

# Modern Muesli

## *Myth or Misrepresentation?*

Modern muesli is a sham: even if you make it yourself, unless you use the original formulation. You can see why if you compare Dr Bircher-Benner's original (and genuine) recipe comprised of lemon juice, rolled oats, water, sugar, milk, ground almonds and 95% freshly grated apple - i.e. the bulk of the ingredients is fresh apple. The contemporary collection of chaff, fluff and sulphured fruit masquerading as muesli is just "so much colon fibre," as Colin Thomson - maker of Essene bread, once so aptly described it.

Dr Bircher-Benner's Swiss clinic was renowned for rescuing the ignorant from their folly. In those days, fresh fruit was regarded as bad food. Why? Because of its laxative qualities. Bowel motions more often than once, perhaps twice a week were regarded as unhealthy and unseemly. The good Swiss doctor knew well that one fundamental law of biology which said that all living organisms will die in their own waste if unable to get rid of it. And he knew that humans were not exempt.

So all those who were ill with constipation, (auto intoxication as Ross Horne called it), but who didn't really know why, and who were wealthy enough to afford it, trod the trail to Switzerland. The clinic then faced two obstacles: getting these people to eat the fruit they'd hitherto eschewed and persuading them that the incipient and frequent visits to the toilet were really quite normal!

To disguise the fruit, Dr Bircher-Benner invented muesli. La Dolce Sopreta (Italian - the sweet surprise) and 'fruit porridge' were two synonyms used. There were variations on the basic recipe, but the 95% plus of fresh fruit never changed. Muesli was served as an appetiser before every meal. This was also to suppress digestive leucocytosis, an immune system response to the entry of cooked food first, into an empty stomach.

Muesli must be eaten immediately it's prepared, a process that takes a little advance preparation (nothing too onerous: soaking rolled oats in water, overnight) and about fifteen minutes in the morning, depending on how many people there are for breakfast. It has a shelf-life (plate-life?) of less than 20 minutes: not much use to the prepared food industry. An industry that expanded less than 1% of the original ingredients into more than 98% or more of the total recipe. And conned most of the world in the process.

### A Short Chemistry Lesson: A Little About Phytate And Plant Nutrition.

As a seed-bearing plant reaches that post-flowering point of actually making a seed, it's intent on packing all of the necessary building blocks for the life of the next generation into each seed. This provide-for-the-next-generation process involves some sophisticated bio-chemistry. Many of the minerals and trace minerals involved in a growing plant are unstable in their pure, atomic, elemental or ionic form, except when dissolved. I.e. in solution in the sap-stream of the plant. Zinc, phosphorous, magnesium and calcium are examples. To make them stable, they're converted by the plant's bio-chemical processes into a large, complex and highly stable chain molecule called a phytate, e.g. Calcium phytate.

However, to ensure that such essential minerals are available to the next generation, to the newly germinating seed-cum-plant-to-come, the parent plant also sequesters an enzyme in the germ and husk of the maturing seed. This enzyme is capable of breaking the bonds between those essential mineral atoms and the phytate molecule. The latent potential of these enzymes is activated by the same water that germinates the seed. Once activated, the enzyme then needs anything from 6 to 12 hours to "get around" the germinating seed and 'unlock' the essential minerals for the developing plant.

Minerals are as critical to human health as carbohydrates, enzymes, vitamins etc. They may be required in very small quantities, but

they're essential, nonetheless. Rock dust soil re-mineralisation (bread from stones) and the recent advertising trend for colloidal minerals are a part of this awareness. But even if you make your own dry-grain muesli, chances are you won't be getting the full measure of minerals.

#### Another, Longer Chemistry Lesson: About Phytate, Chemistry And Human Nutrition

Did you ever make one of those crystal gardens? Copper sulphate (bluestone) is a common favourite. The bluestone is dissolved in water and either left in a dish, or threads of cotton are hung in the solution. As the water evaporates, crystals of copper sulphate appear.

In chemist-speak, bluestone is a molecule - a fairly small particle of matter - something we can't see with our eyes. It's an atom of copper (Cu) attached to a sulphate molecule, itself comprised of atoms of sulphur (S) and oxygen (O). Chemists write bluestone's formula as  $\text{CuSO}_4$ . A lot of such molecules together form a crystal - which we can see with our eyes. In the crystal garden experiment, when the  $\text{CuSO}_4$  crystals dissolved in the water they 'lost' their crystalline structure as they dissolved and disappeared.

When they dissolve in the water, the  $\text{CuSO}_4$  crystals didn't stop at becoming unseen molecules in the water, they went another step and ionised. That means that - while they 'floated' around in the water - the copper atoms temporarily separated from the sulphate molecules. So in the water, there are now 'free' copper ions (or atoms).

All this has a very important bearing on you and your food, particularly how you assimilate the constituent elements in your food. To grasp how, think of your stomach as a gauze bag - the sort that grandma used to make crab apple jelly with. Inside the gauze bag is placed all the food that you chew and swallow. On the outside, imagine many, many blood veins attached and acting like absorbent sponges. What seeps through the gauze is absorbed by the blood veins. The rest is too big to pass through the bag and stays inside.

Food that's chewed and swallowed is digested by our digestive juices - bile, which contains hydrochloric acid. This acid dissolves the food, turning it into a watery liquid, much like the way that water 'dissolves' bluestone. The food - like the  $\text{CuSO}_4$  - is then ionised. It's now down to the size of the atoms and molecules that it was assembled from by the plants in the first place.

These tiny ionic atoms and molecules then pass through the stomach lining (by a process called osmosis) and into the blood in the veins around the stomach lining. From there, the blood moves these atoms around the body to the places they're needed, eyes, bones, muscles, etc.

A phytate molecule is very large, so large that it cannot pass through the lining of the stomach wall. The phytate molecule is also very stable and immune to the acidic action of bile. Without the action of the phytase enzyme, any minerals attached to a phytate molecule pass right through the human digestive system and are lost. You are: not what you eat, nor what you digest, only what you assimilate!

#### End Of Lesson Two!

All that dry rolled oats, wheat germ, and other grain in the muesli does contain loads of minerals, but in a form that you can't digest and you can't assimilate. Ah-ha, you say: I'll soak my muesli overnight and give the enzymes a chance to work their magic. Good thinking, but there's a catch.

In order to arrest rancidity and other normal processes of deterioration, virtually all oats are steamed or toasted as part of the rolling, grinding or milling process. "Stabilised" is the euphemism given to this process. This increases product shelf life, but also kills the phytase enzyme. A phone call to NZ millers Flemings and Harraways confirmed this to still be normal practice. Therefore soaking avails you nothing unless it's fresh, raw, (unstabilised) rolled oats, no more than 15-20 days since rolling.

So making it yourself and/or soaking it overnight only works if you know the pedigree of your grains! Or at least the processes they've

been through. And now you understand why the Scots always soaked their oats in water overnight! And why muesli bars deliver a good chew, but not an assimilable ration of minerals. Another caveat: flours (usually white) that have had the husk and germ removed are thereby devoid of phytase, which was contained therein. However, bakers yeast contains phytase, so it's possible to 'put back' the phytase in this way if you're baking with white flour and yeast and time to rise.

A word or two about bread, the flour for which is, of course, made from seeds.

Most bread is now made in high-speed MDD (mechanical dough development) mixers. The "Tweedy" is one brand of such machines. These machines turn flour in a silo into dough in a tin in 5 minutes! The antithetical dough-making process is called bulk fermenting. Dough is made and left for 6 - 8 hours to slowly 'rise,' before being formed into loaves, proved (i.e. raised again) for another hour and then baked.

During this double raising period, guess what the phytase enzyme is doing? Not loafing, but giving the staff of life some assimilable minerals for the consumer. Few large bakeries still maintain this tradition, because time is money (or a cost) to them. The Vogel range and North's brand loaves are still in the bulk-fermented wholesome nutrition category. Always ask if the bread you're buying is bulk fermented. Chances are no one will understand what you're talking about, but try, anyway.

Sourdough is no guarantee, either. There's now an 'additive' to mimic sourdough, without the long fermentation that used to be necessary!

Information about the role of phytase, minerals and human nutrition is not taught to bakers or to their PR agencies. So, irrespective of how often it's sniffed, or how often it's baked each day, or if it's styled as if it was made at home, if the loaf is truly made in a factory, it's part of the great chain robbery - the phytate mineral chain.

Even those of us who should know better sometimes get caught. Remember the original organic loaf launched in Christchurch by Professor David Bellamy? Sometime later

I was shown through the bakery making the bread. Imagine my horror when I realised it was made in a MDD machine! Still, an error only becomes a mistake if one refuses to learn from it: To be sure, I now bake my own!

If you're going to make your own real muesli, find and use the recipe in Dr Bircher-Benner's book - if you can locate a copy. I lent mine to someone, years ago and that was the last I saw of it. If you're going to persist with dry grain chaff for breakfast, get raw rolled oats from your health food shop. Extend its "life" by storing it in the freezer - raw rolled oats only has a shelf-life of 2 - 3 weeks, depending on the average ambient temperature. When you buy your daily bread, always purchase loaves made from dough that's been bulk fermented. Failing that, make it yourself, with yeast and with time for the phytase to work. Zentrofan-milled flour makes whole-grain bread baking that much easier than it used to be. Bread maker machines are not nutrition makers - they don't afford the phytase enzyme the time that's needed to work their magic in the dough.

So you've heard that pumpkin kernels are rich in zinc, but are you getting that zinc if you chew on them without 6 - 8 hours pre-soaking? It might pay to check. Just as the price of freedom is eternal vigilance, so is the price of wholesome nutrition! Above all, remember this: just because the packet says the contents are loaded with an impressive variety of minerals doesn't mean they're any good to you. Because they're likely to be in a form that your body can't assimilate!

Further reading: *Eating Your Way to Health* - the Bircher-Benner approach to nutrition with a complete cookery book., by Dr Ruth Bircher. Translated & edited by Claire Loewenfeld. Published by Faber & Faber, 1961, 372 pages dealing with experiences and lessons from Dr Bircher-Benner's Swiss clinic. This is now a rare book.

The Winter 1988 edition of *Soil & Health*, (Vol 47 #6, pages 9 - 15), covers bread and phytates in some greater detail.

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