

Rise of Deadly Superbug Clostridium Difficile Fueled by Sugar in Chewing Gum and Packaged Foods

A common additive found in packaged foods, baked goods and jam might have helped spur the rise of two deadly strains of bacteria. Known as Clostridium difficile, or C. difficile, the bacteria has become a problem in hospitals across the world.

According to a data from the Centers of Disease Control & Prevention in 2015, nearly 500,000 people are hospitalized each year from the infection. In the U.S., 29,000 people died within a month of contracting the infection, though only 15,000 were directly caused by the bacteria.

In America and Europe, two particular strains are linked to the problem, and public health officials and researchers have been looking into why they've gained traction more recently.

"These lineages have been present in people for years without causing major outbreaks; in the 1980s they were not epidemic or hypervirulent but after the year 2000

they began to predominate and cause major outbreaks," said study co-author Dr. James Collins, a postdoctoral associate at the Baylor College of Medicine in Houston, Texas, in a statement. We wanted to know what had helped these lineages become a major health risk."

As they note in the release, the bacteria isn't new, but has become the most common infection acquired in hospitals in the last 15 years.

Although many believe that antibiotic use made the situation worse, Collins and his team focused on what the strains use as fuel instead. After recognizing the bacteria survived on small amounts of trehalose, a sugar used as an additive and also found in certain foods in small quantities, researchers tested the substance in lab mice.

The animals were given a strain of the RT027 bacteria and fed a diet with or without

trehalose, according to the release. They found that mice who ate the sweet diets had a higher mortality rate. The team also discovered that RT027 and RTO78 strains used the substance in different ways, reported Gizmodo. The RT027 version is fueled by only small amounts of trehalose due to a modified protein while RT078 has genes that make it easier to metabolize the sugar.

While trehalose is generally considered safe, this study makes a case for further research.

"An important contribution of this study is the realization that what we once considered a perfectly safe sugar for human consumption, can have unexpected consequences," Collins said in a statement. "Our study suggests that the effect of trehalose in the diet of patients in hospitals with RT027 and RT078 outbreaks should be further investigated."

WHY YOU NEED TO EAT FAT TO LOSE FAT

The secret to dropping pounds, reducing your risk of heart disease, and feeling better overall may just be filling your plate with fats. While eating more fat doesn't mean drowning your veggies in butter, it does mean focusing on two types of "good" fats: MUFAs, or monounsaturated fats, and PUFAs (polyunsaturated fats), which include omega-3 and omega-6 fatty acids.

Why are good fats so, well, good for you? For one, unsaturated fats contain disease-fighting antioxidants like vitamin E, and have been shown to help lower bad cholesterol levels to reduce your risk of heart disease. Plus, omega-6 and omega-3 fatty acids are important for keeping many of our body functions, like our immune system and heart, in top shape. If you're trying to drop pounds here's another important reason to embrace good fats: MUFAS have been shown to help burn away belly fat.

While MUFAs and PUFAs reign supreme, a little bit of saturated fat in your diet may not be as bad as previously thought. Recent studies have suggested that saturated fats in foods like milk, cheese, and meat may not be as harmful as previously thought, after an analysis found no correlation between a high saturated fat diet and an increased risk of heart disease. Coconut oil, a plant-based saturated fat, has actually been shown to raise levels of the "good" cholesterol, HDL, in recent studies. Current guidelines still suggest limiting your saturated and trans fats intake, howev-

er, so it's up to you to make educated decisions about how much you should eat.

That said, eating more fat isn't a bad thing, as long as it's done in moderation. Remember that fats, whether good or bad, are still high in calories, so be sure to keep this in mind when you plan your diet; current dietary guidelines suggest that for a 2000-calorie diet the daily intake of fat, including healthy fats, should be no more than 65 grams. Registered dietitian Julie Upton recommends replacing "low-quality carbs or other foods rich in saturated fats" with foods high in MUFAs and PUFAs to help accommodate the extra calories. Check out our list of some of the best sources of unsaturated fats below, and keep these numbers in mind while you adjust to adding more fat to your diet.

Food Portion	Calories	Total Fat (grams)	PUFAs (grams)	MUFAs (grams)
Almonds 1 ounce (23 almonds)	171	15.6	3.8	9.8
Avocados 1/4 avocado	80.5	7.4	0.9	4.9
Canola oil 1 tbsp.	124	14	4.1	8.3
Chia seeds 1 ounce	137	8.6	0.6	6.5
Dark chocolate 1 square	27	1.9	0.05	0.6
Flaxseed 1 tbsp. ground	37	3	2	0.5
Olive oil 1 tbsp.	119	14	1.4	9.8
Peanut oil 1 tbsp.	119	13.5	4.3	6.2
Pistachios 1 ounce (49 kernels)	158	12.6	3.8	6.6
Safflower oil 1 tbsp.	120	13.6	2	10.1
Salmon 3 ounces cooked	175	10.5	3.8	3.8
Soybean oil 1 tbsp.	119	14	7.8	3.1
Trout 1 fillet	109	4.3	1.4	1.2
Walnuts 1 ounce (14 halves)	173	17	9.8	4.2

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I'M HEALTHY - I'M VEGAN!

by Morwenna Given BA MA (Oxon)BSc. mOHA BHG RH AHG

How often have you heard that statement from friends and acquaintances? How many marketing strategies to sell product imply the association? The answer probably is too many times. The answer is also that if you are a vegan for any length of time you are in fact unlikely to be healthy. A better association would be - I'm healthy I don't eat commercially processed foods.

In practise I have found a strong association between poor immune function with higher susceptibility to bacteria and viruses by those patients who have been vegan for any length of time. Choosing to be vegan for philosophical or ethical reasons is a personal decision and must be respected but at the same time people who practise vegetarianism or vegan diets actually are harming their bodies unless they take remedial nutritional action.

There are good reasons for this apparent contradiction. The body has evolved over thousands of years and in that process has developed a very complex and sophisticated interaction between minerals, vitamins, carbohydrates, lipids (fats) and protein. There is also some evidence to show that the body has developed certain immunity to localised conditions over time such as in West Africa where the sickle cell blood type gives protection against malaria up to about 30 years of age.

The human body has learnt to adapt to the foods grown in the environment in which that body evolved for example the Masai in eastern Africa who eat a diet very high in protein and lipids but never suffer under their traditional diet from hypercholesterolemia. Similarly our own Inuit population who relied on blubber and seal meat did not suffer from hyperlipidemia until the diet changed to reliance on a western processed source.

The body can make many of its own nutrients but there are a number which it cannot and thus must be taken in via food and fluid. The nutrients the body cannot make are called 'essential nutrients'. The most well-known of these is water as the body cannot make enough to overcome normal loss through urine, sweat and so on. Thus dying from lack of water is a very real possibility and occasionally reported in the press when humans are lost in the desert. Vitamins are a group of fourteen organic essential nutrients divided into two groups - water soluble (B,C and lipoic acid) and fat soluble (ADEK). Fat soluble vitamins can be stored in the body but taken in excess can cause very toxic effects. For vegans, the vitamins ADEK are not usually a problem but when we come to the water soluble vitamins which the body cannot keep in high reserves then problems occur. Vitamin B1 otherwise known as thiamin available through meat, lentils, brown rice easily becomes 'deficient' in a vegan because it is destroyed by a number of fruits and vegetables and because in high carbohydrate diets which veganism is, higher levels of thiamin are required so it becomes a vicious depleting circle. Vitamin B2 or Riboflavin principally comes from meat and dairy sources. Vitamin B3 Nicotinic acid, which was featured in last week's article can only be found in sufficient quantities in meat products. Vitamin B5 Pantothenic acid, again predominantly found in eggs and meat. Vitamin B6, Pyridoxine is much more widely available through meat and vegetables. Vitamin B12 otherwise known as cyanocobalin, is only found in animal foodstuffs. Folic acid which is part of the vitamin B complex is found extensively in vegetables, but there are no recorded cases and or evidence for deficiencies of biotin, lipoic acid, inositol, and choline. Vitamin C is widely found in vegetables and fruits. Ingesting large amounts of these water soluble vitamins will make no change to the body as the body cannot accumulate them. Equally all vitamins are required in a synergy or as co factors in the body so the damage by having said not enough B3 and B12 is significant.

Let us look at the key essential minerals the body uses: Calcium, phosphorous, potassium, sulphur, sodium, chlorine, magnesium. Of these phosphorous and sulphur are the ones most likely to be deficient in vegans and critical for bone formation. But a complication occurs if there is an excess or deficiency as it affects the absorption of calcium and magnesium! Thirteen essential trace elements are needed by the body. Iron, zinc, copper, iodine, molybdenum, chromium, selenium, are all found predominantly in non-vegetable/fruit food stuffs such as meat and fish. Nearly everyone relying on a vegan and or vegetarian diet will be deficient in these key trace elements. Anaemia is one of the most common disorders caused by vegan practice. In the soils of North America where the glaciers were active there are insufficient levels of zinc, iodine, selenium in the soils so a wheat/vegetarian source of these key nutrients is likely to be inadequate. Finally we come to the essential fatty acids - linoleic and linolenic. Linoleic can be found in seeds such as flaxseed (linseed) and may be called omega 6 type acid series. Linolenic is found in and called omega 3 type acid series polyunsaturated fats and commonly found in fish oil or blubber of marine animals. They are not found in vegetables. Both types are needed by the body and too much omega 6 prevents metabolism of omega 3 type fatty acids and neither can be converted to the other by the human body. Both chains have key roles in the immune system, cell regulatory molecules (Eicosanoids) and fats provide the structural shape of our cells.

Essential amino acids are isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine. Amino acids are only found in protein and only all the essential amino acids are found in animal protein. Vegans may combine pulses and grains in a meal to get enough essential amino acids but that in turn often leads to high carbohydrates which are converted to excess sugar in the body and diseases such as diabetes.

Many vegans or vegetarians are aware of nutrient deficiencies and supplement but due to metabolism and poor pharmacokinetics this is unlikely to be effective in the long term. So I encourage all to eat a modest well balanced diet and remember you only need about 50grms of protein a day - i.e. enough is found in a large egg!

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