



How Pet Remedy works

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Pet Remedy has two distinct modes of action that work together to support your pet's ongoing emotional well-being a direct pathway and an indirect pathway.

And each of these modes of action work through different pathways in the brain.

Let's take a look at each of these pathways in a bit more detail.

You'll be familiar with the direct pathway already, because that's how most nutrients, supplements, and medicines find their way into your body.

For example, when you take a supplement as a pill or liquid, the active ingredients are absorbed from the digestive tract into your bloodstream, where they'll find their way to where they're needed in your body.

Pet Remedy works a bit differently here because it's formulated as an aerosol, much like an aromatherapy product.

So instead of being absorbed in the stomach, the active ingredients are absorbed from the nasal passages instead.

This direct route through the nasal passages has some distinct advantages over taking oral supplements such as pills or liquids.

Once Pet Remedy has entered the bloodstream, it finds its way up to the brain, where it has at least four different modes of action.

First, it binds to GABA receptors in specific areas of the brain, such as the cerebral cortex, the limbic system, the amygdala, the hippocampus and the thalamus.

You'll already be familiar with some of these brain errors, such as the limbic system and the amygdala, because of their association with emotions and stress.

The hypothalamus is also a really important area because of its involvement with the so-called hypothalamic pituitary adrenal axis or HPA axis, which is responsible for the release of stress hormones during stressful situations such as adrenaline and cortisol.

The key point here is that pet remedy does not indiscriminately interact with the GABA system, which would simply lead to a state of general sedation.

Instead, it targets these specific brain areas where it can help to modulate an animal's emotional reactions to challenging and stressful situations.

In the second direct mode of action, Pet Remedy binds to dopamine receptors in the brain's reward system, where it helps Dr Motivation towards the good things in life.

Chronic stress has a profound negative effect on the reward pathways, and pet remedy may help animals build emotional resilience as they learn to cope better with the ups and downs of daily life.

In the third direct mode of action, Pet Remedy also binds to serotonin receptors.

Like dopamine, serotonin is a critically important neurotransmitter involved in the modulation of emotions and mood state.

The brain serotonin system is incredibly complicated and neuroscientists are still trying to unravel its mysteries.

But broadly speaking, serotonin complements dopamine tendency to drive and motivate behaviour by encouraging the animal to be patient.

This can be best understood in the context of impulsive behaviour, where a reduction of serotonin is believed to be an important factor.

The ability to control one's behaviour, to learn to think and be patient is hugely important when it comes to making better decisions, especially in uncertain situations.

In addition to this, PET Remedy also binds to a serotonin receptor called 5 HT 5A.

This receptor can be found in the brain circuitry that keeps the body's circadian clock In Sync.

The body's clock is vital for maintaining quality sleep health.

This is especially important in our 24/7 modern world, which many companion animals find themselves caught up in.

In the fourth mode of action, PET Remedy supports cell metabolism.

More generally, the cells in the brain are particularly vulnerable to oxidative damage because they have to work harder than any other cell in the body.

And of course, we all know that chronic stress and that stress hormones such as cortisol and adrenaline are damaging to cells because they produce an overabundance of free radicals.

Pet remedy may help here too, because it can work as an antioxidant, protecting cells when they are stressed, vulnerable, and at risk of damage.

So to summarise Pet Remedy's direct modes of action include modulation of GABA activity and key areas of the emotional brain such as the limbic system, amygdala and hippocampus.

Modulation of dopamine and its role in motivation and learning in the brain's reward system.

Modulation of serotonin and its role in adaptive decision making processes that facilitate self-control and help avoid impulsive behaviour.

Pet Remedy also has antioxidant properties and helps protect precious brain cells from stress related oxidative damage.

Now let's take a look at pet remedies indirect pathway and see how it complements and holistically supports the direct pathway.

At the heart of this indirect pathway is the olfactory system.

Let's begin with a brief look at our sense of smell and why it has until recently been largely ignored by science compared to the other primary senses such as vision, hearing and touch.

The reason for this is simple.

While senses such as vision and hearing and touch are easy to study, our sense of smell has turned out to be mind bogglingly complicated and inaccessible.

To understand why this is true, let's take a brief look at vision.

Pause for a moment and think about how useful and wonderful your sense of vision actually is.

We can see objects in amazing detail and also enjoy their many different colours and hues.

But below the surface, the visual system is surprisingly simple.

At its heart, there are just three different types of colour receptors called cones, red, green and blue.

Animals like cats and dogs have only two colour receptors, green and blue, so dogs can't actually see a bright red ball we throw for them in the same way that we do.

Despite this limitation, just three different types of colour receptors gives us humans a colour palette of about 1,000,000 colours that we can see.

How does this compare with our olfactory system? By contrast, we humans have a range of about 400 different types of olfactory receptor, compared to only three types of colour receptors.

Dogs have about 800 different types of olfactory receptors

To be clear, 400 or 800 is not the total number of receptors in the nasal passages.

Rather, it's the range of different types of available receptors, each of which are sensitive to different types of smell.

Dogs on average have about 250 million receptors in their noses.
We humans have a fraction of that because our nasal passages are so much smaller.

The key point here is that it's the range of different types of receptor that gives us the ability to discriminate the difference between a near infinite number of different smells.

At the heart of the olfactory system are just two structures, the olfactory bulb and the pyriform cortex.

The olfactory bulb is part of the limbic system, and its job is to start the integration process of all the information it's receiving from the olfactory receptors in the nasal passages.

This information is then passed on to the piriform cortex, which is connected up to many other important limbic areas responsible for emotional processing, such as the amygdala, the nuclear accumbens, the hippocampus and the orbitofrontal cortex.

In fact, the entire olfactory system is tightly linked up with the emotional limbic system, and this lies at the heart of pet remedies indirect pathway.

So let's take a look at how this works.

Once Pet Remedy has entered the nasal passages and its active ingredients have bound to their specific receptors, it has at least three different modes of action.

First, smell is one of the most visceral emotional triggers, and it has deep connections into the limbic system.

Have you ever been back to places where you lived as a child and it still smells the same?
The familiar smells rekindle old memories forgotten long ago, and importantly, many of the emotions and feelings associated with them.

So smells are a very personal experience.

Pet Remedy utilises these emotional associative learning processes so that they act as safety signals wherever the product is being used.

Remember, Pet Remedy is not working in isolation here.

It's working synergistically with three of the four modes of action in the direct pathway, namely GABA, dopamine and serotonin.

We looked at these earlier.

For the second mode of action, the olfactory system is littered with oxytocin receptors, which makes perfect sense because of its strong connections with the emotional limbic system.

The reason for this is simple, the social animals like humans, dogs and horses.

Maintaining strong social connections with family and friends is really important and smell is an important part of that.

Even in us humans, the constancy of pet remedies smelling the environment help facilitate this process.

Pet remedies final to indirect mode of action is that it helps animals adapt to change.

This is an important effect that's happening all the time in our brains behind the scenes.

Where did you last go on holiday? Somewhere oriental and exotic? To the seaside? Or perhaps on a camping trip into the mountains? When it comes to their olfactory or smell profiles, all these different locations are unique.

The aroma of exotic spicy food, the waft of sand, seaweed and fish and chips, or the smell of fresh mountain air and pine trees.

Now here's the thing.

We tend to focus on vision and hearing as our most important primary sensors.

But as I said earlier, these sensory processes are quite primitive.

Look at it this way, you learn how to use your eyes and ears as a baby while you're flailing around in your cot exploring your surroundings.

And because the visual and ordinary landscape are pretty unchanging and stable over a lifetime, wherever you are in the world, you only have to learn about it once.

The basic building blocks of the colours and sounds you encountered on your holidays were similar to those at home.

And everywhere else in the world for that matter.

Olfaction or smell isn't like this.

Being able to detect all smells and even in a given environment wherever you are is a complex process, and evolution has solved this problem for us by providing many hundreds of different types of olfactory receptor 400 olfactory receptors in us humans and around 800 in the average dog.

So what has all this got to do with where you go on holiday? The answer is actually quite a lot.

You may not realise it, but the combination of different olfactory receptor types you have at home is unique to your local environment.

In other words, not all of the 400 different receptors you have available are all being used at the same time.

This is because your local home environment itself has a limited number of smells.

But when you go away on holiday to environment, that smells very different, your factory system reshapes itself to accommodate those new smells.

And it does this by swapping the types of receptor expressed in your nasal passages.

So if you went on holiday to the seaside, it would take two to three weeks for this change in receptors to sort themselves out.

Then when you've got back home, your receptors would shift themselves back to your home environment to configuration.

The key point here is that Pet Remedy takes advantage of this shapeshifting behaviour of the olfactory system.

For example, when the dogs find herself in a new environment, such as the vets or kennels, this is often a really stressful experience.

But the presence of an aerosol or pet remedy in the newer environment can act as a familiar safety signal, giving the animal sense of constancy, familiarity and security.

And remember that this process is not working in isolation.

It's working synergistically with three of the four modes of action in the direct pathway we looked at earlier, namely GABA, dopamine and serotonin.

All in all, rather than passively calming your pet remedies, mode of action is more proactive.

The indirect pathway connects directly to the Lumix system, build social connections and build safety signals in changing environment.

And this works synergistically alongside pet remedies direct pathway and remember that the direct pathway strategically modulates the activity of other neurotransmitter systems such as GABA, dopamine and serotonin.

These are the systems I spoke about earlier.

The net effect of this combined approach is that pet remedy naturally facilitates and reinforces learning to feel safe.

In often challenging environments, feeling safe helps an animal mentally slow down and become less reactive.

This leads to a better decision making, which means that an animal is making more proactive and appropriate choices about what to do, rather than just passively reacting to external events.

Pet Remedy also helps an animal get more quality sleep.

Overall, this helps the animal build emotional resilience, which in turn leads to the ability to cope better with the ups and downs of daily life and other stressful events.