

Protecting Your Brain from Age

Welcome to the Diamond Valley Brain Centre's free podcast on Protecting Your Brain from Age. In this podcast we are going to talk about some general brain facts along with what happens in the brain as we age, and then give practical suggestions on how to prevent the damage of aging.

I should point out before we start that this series does not replace advice from your qualified health care professional. If you have any specific health concerns, please discuss it with them. If you live in Melbourne, Australia, we at the Diamond Valley Brain Centre would be glad to help you. Visit our website at www.dvbc.com.au for more information.

This podcast is presented by me, Dr Matthew D.Holmes. I am a chiropractor by training, and I have completed postgraduate training in neurology with Logan University and the Carrick Institute in the USA. I graduated as a chiropractor almost 13 years ago, and have been working with neurology for almost a decade. More recently this has been in my specialist practice, the Diamond Valley Brain Centre, where we focus on natural approaches to neurological conditions, such as strokes, Parkinson's disease, chronic pain syndromes and ADHD just name a few. I also teach neurology and neuroscience at RMIT University. For more information about the services we provide at the Diamond Valley Brain Centre, please visit our website at www.dvbc.com.au

The human brain is an amazing network of complexity. It tells your heart how fast to go, keeps you breathing, directs the digestion of the food you've eaten, keeps you upright while you walk and all of this happens without you being aware of it. On top of that add the huge number of thoughts and feelings that it works through, along with telling us how to act in different situations. Modern computers do not even come close to being able to handle everything your brain does.

Believe it or not the brain is mostly fat (about 60% in fact). The rest is a mix of proteins and carbohydrates. It has a very high energy requirement. It only weighs about 2% of your body weight but takes 15% of the blood flow from the heart.

As most people know, the brain is located in the skull. It is divided into two halves, right and left. Through its connections it controls the function of the body. This point is very important. It doesn't just control movement; it regulates blood pressure, heart rate and rhythm, digestion, hormone levels and immune response just to name a few functions. Much of the decline we experience as humans as we age is not so much local problems in the body, but is related to the decline in function of our brain.

Before we talk more about the effects of age, we need to look at how the brain produces energy. Most of the body uses sugars (glucose) to produce energy, and the brain is no exception. It can use glucose in two ways, aerobically and anaerobically. Aerobic energy production uses oxygen, and is a very efficient way of making energy, that doesn't produce much in the way of waste products.

Anaerobic energy production on the other hand is very inefficient and produces lots of waste products which are damaging to the brain. The brain only uses the anaerobic system if it can't get enough oxygen or the other required nutrients to use the aerobic system.

One of the waste products of anaerobic energy production are free radicals. Free radicals have had a lot of press lately. They are sold as the "bad guys" of brain aging, but in actual fact they aren't all bad. The body uses free radicals for many things; an example of this is the immune system using free radicals to kill bacteria and the like.

However in the brain, free radicals are mostly bad. One of the things they attack are fats, making them go rancid. And as we mentioned, the brain is 60% fat, so the potential for damage here is fairly clear. They also attack DNA and proteins making these molecules stop working as they should. This can cause cancers, but it can also kill cells off. One way to imagine what free radicals do is to think of a piece of iron left exposed to the weather. It will rust and eventually will corrode away. The rusting is a thing called oxidation, and that is what free radicals do.

In some parts of the body, cells dying isn't the end of the world because they can regrow from other cells. But in the brain, cells don't usually regrow. For the most part, what you are born with is what you get. This obviously isn't good news. Cells dying off from free radical damage is what is thought to underlie most of the degenerative conditions that people get in the nervous system. Examples include Alzheimer's, Parkinson's, and Motor neurone disease. Even the less serious conditions such as memory and concentration difficulties associated with age can be due to cell loss from free radical damage.

So how do we prevent this?

As we said free radicals are not necessarily bad. But to keep ourselves healthy for as long as possible we need to minimise the amount we make and keep the ones we do make under control. How do we do this?

Step 1.

Make sure our brain is getting as much oxygen as possible.

Regular exercise keeps your heart healthy, keeps your circulation pumping and keeps your lungs open and efficient. Blocked or narrowed arteries cut down the blood flow to your brain, and as we discussed earlier, when this happens your brain gets pushed into anaerobic energy production, producing more of those damaging free radicals. Regular exercise, 20-30 minutes of brisk walking a day, helps keep things pumping.

For those who are smokers, stop! If you are a smoker, you are probably sick of being pestered to stop. Sorry, but I am going to do it again. Smoking is very bad for your brain. It cuts down the amount of oxygen going to the brain, by damaging the lungs so they don't work properly, and simply from the fact you are often breathing in smoke instead of clean air! Smoking also produces lots of free radicals in of itself and causes you to use up even faster the things that clean them up. The risks of cancer aside, smoking is bad for your brain.

Step 2.

Eat foods rich in the things that control free radicals - antioxidants.

Antioxidants come in many forms, and from a variety of foods. Vitamins A, C and E and the mineral zinc are important antioxidants. Glutathione is one of many more. You can often get lots of antioxidants in your diet. Fruit and vegies have lots of them, especially organic ones. Colour seems to be a key. Richly coloured fruit like blueberries and

strawberries have very high antioxidant levels. Drinking freshly juiced fruit and vegies is a great way to get easily digestible nutrients to keep your brain fresh.

Thankfully though you don't have to just eat vegies for the rest of your days. The good news is that dark chocolate, tea and even red wine all have high levels of antioxidants too.

In reality a well balanced diet of freshly prepared (preferably organic) food can take you a long way to longevity.

Step 3. Exercise your brain.

It has been shown that using your brain in new and novel ways keeps it healthy. Thinking and feeling fires the neurones in the brain, forming new connections and maintaining the ones that are already there. Doing crosswords, learning new skills, just engaging in conversation can all keep our brains healthy.

Step 4. Relax!

It has been shown that stress produces hormones that stop the brain from working as it should, and even increases the decline of age. Regular relaxation time is essential for your brain's health. Even better is a regular meditation, or something like Tia Chi or Yoga. Giving yourself time to rest and recover is important.

Step 5. If you are taking anticholesterol medication, consider a supplement.

Cholesterol has been blamed for a lot of things. Some of us are dubious about how much it is the cause rather than the effect. Your body makes 80% of its cholesterol, and uses it to make many hormones in the body, particularly the stress hormones.

But placing the debate on cholesterol aside, a specific group of anticholesterol medications, the statins of which Lipitor is a well-known one, block the production of a vital thing called Co-enzyme Q10. Co-Q10 is used in the aerobic energy production and low levels of it are known to increase damage from free radicals. So, if you are taking statins, take a co-enzyme Q10 supplement.

Step 6. Cut down on sugar

As mentioned, sugar is what the brain uses for fuel. However too much sugar is toxic to the brain. Too much sugar drives the neurones in the brain, pushing them into anaerobic metabolism. As discussed, this damages the brain. Repeatedly high levels of sugar can also damage the blood vessels, leading to hardening and narrowing of the arteries. This cuts down blood flow to the brain, again pushing it into anaerobic metabolism. In the worst cases the narrowing can lead to stroke.

Refined sugars should be avoided. High sugar foods are things lollies, ice creams, donuts etc. Also refined grains can produce sugar spikes in the blood e.g. white bread. Eating

some good fats or protein (meats, eggs) slows down the sugar absorption. Low Glycaemic Index (GI) foods are better. They have a slower release of sugar into the blood stream.

Step 7. Consider supplements

Supplements do not replace a good diet. But those with higher requirements may need a supplement e.g. smokers, those with a family history of neurological problems or those with existing health problems.

The main supplements to consider are:

- EPA/DHA fatty acids (Fish oils).
- Anti-oxidants – Vitamins A, C & E, Zinc
- Co-enzyme Q10, especially if over 40 or on statins.
- A good quality multivitamin.

Summary

So in summary. Brain aging mostly occurs due to free radical damage, which is made worse by anaerobic metabolism. To decrease this:

1. Get regular exercise.
2. Stop smoking.
3. Eat lots of fruit and vegies, with some chocolate and red wine too.
4. Exercise your brain. Try new things, keep learning.
5. If you take statins, take co-enzyme Q10.
6. Cut down on refined sugars
7. Consider supplements to enhance your diet.

I hope you have found this podcast to be useful. Don't forget to visit our website at www.dvbc.com.au and subscribe to our free e-mail newsletter to keep up to date with the latest health news and tips. Thanks for listening.

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