'A2 B' Blood Group 0.2% Australian population