www.HealthHits.info

www.facebook.com/HealthHitsPod

www.twitter.com/HealthHitsPod

HealthHitsPod@gmail.com

Hello and welcome to the Health Hits podcast.

*

I'm your host Tom Fisher, and this weeks episode is all about Hay Fever. Yes as the summer months start to approach here in the northern hemisphere most people are looking forward to kicking back and getting outdoors. But not people with Hay Fever. For them it can be a misery of sneezing, congestion, fatigue and more sneezing.

We'll cover what it is, how it affects us, and although there is no cure, we'll cover the most effective ways to minimise the symptoms.

*

So what is Hay Fever?

Well it was first described 198 years ago by a British doctor John Bostock, who described a patient with a 'Case of a periodical affection of the eyes and chest'.

He described a 46 year old man with itchy, red and watering eyes, runny nose, sneezing and tightness of the chest. Anyone who suffers with hay fever will instantly recognise these symptoms.

We talked about the Victorian approach to medicine in last weeks episode on Florence Nightingale and at this time, the late Regency era, the approach was little different.

As any good physician of the day, Bostock naturally attempted to cure this gentleman with bleeding, purging, opium and variety of toxic metals.

However, despite these old reliable techniques, he actually noticed that if the gentleman stayed indoors at home, he would have fewer symptoms. I would probably want to stay at home too if my doctor had made me bleed, vomit, have diarrhoea and ingest a variety of poisons.

He couldn't explain exactly why the outdoors provoked the Hay Fever symptoms but it is well understood now that pollen is responsible.

The medical term for hay fever is allergic rhinitis. Rhinitis meaning inflammation of the nasal passages.

But we know that the eyes, the throat, and to some extent the lungs are also affected.

All year round or perennial rhinitis can be driven by dust or pet fur, but if you just have symptoms at certain times of the year, its likely to be a seasonal rhinitis, driven by pollen.

There are different pollens around at different times of the year, so if you get symptoms in the spring it is likely driven by tree pollen, in the summer will be related to grass pollen, and in the autumn it will be driven by weed or mold spores.

Of course there is no reason why you couldn't be allergic to all types of pollen.

198 years may seem like a long time ago, but in terms of common medical conditions it is a relatively late description. And that is because allergy in general, at least in such frequency, is a relatively modern phenomenon. Allergy driven conditions such as asthma, eczema and Hay Fever are getting much more common.

I have recorded previous episodes on asthma and eczema, and in the eczema episode we explore the hygiene hypothesis which is the widely accepted cause for their increased prevalence.

So lets come back to pollen.

It's a microscopic powder that is released from the male parts of plants, essentially its plant sperm. Its transported to other plants to fertilize them, either on the bodies of insects like bees or in the air.

Its this air-borne pollen that can come into contact with our eyes, nose and throat and provoke a response.

The body responds to the pollen in the same way it would do to an infection. It wants rid of whatever this foreign material is. The immune system in these parts of the body reacts in several ways, the most important being release of histamine.

Histamine is a compound that encourages inflammation, and is release from immune cells called mast cells.

The inflammation that the histamine provokes causes watering of the eyes and nose, and you can imagine how that would help to flush away any infectious or irritating material.

The histamine also increases blood flow which causes reddening of the eyes; and fluid leaks out of the vessels which results in the swelling of the cells that line the nasal cavity and the resultant congestion.

The first treatment option we'll talk about is antihistamine, which blocks the action of histamine, but first I just want to talk about the physiology of sneezing for a moment.

In the same way that watering eyes and runny nose flushes out irritants or infections, sneezing is also an effective mechanism for clearing unwanted material. There is fierce debate about speeds and distances but lots of studies seem to support the idea that aerosolised droplets in a sneeze can travel as far at 15 metres at speeds up to 100mph.

Sensor cells in the nose are triggered by irritants and they fire nerve signals up to the base of the brain, the brainstem. This then provokes a reflex of a deep breath in, and trapping of the air in the lungs. This happens because of closing of the epiglottis, which is essentially a trap door at the top of the windpipe.

The abdominal and chest wall muscles then all contract, increasing the air pressure in the lungs, and when the epiglottis pops open a rush of air forces its way out. Some of this air is directed towards the nose thanks to movement of the soft palate at the back of the mouth. This contributes to the weird sound that we make when we sneeze.

This is all an unconscious reflex involving multiple nerves and muscles and we have very little control over it. But the old myth that if you hold on to your sneeze your eyes will pop out is untrue. Having said that though, the several litres of air forced out of the lungs has to go somewhere, and its seems likely some of it would go up the eustachian tubes that connect the nasal cavity to the ears and that extra pressure could cause some damage.

So as Queen Elsa of Ardenelle once said: let it go. But for goodness sake cover your mouth!

So back to the treatment options.

Antihistamines are drugs which block the action of histamine and so can massively reduce its impact.

The mast cells will still release the histamine, what they call degranulate, its just that the histamine won't be able to affect the eyes, nose, throat, with nearly so much impact.

Antihistamines were first discovered by Italian pharmacologist William Bovet in 1937. He was aware of the existence of histamine and was looking for a way to inactivate it but when that approach failed he worked on a molecule that would block the histamine receptors on their target cells.

You can think of its effect on the cells as like using the wrong key in a door. The wrong key will not open the door but it will still block the keyhole, and thus stop the correct key being able to open the lock. In this analogy the histamine is the correct key, the wrong or blocking key is the antihistamine drug, and the door is the cell, which if opened, would result in a tidal wave of tears and mucus pouring out…

There are now a huge number of antihistamines available over the counter. The older ones can be quite sedating, the most common available is chlorphenamine, or piriton, but the more modern ones are classified ‘non-sedating’.

Now that’s not to say that they can’t cause drowsiness but the majority of people seem to be able to take them without major problems. Some experimenting may be necessary to find the most effective one for you.

They can be taken regularly, or just as and when.

So antihistamines are taken by mouth and will affect allergy response throughout the body.

But on top of this we can also use topical treatments: treatments you apply directly to one area of the body.

Lets look at conjunctivitis first: the red, itchy, watery eyes.

Sodium cromoglicate eye drops can be used to reduce these symptoms in hay fever. Sodium cromoglicate works by stabilising the mast cells, and making them much less likely to release that histamine.

Again it can be used regularly or as a when needed. And is equally effective when used for hay fever as it would be for eye symptoms in dust or pet allergies.

Sodium cromoglicate also comes in a nasal spray form and can be used to reduce rhinitis: the congested and runny nose symptoms.

But what may be more effective over the longer term is a steroid nasal spray.

There are multiple preparations of this, Beconase and Flixonase being the most commonly available over the counter.

These nasal sprays contain only a tiny amount of steroid which when sprayed into the nose only affect the nose with negligible amounts getting into the bloodstream.

As a result they don’t cause some of the longer term oral steroid side effects such as weight gain, bone thinning and immune system suppression.

Steroids work by blocking the action of some of the compounds which would normally cause inflammation.

When using the spray the temptation is to point it straight up the nose, but if you look at the structure of the nose and nasal cavity in cross section you see that the majority of the cavity is behind the face, and the nose is only a tiny bit sticking out at the front.

Its really common for patients using nasal sprays to come in to see me because they don’t seem to be working.

If you put the spray straight up the nose it tends to just run out, so ENT specialists usually advise to point the spray towards the ear, to get more of the steroid to more of the nasal cavity. The spray bottle works best upright, so some tilting forward of the head helps.

I’ll leave a link to a good video demonstration in the resources section of the site HealthHits.info.

Its important to state that we are talking about corticosteroids, and these have nothing to do with anabolic steroids that might get you banned from the Olympics.

Interestingly a short term decongestant drug called ephedrine, found in medications like Sudafed, is found on the World Anti Doping Prohibited List because it’s a mild stimulant.

But its actually not that easy to get hold of any more anyway, because it can also be used in the manufacture of chrystal meth.

In fact its been pretty much banned in Australia and most of America, so decongestant manufacturers tend to use alternatives to ephedrine now a days.

The problem with decongestants more generally is that if you use them for too long they can actually drive more congestion, so I would always recommend a steroid nasal spray in preference.

And finally, wheeze.

Hay Fever can provoke wheeze, and the processes that occur are identical to what happens in asthma, which I covered in the very first episode of the podcast. But essentially inhalers can deliver different drugs into the lungs to reduce the impact of the wheeze.

So in conclusion. Hay fever symptoms are caused by pollen. Staying indoors can reduce the exposure and so the symptoms, but that's about as much fun as a course of leeches.

Other ways to avoid pollen might include wrap around sunglasses to minimise pollen reaching the eyes, and applying vasaline under the nose to catch some of the pollen before it gets into the nose and causes sneezing and congestion. Also, closing windows in the evening as this will reduce the amount of pollen that comes in, carried on the cooling, falling air at that time of day.

Medication wise, antihistamines plus a combination of sodium cromoglicate eye drops, steroid nasal sprays and possibly an inhaler, all taken together give us the best control of symptoms. Most of this stuff you can buy over the counter, but if you're struggling you can always see your doctor about it.

Finally, hay fever is driven by the immune system, and the immune system is constantly changing, which means you can be an adult and develop hay fever for the first time, and equally find that after years of misery, the symptoms just vanish.

I am sure that future will involve some form of immune or gene therapy for hay fever. There were promising results from work on a hay fever vaccine published in the Journal of Allergy and Clinical Immunology in 2013, but I can't find any further articles, suggesting perhaps that they hit some obstacles.

So for now, at least, we manage the symptoms, and from my experience both as a suffer and a doctor, I would say that there are a lot more options available than people realise and the pharmacy has almost everything you need to get better control.

Follow me on facebook and twitter @HealthHitsPod and review my resources library on www.HealthHits.info

Thank you again for listening, and join me next time on Health Hits.