

Are you a chocoholic?

If the answer is "Yes" then you are far from being alone.

Aside from the weighty issue of rising poundage, there is also a more pertinent issue for sufferers of chronic pain.

There appear to be 2 sides to this story and I really cannot say which is the more accurate: it may well be a case of "suck it and see";

The "for" argument goes something like this:

Chocolate may be good for the heart in more ways than one.

Researchers have found that chocolate contains high levels of phenolics, some of which are thought to reduce the risk of coronary heart disease by preventing fatlike substances in the bloodstream from oxidising and clogging the arteries.

This finding was reported in the September issue of The Lancet. It concluded that chocolate can contribute a significant portion of dietary antioxidants.

You may well have heard of antioxidants in the context of nutritional supplements, health food shops, or even wine.

Another "for" argument which is closer to home is that chocolate has a capacity (like coffee and tea) to interact with brain chemistry.

THE "BLISS" MOLECULE:

Yes, biochemistry has found a molecule which plays a role in pain, depression, appetite, memory (and fertility...but that's a different story)

This messenger molecule was originally called N-arachidonylethanolamine, which was more than a bit of a mouthful so was nicknamed "anandamide" from the Sanskrit word "ananda" meaning 'bliss'.

Anandamide acts on special receptors which also respond to marijuana's active ingredient, tetrahydrocannabinol (THC for short). You may wonder why the brain has these receptors in the first place.

It turns out that the body produces a chemical which is very similar to THC and the receptors are for this molecule. There is in fact an endocannabinoid system : your body produces natural marijuana-like substances in much the same way as it produces endorphins, the body's natural morphine-like substances.

The THC-like substance should produce a natural "high" when everything feels better, perceptions of time may change and in experimental animals, it appears to act as a painkiller.

The bad news is that anandamide is rapidly broken down once it is produced.

However.. this is where the chocolate comes in...it can inhibit the breakdown of anandamide.

One researcher (Piomelli in San Diego) has speculated that depression could be caused by too rapid a breakdown of anandamide and similar chemicals.

He also speculates that part of the pleasure we get from eating chocolate comes from anandamide and anandamide-preserving N-acyl ethanolamines, but he does stress that

“We are talking about something much, much, much, much milder than a high.”

The responses to chocolate and cannabis are not really similar and in any case, the concentrations differ considerably.

However, Piomelli's group have recently found a second molecular key that closely resembles anandamide: naturally produced sn-2 arachidoylglycerol (2-AG) can also lock into the bliss receptor. 2-AG is present in some parts of the brain in concentration of 70 times that of anandamide.

Piomelli has speculated that 2-AG and anandamide perform complementary functions and that understanding these functions might be the key to exploit their positive effects therapeutically, whilst avoiding the negative effects (e.g. on memory: in animals, anandamide appears to induce forgetfulness.)

INGREDIENTS OF CHOCOLATE:

Experts formerly thought that amines, substances contained in chocolate and other foods such as peanuts, aged cheeses and alcohol, were responsible for triggering migraines. However, new research disputes the role of chocolate in causing headaches.

Indeed, another ingredient of chocolate, caffeine, (a methylxanthine) was considered to be a culprit in causing headaches but is now recognised as being helpful in treating them.

In any case, chocolate contains fairly negligible quantities of caffeine, 1.3 oz, of milk chocolate contains about 4mg and the same quantity of dark chocolate contains 22mg., compared to an average 120mg per cup of coffee.

In the USA, the average consumption per capita of caffeine is approximately 200mg daily for adults but only about 38mg in 5-18 year old children. This works out at about 3mg/kg body weight for adults but a much lower amount (0.17mg/kg) for children.

Chocolate does contain some other substances which might cause effects on brain chemistry: including the neurotransmitter serotonin (which may account for why chocolate cheers us up).

One theory suggests that when chocolate is eaten, the brain releases b-endorphin (natural 'pleasure' hormone), which is the driving force behind the pleasurable effects and the addictive nature of our liking for chocolate.

Chocolate also contains histamine which is implicated in allergic or inflammatory reactions in the body.

Other ingredients include the amines mentioned above: such as tyramine, tryptamine and phenylethylamine. Theobromine, a metabolite of caffeine, unlike caffeine is found in greater quantities in chocolate than in coffee/tea. Estimates of theobromine content of chocolate suggest levels of 44mg/oz for milk chocolate, 150mg/oz for semi-sweet chocolate and 390mg/oz of baking chocolate.

Methylxanthines such as caffeine and theobromine have been implicated in triggering migraines: however, research now suggests that the primary causes of this type of headache are in fact stress, sleeping difficulties, hunger or hormonal changes.

In fact, the latest research shows that caffeine can be effective in treating the pain and associated symptoms of migraine. It may be most effective in any headache if taken early: a cup or two of coffee may be sufficient to abort some headaches, and if not, may reduce the severity of the attack.

THE DOWNSIDE:

Despite the notion that caffeine may help to treat headaches, there are some people who find that chocolate triggers migraines or it may worsen other types of pain.

Indeed, I usually recommend that those who have nerve-related pain should reduce their caffeine intake as one of the variety of measures to help manage the pain.

This seems to be very much an individual matter: one man's meat, being, as ever, another man's poison, so to speak.

Methylxanthines have been implicated in one controversial study in fibrocystic breast disease: a benign condition characterised by round lumps that move freely in the breast tissue.

The study proposed that total abstention from methylxanthines lessened symptoms and resolved FBD entirely. However, other studies have been unable to duplicate these findings.

MAN'S BEST FRIEND:

Of course, for dogs, chocolate is not just a trigger for the canine equivalent of a migraine: it is potentially lethal. Chocolate is in fact toxic to dogs, a lethal dose being about 100mg/kg body weight.

Vets recognise that doses well below this may precipitate signs of toxicity in an animal: these include excitement, increased urination, muscle tremors and rapid heart rate.

In fact, these signs may occur in dogs given as little as 10% of the lethal dose.

Using the levels of theobromine shown above, one can calculate the toxic doses:

- 1 oz. per pound of body weight (2oz per kg) for milk chocolate
- 1oz per 3 pounds (1oz per 1.5 kg) for semi-sweet
- 1oz per 9 pounds (1oz per 4kg) for baking chocolate.

Vets rarely see dogs die from chocolate, but they do see over-excited dogs (who may get hyperthermia: raised body temperature), dogs with enteritis, heart problems and pancreatitis or other complications of eating chocolate.

So sharing your M&Ms with your dog may not be too bad, but semi-sweet and baking chocolate are best kept well out of pets' way (and indeed, children for that matter!)

Sarah Smith, November 2000.

(Well Well Well chocolate is good for you and chocolate is bad for you. What a surprise!

That's the good old medical profession, with it's habit of sitting firmly on the fence - having it's cake and eating it. (Presumably chocolate).

So if you want the good DocSarah to tell you more about what is good/bad for you, just let me know and I'll see what I can do. - ED)