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Lithium for everyone (800 words)

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As a food chemist I was involved with the analysis of foods for calcium, magnesium, iron, copper, zinc, potassium, sodium, selenium and many other minerals. In my 25 years in the food industry there never seemed to be any analysis of foods for lithium content. Lithium seems to have been overlooked because it has no obvious or direct benefits for our physical health. What few people know is that dietary lithium is essential for everyone's mental health. From everything I have read I believe that anyone whose diet is deficient in lithium will develop a mood disorder.

Low dietary lithium has been associated with increased occurrences of a wide range of mental illness including schizophrenia. Detailed studies in Texas (Ref 1) have shown that the areas with unusually low lithium in the water supply are the areas with the highest levels of violent crime. Also in Texas, aggressive convicts who had been on a diet low in lithium were given a diet with moderate lithium levels resulting in the elimination of their aggressive behaviour. On changing back to their low lithium diets their aggressive behaviour returned. These findings are supported by studies from around the world.

Lithium is an abundant element, present in adequate levels, in almost all soils, plants and animals, whilst the amount most people need to stay well is tiny. Consequently it has been of so little interest to the food industry.

With so much lithium in the world, why should anyone have a deficiency?

I can think of 3 reasons:

1. A small proportion of the world's population live in areas that are naturally deficient in lithium. For example: Some areas of Japan have less than 1mcg/litre of lithium in the drinking water whilst other areas have more than 50mcg/litre. It was these low levels that prompted the controversial idea of adding lithium to drinking water to combat depression in southern Japan (Ref 2). I think this is the cause to be least concerned about as a good balanced diet will provide sufficient lithium for most people.
2. Poor diet. As lithium is present in almost all foods, we might think a diet would have to be awful to be short of lithium. There is one type of ingredient used extensively by the food industry that contains no lithium at all. It is sugar. By this I mean sucrose, glucose, fructose, lactose and so on. The refining process that produces these purified sugars will remove all the lithium. Hence any food with added sugar is likely to be low in lithium. This is just one example of how a poor diet can result in low lithium levels. Certainly low lithium due to poor diet has been associated with increased aggression.
3. Some people have a greater requirement for lithium than others, although how much this varies may never have been studied. Is it possible that many of us who suffer from mood disorders have at some point been affected by not having sufficient dietary lithium?

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“Lithium may be prescribed to individuals who have become manic, to individuals diagnosed with bipolar disorder (manic-depression) or for individuals who are diagnosed with recurrent (unipolar) depression.” (Ref 3)

Mood disorders were being treated with lithium as long ago as 400AD in Turkey when people who were suffering were taken to bathe in waters rich in lithium. OK, these people knew nothing about lithium itself but the treatment worked. It took until 1947 for modern medicine to catch up as it was discovered that purified lithium in tablet form had a similar effect to bathing in lithium rich waters.

Certain foods have been identified that are higher in lithium and trials of supplementing diets with these have [it seems](#) been successful in the improvement of mood. I am not going to mention any of these, as I want to stress that a diet full of natural unprocessed foods with the minimum of refined foods (where the lithium has been removed along with other minerals) will provide enough lithium for most people.

For people like me who have been taking lithium tablets for many years this question of dietary lithium is an interesting one, but currently does not offer a route for stopping the medication. Lithium is prescribed at a far higher level (Ref 4) than found in any foods. People who abruptly stop taking lithium become extremely ill (more than 95% relapse in a few months – Roger to look up latest figures). If you are concerned that you have been prescribed too much lithium, talk to your doctor. In the meantime keep taking the tablets. Do not ever suddenly stop taking lithium medication.

Ref 1: One of the Texas studies: http://www.townsendletter.com/Nov_2002/dietarylithium1102.htm

Ref 2: Discussion of proposal from Japan: <http://www.telegraph.co.uk/health/healthnews/5251365/Natural-levels-of-lithium-in-drinking-water-help-reduce-suicides.html>

Ref 3: Quote from: http://www.comingoff.com/index.php?option=com_content&task=view&id=27&Itemid=47
<http://www.jacn.org/cgi/content/full/21/1/14>

Ref 4: The available experimental evidence now appears to be sufficient to accept lithium as essential; a provisional RDA for a 70 kg adult of 1mg/day is suggested. <http://www.jacn.org/cgi/content/full/21/1/14>
– Compared with about 800mg/day in medication.