

# DON'T BE NEEDLED OVER NEEDLES

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**Categories :** [Vets](#)

**Date :** September 5, 2011

**Dan O'Neill** discusses a methodology for needle usage that avoids both owner and pet becoming "wobbly"

**Drug administration by injection is a routine daily task in small animal veterinary medicine and shouldn't present any particular stress to us as vets.**

However, from a client's perspective, apprehension regarding his or her pet potentially being hurt during this "routine" injection – or just a dread of needles in general – may induce an extreme stress response. Just watch how many clients turn away, flinch or cringe when that needle pierces skin to see how prevalent this reaction is. That's not even including those who have to leave the room at the time of the injection or refuse to bring in their pet in the first place.

Wouldn't it be great if we could offer, in advance, a guarantee of a greatly pain-reduced injection? This would offer the potential to improve animal welfare, while also ameliorating owner apprehension. Well, now you can. Read on.

## The problem

A fear of injections/needles is commonly called "needle phobia" or, for the more triviaminded, "trypanophobia". This is a condition that has been officially medically recognised and is estimated to affect 10 per cent of the adult population, though the true numbers affected could be much higher (Hamilton, 1995).

Despite trypanophobia being a hindrance to compliance for the medical professions, it has a sound

evolutionary basis from the sufferer's perspective. Prior to the advent of modern medical techniques, an innate or learned aversion to stab or piercing injuries would have had a strong survival value.

Although seemingly having the same phobia of needles, trypanophobes comprise four specific types ([Figure 1](#)). The most common is the vasovagal trypanophobe (approximately 50 per cent), who often may faint (vasovagal syncope) from the feeling, sight or even the thought of needles. The vasovagals often also show pallor, nausea and sweating, allowing the astute clinician to spot fainters in advance. This is thought to be an inherited condition. Sufferers often do not even know they have a fear of needles and thus may appear normal at the beginning of a consultation, before slumping against the wall.

Associative trypanophobes are the classic specific phobias and the second most common group (approximately 30 per cent). A previous painful medical experience on themselves or a close friend causes future needle-related events to be associated with the original aversive event. Symptoms include panic attacks.

Resistive trypanophobes (approximately 20 per cent) have often experienced a repressive upbringing or restraint during a prior needle procedure. Resistives may show severe aggression or flight when faced with an injection.

The final group, the hyperalgesic trypanophobe (approximately 10 per cent), have a genuine inherited hypersensitivity to the pain of an injection and may show extreme anxiety and heart rate elevation at the point of needle insertion.

A needle phobic response may also be elicited vicariously by the sight or thought of needles piercing the skin of another person or animal. Functional magnetic resonance imaging shows that either feeling a pinprick stimulus to one's own fingertip or witnessing another person's hand undergoing similar stimulation are associated with common activity in a pain-related area of the brain (Morrison, 2004).

Trypanophobia raises several issues for the practising vet. Firstly, we need to accept that needle phobia is a genuine medical issue for many people – belittling or lampooning the sufferer is not helpful. We must find a way to help our needlephobic clients to cope with their fears. Secondly, it is important that we handle all needle-related events in the public eye in a manner that does not engender future needle phobics or worsen current sufferers. And thirdly, our responsibility to the welfare of the pets under our care also behoves us to ensure that our treatment of trypanophobes does not result in their pets failing to receive necessary treatment.

## **A solution**

This article describes a quick, simple and highly effective technique for reducing both owner

anxieties in advance of the injection, as well as patient discomfort during the injection process.

Three key aspects make up the technique:

- neurology of pain perception;
- application to the pet; and
- application to the client.

## **Neurology of pain perception**

When it comes to the neurology, a lot of blurb has been written on various receptors, dendrites and pathways, but the science can be kept to the necessary basics.

Injection-related pain results from stimulation of peripheral pain receptors. This pain message goes to the spinal cord, where it travels a few segments along the cord. The pathway then synapses with another neuron that crosses to the opposite side of the cord and then moves up to the thalamus in the brain. Here, it synapses with a final neuron that transmits to the sensory area of the cerebral cortex, where the pain is felt. As such, a fixed specific stimulus – such as an injection by a 23-gauge needle – might be expected to produce a fixed amount of pain, and that there is nothing that we can do to alter this. However, this is not so. Read on to be enlightened.

## **Mechanism**

The Don't Hurt Injection is a practical application of the Gate Theory of Pain, as proposed more than 40 years ago (Melzack and Wall, 1965).

Debate still rages as to the exact mechanism, but the essence is that signals reaching the spinal cord are normally transmitted upwards to conscious sensation, but are modulated at some of these synapses by other afferent impulses travelling at the same time and in the same general direction along faster pathways. Peripheral pain receptors relay information to the central nervous system via unmyelinated or small myelinated fibres.

According to the gate theory, pain impulses can be slowed or abolished by a simultaneous input in larger myelinated nerve fibres that are stimulated by vibration, massage, scratching, rubbing or pressure. The spinal cord behaves like a “gate”, allowing the faster (squeeze) impulses through, while selectively blocking the slower (pain) impulses. Therefore, deliberate stimulation of non-pain receptors at the same general area and time as the pain stimulus can close this “gate” to the pain messages and effectively prevent them getting through. Clever stuff, eh?

## Application to pets

In practice, there are a few variations that close the “gate” to pain for the Don’t Hurt Injection, depending on the patient’s temperament and size. For dogs, firmly rub/ squeeze/pinch at the planned injection site for five to 10 seconds preceding and during the injection itself ([Figure 2](#) and [Figure 3](#)). The animal will feel but not react to the squeeze and then not even notice the needle’s insertion. This is because the preponderance of “squeeze” information signals travelling up to the brain closes the gate to the pain message. For nervous cats, firmly massaging or kneading the planned injection site for 10 to 15 seconds in advance of the injection works well. The soothing massage may calm and distract the cat, as well as closing the gate for pain – thus providing both central as well as peripheral effects.

Massage-like stroking induces acute antinociceptive effects that can be reversed by an oxytocin antagonist, indicating activation of oxytocin on endogenous paincontrolling systems (Lund, Ge et al, 2002). The calming effect of pre-injection massage, as well as the lack of a noxious reaction post-injection, also relaxes the owner, creating a virtuous cycle of a calming environment ([Figure 3](#)).

## Application to the client

We must not underestimate the negative effects of owner needle phobia, both directly and vicariously, on the welfare of the pets under our care.

A study of over-65s who were at risk of influenza complications showed that eight per cent self-defer their vaccination because of the associated pain (Centers for Disease Control and Prevention [US], 2004). There is no data on numbers of pets withheld from treatment due to owner anxiety, but any steps we can take to reduce such fears can only aid animal welfare. Many solutions are proposed to reduce injection pain. A systematic review of such measures found evidence to support the efficacy of both topical local anaesthetics, and pressure at the injection site prior to injection. However, there was insufficient evidence to recommend vapocoolant sprays, jet injectors, cold needles or warmed solutions (Hogan, 2010). Application of 10 seconds of thumb pressure at the injection site prior to injection has been shown to significantly reduce pain (Barnhill, Holbert et al, 1996; Chung, Ng et al, 2002). It may be that we have already been blocking the gate either consciously or subconsciously for years, but have not reaped the full benefit by failing to inform our clients.

As important as the science of the technique (using the squeeze to reduce pain perception) is the art of letting the client know in advance that you are going to reduce/eliminate pain for their pet ([Figure 4](#)). Nothing wins more devotion from a caring owner than showing how much you also care about their precious pet. Owners adore this pain-reduction technique. Even emotionally scarred clients who have previously experienced an “injection gone wrong” for either their pet or themselves will be swayed by your caring approach and become bonded for life. The full technique is a fine example of solid science (gate theory) combining with effective clinical art (communicating

your painrelief activity).

## Supplementary

A few small final points. Firstly, please accept that this is not some highly sophisticated diatribe on nociception neurology, but merely the observations and developments of a regular Joe at the coalface of small animal practice using a working man's understanding of physiology to realise a benefit for his patients.

Secondly, you may already be subliminally squeezing and thus closing the gate, but unless you inform the owners of the benefits in advance, you are not fully realising the power of this technique. Perception is reality.

Finally, while the technique will definitely enhance your reputation, augment your client base, increase treatment compliance and improve pet welfare – while hopefully reducing future associative needle phobics – it is worth remembering that half of trypanophobics do not even realise they have a fear of needles.

So despite all the science, remain vigilant for pallor and sweating so you can spot the fainters before they fall.

The Don't Hurt Injection is an acronym for the Dan O'Neill Technique Hurt Injection. However, as I don't fancy facing the dragons in the den in an effort to franchise the method, feel free to make it your own, with my compliments, and enhance both your consultations and reputation.

## References

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