

HANDLE WITH CARE

People with diabetes are nearly twice as likely to use complementary and alternative medicine as people without diabetes, Professor Richard Firth told participants in a recent Diabetes Ireland workshop, writes **Sheila O'Kelly**

Around the world, depending on the location, 20-80% of societies use complementary and alternative medicine (CAM), Professor Richard Firth, Consultant Endocrinologist at the Mater Hospital, Dublin, told a workshop at the recent Diabetes Ireland Annual Awareness Exhibition.

If you have diabetes it is particularly important to remember that taking some alternative medications may reduce your blood sugar when you are taking insulin and you may become hypoglycaemic (eg. your blood sugar falls too low).

And if you are on the anticoagulant warfarin, some of these alternative medications may also be dangerous.

Studies have shown that about 65% of people do not tell their doctors they are using alternative remedies. Some patients said they did not think it was particularly important or worth mentioning; while others said the doctor never asked them.

People believe that the old remedies are safe. However, these remedies are pharmacologically active and may have a positive effect on the person's health, but may also have negative side-effects, especially when you are already taking prescribed medications, Professor Firth told the workshop. This is why it is important to tell your doctor all the remedies you are taking.



Cassia cinnamon: 1g a day can improve blood sugar control

It also gives the doctor an idea of the issues that someone is concerned about. For example, if someone tells the doctor they are taking fish oils, Omega 3 or folic acid, it may be because they are concerned about cardiovascular disease. This gives the doctor an insight into the patient's worries, who can then help them to address these.

The American Diabetes Association has concluded that there is not enough evidence to show the benefit of supplements for people who have diabetes. There is no set standard for the harvest of these herbs and their subsequent processing into supplements. The herbal remedy you buy in one place may be made from the leaves; and in another from the root. This makes it very difficult to safely assess them.

"At this stage it is difficult to recommend herbal products and dietary supplements on the basis of efficacy, quality and safety," said Professor Firth.

However, he had a certain sympathy with the topic and the biggest hurdle to developing herbal remedies was that there was very little money to be made from them. This in turn meant it was very difficult to carry out quality studies into how they worked and what their benefits might be.

Some people will continue to take alternative medications and that is not ideal,

said Professor Firth.

"You have to work obviously with people who are going to do that, but you want to be very careful about what you use," said Professor Firth.

Professor Firth's advice about taking alternative medications is summarised in the table, 'Diabetes and alternative medications'.

In the US, people with diabetes are nearly twice as likely to use CAM as those without diabetes. This is because CAM is used in conditions not well served by conventional medicine such as fatigue, aches and pains, low mood, etc. Natural products are also seen, falsely, as being benign and safe; however, they are often active and toxic.

CAM practices and products

Complementary and alternative medicine includes medical and healthcare systems, practices and products which are not generally considered part of conventional medicine.

- Complementary medicine includes therapies used in conjunction with conventional medicine
- Alternative medicines are therapies used instead of conventional medicine
- Integrated medicine is a combination of conventional, CAM and evidence-based medicine.

In 1992, the National Centre for Complementary and Alternative Medicines was set up in the US as part of the National Institutes of Health. It defines five different types of complementary and alternative medicine, see table 'Types of complementary and alternative medicines'.

About \$5 billion a year is spent in Europe and the US on supplements and herbal medicines. While \$40-50 billion is spent altogether on CAM when you include all the therapies like mind-body and energy medicine. So it is a huge industry.

Diabetes and alternative medicines

Ivy Gourd (*coccinia indica*)

This is used in traditional Indian Ayurvedic medicine. It may reduce the blood sugar by a similar mechanism to insulin. Some trials comparing coccinia to placebo suggest that coccinia does produce a reduction in blood sugar in type 2 diabetes and that it is potentially of therapeutic use. However, further research is needed to determine the best preparations, dose, mechanisms and safety.

Bitter melon

Bitter melon (*Momordica charantia*) This is also known as Bitter Gourd, Bitter Cucumber and 'Vegetable Insulin'. It is thought that the fruit and seeds of bitter melon may have some effect in lowering blood sugar in diabetes.

Bitter melon contains four compounds that activate certain enzymes that regulate how the body breaks down energy from food.

There have been a few studies that show a decrease in blood sugar and A1c (long-term blood sugar levels).

Bitter melon is taken in different ways: as a vegetable, tea, juice, capsule or injection. There is no typical dose but 50-100ml is suggested.

"I presume that's of the juice itself, but again you're stepping into things that we don't really know the source of what you're taking. And they have side-effects, like gastrointestinal distress, rash, itch, headache, haemolytic anaemia, birth defects and miscarriage," said Professor Firth.

Gymnema (G sylvestre, Gurmar, 'Sugar Killer')

"Gymnema is very interesting. In India it's known as Gurmar. Gur is sugar in Indian and mar is killer. So it kills sugar," said Professor Firth.

If you chew *Gymnema* you lose the ability to taste sugar.

"So it's obviously doing something. It's been used in Indian medicine for over 200 years now. It's thought to stimulate insulin and it does have some effect on reducing blood sugar. It's available as a water-soluble extract of 24% gymnemic acid in 400-600mg capsules," said Professor Firth.

DIABETES AND ALTERNATIVE MEDICATIONS

If you have diabetes and you are visiting your doctor:

- Tell your doctor about any non-prescription preparations you may be taking, for example:
 - Dietary supplements
 - Herbs
 - High-dose vitamins or minerals
 - Health food
 - Health store preparations
- Bring the preparation and product literature with you
- Tell the doctor if you are taking supplements for a particular purpose
- Use products from manufacturers using good manufacturing practice
- Use single component preparations that display quantities or concentrations and have an expiration date
- Avoid preparations manufactured outside developed countries
- Be aware of the possibility of hypoglycaemia (low blood sugar)
- Garlic, ginger, ginkgo biloba, ginseng, vitamin E may interfere with blood-thinning medications
- Be very careful in pregnancy, with children and the elderly

Do not use:

Chaparral	Comfrey	Germander	Bitter orange
Yohimbe	Lobelia	Wormwood	Kava
Pennyroyal oil	Skullcap	Aristolochic acid	

This means that *Gymnema* would interfere with your insulin.

Cinnamon

"I suspect there are a good few people that probably use cinnamon," said Professor Firth.

There are two types of cinnamon: Cassia cinnamon and Ceylon cinnamon. Cassia cinnamon is the one used for cooking and baking and it contains an active ingredient called hydroxychalcone, that is thought to enhance the action of insulin.

Cassia cinnamon adds to the effect of the insulin in your body. There was quite a big study published in 2003 where they fed groups:

- 1g a day;
- 3g a day; or
- 6g a day.

They found that there was a blood sugar improvement, but there was no change in the HbA1c (long-term blood sugar).

"But in fact, people who took 1g a day derived a longer benefit from it when they stopped – more so than those who took

3g or 6g," said Professor Firth.

"You can sprinkle it for baking, take it as a tea or in capsules. The most beneficial dose is thought to be 1g a day based on that experiment. Side-effects are quite rare because it's used ubiquitously for cooking anyway," said Professor Firth.

Chromium

Chromium is an essential trace element needed to metabolise glucose and enhance the natural insulin action of the body. Many people have thought that chromium is useful for diabetes. However, Professor Firth said that a major study that analysed the results of all the chromium studies found that it did not have much effect.

There are rare diseases that involve chromium deficiency. When someone is chromium deficient they become quite resistant to insulin. For this type of person, taking chromium may make the insulin in their body work better. However, for someone who already has the required normal amount of chromium in their body, which is nearly everyone, taking more is unlikely

COMPLEMENTARY AND ALTERNATIVE MEDICINES

TYPES OF COMPLEMENTARY AND ALTERNATIVE MEDICINES

CAM THERAPY	DESCRIPTION	EXAMPLES
Biologically based practices	Therapies using substances found in nature with purported medicinal properties	Herbs and dietary supplements such as vitamins and foods
Mind-body medicine	Practices that use the relationship of mind and body to achieve improved health or treat disease	Yoga, tai chi and meditation
Manipulation and body-based practices	Practices that manipulate or move specific body parts or the whole body	Chiropractic therapy, osteopathic manipulation and massage
Energy medicine	Practices involving belief in energy fields around and inside the human body that are altered by providers for health benefit	Reiki, extenal qi gong and therapeutic touch
Whole medical systems	Complete medical systems that often evolved separately from or earlier than conventional medicine	Homeopathy, naturopathy, Ayurveda (traditional medicine from India) and traditional Chinese medicine

From The National Center for Complementary and Alternative Medicine

to benefit their diabetes.

"Unless you have any of the diseases that cause chromium deficiency like chronic diarrhoea, or are receiving all your nutrition intravenously, you are unlikely to become chromium deficient," said Professor Firth.

Other herbs used in diabetes

Prickly pear cactus (Nopal, Opuntia streptacanthia)

This is used in:

- Desserts in the US
- Mexican cooking
- Mexican medicine – stems used to control glucose.

There is little evidence that it makes a lasting difference.

Ginseng (Panex ginseng, P quiquefolius)

There are many species of ginseng and it is very popular in Asia and the US.

The roots are used to improve general wellbeing, concentration, cardiovascular diseases and diabetes.

Ginseng can reduce blood sugar, however, it is not known if this is through insulin-like activity or by altering how the

body metabolises glucose.

A systematic review of ginseng by Buetner and others found conflicting data on its effects on blood sugar in people with diabetes and in those without diabetes.

This could perhaps have been explained by a difference in the composition of different batches of ginseng.

Fenugreek (Trigonella foenum graecum)

This is grown in Asia and North Africa and is used to flavour Indian food. Fenugreek seeds are used in Indian and Chinese medicine for various ailments including diabetes. It is thought to reduce the body's absorption of carbohydrates and increase its secretion of insulin.

The potential has been seen in some type 1 diabetes and type 2 diabetes studies, but the studies were of poor quality.

Garlic

Garlic does not have a direct effect on diabetes. However, it seems to reduce cholesterol and to have a very good effect on high blood pressure. Professor Firth said garlic was generally used medicinally in non-odorous capsules.

One trial had shown a fall in systolic

blood pressure of about 8mmHg, which is as good said Professor Firth, as any hypertensive on trial. For diabetes, there have only been a small number of studies into the direct effect of garlic on the condition. This limited research has shown that taking garlic may increase insulin secretion in type 1 diabetes, but it has no effect on blood sugar or insulin levels in type 2 diabetes.

Aloe Vera

The studies into the effect of Aloe Vera and diabetes have been poorly funded and not particularly well done. Studies have shown that the gel from the meaty part of the pulp may reduce blood sugar by stimulating the beta cells.

However, as with all alternative remedies the method of manufacturing varies and is of different quality. This is especially important with Aloe Vera, because while the gel may be useful for diabetes, the thin lining of the leaf called aloe latex, is a very powerful, toxic laxative.

"The manufacturing of these things and their preparation is all important," said Professor Firth

The studies also lacked details in their design and how their results were reported. This makes their results inconclusive.

Alpha-lipoic acid (ALA, thioctic acid)

Alpha-lipoic acid is an antioxidant that a lot of people use in an attempt to ward off heart disease, however, a lot of the big studies have shown it has no benefit.

"In moderation, there's no harm in any of these natural occurring substances, but people tend to take mega doses of vitamins, etc and that could be toxic," said Professor Firth.

Some studies have shown that alpha-lipoic acid may increase insulin sensitivity.

Alpha-lipoic acid is used in Germany to treat peripheral neuropathy (nerve damage, typically to the feet).

Alpha-lipoic acid is found in spinach, sprouts, broccoli and tomatoes and is also sold as a supplement. Its side-effects include hypoglycaemia (low blood sugar), rash, thiamine deficiency and interaction with drugs used to treat thyroid disease.

COMPLEMENTARY AND ALTERNATIVE MEDICINES

Other dietary supplements

CoQ – Coenzyme Q10: has not shown to be of much benefit.

Magnesium: has not shown any clear benefit, however, it may provide a small protection against developing type 2 diabetes.

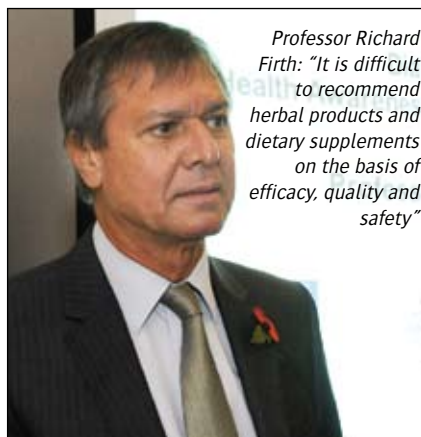
Omega-3 fatty acids: this has been the subject of quite a lot research recently, but high intake does not prevent the onset of type 2 diabetes.

Mind-body medicine

These are practices that focus on getting the mind and body working together to achieve a medical benefit. They include things like yoga and tai chi meditation.

Some of these involve gentle to moderate exercise, which do not achieve the levels of exercise recommended for people with diabetes. People with diabetes should generally do 30 minutes every day of an aerobic exercise like brisk walking.

So while these mind-body therapies



Professor Richard Firth: "It is difficult to recommend herbal products and dietary supplements on the basis of efficacy, quality and safety"

will probably not have an effect on your blood sugar, we all know that diabetes is associated with a lot of ill health, a lower quality of life, negativity and pessimism, said Professor Firth.

"And many of these mind-body therapies are very helpful in terms of wellbeing, making you feel better and toning you up. So the main benefit these practices have is in terms of your quality of life. Importantly, the risks of mind-body medicine are minimal," said Professor Firth.

Research resources

Public

- National Centre for Complimentary and Alternative Medicine: nccam.nih.org
- Office of Dietary Supplements : www.ods.od.nih.gov/index.aspx
- Medline Plus Drugs and Supplements Directory: www.nlm.nih.gov/medlineplus/druginformation.html
- Food Safety Authority of Ireland www.fsai.ie

Industry

- Natural Medicines Comprehensive Database: www.naturaldatabase.com
- Natural Standard: www.naturalstandard.com
- Consumerlab.com: www.consumerlab.com

Conclusion

Supplement and herbal-based alternative medicines cannot be recommended at this time and may be dangerous.

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