

***Here are some more details from Dr. Nathan Bryan of the University of Texas concerning nitrites/nitrates in our foods.***

**Q. Are the nitrates/nitrites, in vegetables/fruits, the same chemically as the nitrates in cured meats? Does the human body treat this substance, the same in terms of metabolism?**

A. They are exactly the same chemically. The only difference is in fruits and vegetables they are present naturally from incorporation through the nitrogen cycle. Of course they are added as salts to cured meats but as we reported the residual nitrite and nitrate is just the same and sometimes higher in vegetables than what is added to meats. Our body sees the anions as exactly the same in terms of metabolism whether they are from vegetables or meats. The caveat is what other molecules are present which alter the chemical breakdown of nitrite in the acidic stomach. The presence of antioxidant flavanols, vitamins and reducing equivalents preferentially reduces nitrite to NO and inhibits nitrosation reactions.

**Q. The nitrites/nitrate in cured meats, are synthetic, so are they the same as coming from vegetables or fruit?**

A. Synthetic in that they are sodium or potassium salts added exogenously, but in solution (and in the body) they occur naturally as anions just as in the vegetables. The high water content of meats allows complete dissociation to the anions so what you are ingesting is the same as what you ingest in the form of vegetables. Again, the high antioxidant activity of fruits and vegetables prevent any nitrosative chemistry when swallowed. Most people don't know that ascorbic acid is also added to cured meats with the nitrite to promote NO formation from nitrite to form the nitrosylheme pigment that gives cured meats its nice red color and inhibiting nitrosation reactions in the stomach.

**Q. Nitrite-free bacon appears to have 3 mg/100 mg. of nitrites. Is this native to bacon? Is there other meats that have nitrites on its own without being cured?**

A. There are low levels of nitrite and nitrate in all tissues. Surprisingly, this bacon was labeled as nitrite-free bacon (or organically cured) but contained twice as much nitrite as the naturally cured bacon.

**Q. From your perspective as a scientist, as to your knowledge in research, do you consume cured meat? Or what is your opinion about cured meats? Is it healthy or harmful?**

A. I do not avoid cured or processed meats. I commonly eat bacon for breakfast 1-2 days per week and have a sandwich (with luncheon meats) or hot dog on occasions. I eat these without guilt or fear. In fact my 16 month old little baby boy enjoys these same cured meats on occasion. We make a point not to expose the baby or myself to these foods everyday but an occasional hot dog or sandwich can be part of a balanced healthy diet.

**Q. Regarding vegetables, like spinach, is there a difference, in cooked or raw vegetables in their contents of nitrites?**

A. What we have reported on is the content in raw vegetables. The manner in which you cook will affect the content of nitrites and nitrates. Raw or steamed contain the highest. However when you cook vegetables in water, nitrite and nitrate being water soluble come out in solution so the content in the cooked vegetables is much less. In fact that is how we extract the nitrite and nitrate from the raw vegetables.

**Q. Niman Ranch, has a Bacon, with nitrites derived from celery. Is this more healthy than the regular cured (synthetic nitrites) bacon?**

A. This notion of "nitrite-free" or "organically cured" meats is a public deception. This method of curing instead of adding nitrite salts directly to the meats, they add celery salt which is about 50% nitrate. They then add a starter culture of bacteria to the celery salt to reduce the endogenous nitrate to nitrite "the curative molecule". So they can label it nitrite free but in fact they are generating more nitrite from the celery salt than what is allowed to be added as a salt. That is the reason for the higher nitrite content in the "nitrite free bacon". It is the exact same molecule as added to regular cured meats it just comes from a natural source, celery. I think it is probably less healthy than regular cured meats because of the bacteria load and the unknown efficacy of conversion by the bacteria. Some convert 40% some convert 90% so the consistency of the residual nitrite is highly variable. My hope is that we create awareness and educate scientists, physicians and food people of this concept.

