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## Tail docking in dogs: a review of the issues

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Different groups in our community hold strong views about tail docking in domestic dogs. These range from veterinary associations and welfare organisations, which typically want the practice banned, to purebred dog associations, which vigorously oppose the introduction of antidocking legislation. An evaluation of the tail docking issue, which is informed and nonemotive, requires the integration of moral views with biological and behavioural facts. In recent years, much data have been accumulated concerning the welfare implications of tail docking. Unfortunately, however, there has been limited transfer of this knowledge to people interested in the issue. In this review some of the main arguments for and against canine tail docking are presented and evaluated.

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The subject of tail docking in domestic dogs has been reviewed previously<sup>1,2</sup> but remains controversial in many countries. It has traditionally been a widespread practice, with approximately one third of all recognised pure dog breeds historically being docked. Tail docking has been banned in several European countries, however, and is limited in others. In the UK, the Royal College of Veterinary Surgeons describes tail docking, unless medically indicated, as unacceptable. Paradoxically, docking is only permitted in the UK if it is performed by a veterinary surgeon.<sup>2</sup> Since this means that a refusal to dock by this profession might virtually eliminate the practice, the fact that the College has never taken action against any veterinarian for conducting the 'unacceptable' procedure is perhaps indicative of continued ambivalence about tail docking. Accordingly, docking is legal and very common in many other developed countries, such as the USA.

While docking is legal in most areas of Australia, some veterinarians refuse to perform the procedure.<sup>3</sup> Others report doing so only because they fear that inexperienced breeders will otherwise take matters into their own hands. The Australian National Kennel Council (ANKC), in their Code of Practice for the Tail Docking of Dogs, specifies that docking '*should only be carried out in respect of those breeds with a known history or propensity to injury and/or damage in their tails in the course of their normal activities for therapeutic and/or prophylactic purposes...*'<sup>4</sup> As with other organisations, however, the ANKC has, thus far, failed to act against breeders who dock breeds for which no scientific evidence of a propensity for tail damage exists. Clearly, then, the issue of tail docking remains controversial. It is undoubtedly complex, involving economic, aesthetic, welfare and moral considerations. In addition, there is a perceived lack of scientific evidence directly relevant to the issue, which means that decisions are made at least partially on the basis of inference and speculation. This paper reviews the main arguments for and against tail docking in dogs, in order to facilitate a more informed debate about the issue than is presently possible.

### What is tail docking?

Tail docking refers to the amputation of part or all of an animal's tail. It can be accomplished by application of a tight rubber ring around the tail. This serves to occlude blood vessels supplying those tissues distal to the ring, resulting in ischaemia, necrosis and, eventually, loss of the tail. This 'banding' method is commonly used in agricultural species, such as lambs and dairy cows, and, in one Australian survey, was reported to be used by 16% of dog breeders who perform their own docking procedures.<sup>3</sup> In dogs, however, tail docking is more commonly performed via a surgical procedure. According to the ANKC, docking may be conducted either by a veterinary surgeon, by an experienced breeder, or by some other person in the presence of, or with the assistance of, an experienced breeder. An experienced breeder is defined as anyone who has been involved with a docked breed for a period of at least 5 years and

who, within that time, has bred at least three litters of which he/she has personally (under instruction) docked the tails of these litters.<sup>4</sup> This implies that tail docking may often be conducted by breeders rather than by veterinarians, but we could find no information detailing the proportion of docking operations carried out by the different groups. Docking generally takes place between 3 and 5 days after birth. More often than not, the puppies are given no anaesthesia or analgesia but are simply restrained manually. The hair around the site of amputation may be clipped. Part or all of the tail is then removed using sharp scissors or a blade. One or more sutures may be applied if necessary. Docking is not without risk and anecdotal reports of puppies dying from shock or blood loss abound. No published studies could be found, however, which document rates of docking-related complications or deaths either in veterinary surgeries or in the community.

Surgical amputation is sometimes considered to result in less acute and chronic pain than banding, although this has been tested only in lambs and available results (discussed later) are equivocal.<sup>5-7</sup> Also, since lambs are born in a more developed state than are puppies, and are often docked at an older age, the applicability of these studies to dogs is not known. When docking very young puppies, anaesthesia has not been recommended until recently because the risk of convulsions, respiratory failure or cardiac difficulties was considered to be unacceptably high. Advances in veterinary medicine now mean that such risks are reduced, but only 10% of veterinarians in an Australian survey reported using anaesthesia when docking tails.<sup>3</sup> Anaesthetic agents are generally unavailable to breeders who dock their own puppies.

### Arguments against tail docking in domestic dogs.

Since it is not customary in our society to remove limbs or appendages from animals arbitrarily, it may be expected that tail docking served some important function in the past. Indeed, if tail docking was associated with established benefits in the past, it might be assumed that those currently calling for a ban on the procedure have a burden of proof to justify why a change to existing practices is necessary. It is argued later in this paper that there are no established benefits associated with tail docking in dogs and that, for several reasons, the burden of proof actually lies with those who support the procedure to demonstrate unequivocally that it causes no detriment to the animal. First, however, it is worthwhile considering the arguments most commonly used to justify calls for a ban on tail docking.

#### *Acute pain associated with tail docking*

Many people who oppose tail docking do so on the grounds that the docking process is likely to cause acute pain. In contrast, those who support tail docking typically argue that little, if any, pain is likely to be experienced due to the immature nervous system found in very young canines. Interestingly, a survey conducted in Australia in 1996 found that 76% of veterinarians surveyed believed that tail docking causes significant to severe pain, with none believing that no pain is experienced. In contrast, 82% of dog breeders believed that docked puppies experience no, or only mild, pain, with only 18% believing that docking causes significant pain.<sup>3</sup> This difference of opinion is interesting and is discussed further elsewhere.<sup>8</sup> More pertinent in the present context is the issue of whether science is able to resolve the question of whether very young puppies are capable of experiencing pain. A second issue

concerns whether or not the magnitude of this pain, if it exists, can be assessed.

*Can puppies feel pain?* — Pain is an inherently subjective phenomenon that cannot be identified or quantified using available technologies. It must, therefore, be inferred on the basis of indirect measures. This is not an issue unique to the tail docking problem but one that has plagued scientists and philosophers for many years. We simply do not know when another organism, including another human, is feeling pain, but must infer this on the basis of their behaviour, their physiological responses, or their ability to verbally tell us that something 'hurts'. Pain in humans, for example, may be measured by asking the person 'Do you feel pain?' 'Where?' 'How bad is the pain on a scale of 1-10?'. The effectiveness of such measures depends, of course, on the truthfulness of the person in question. For example, a child claiming to be in severe pain is more likely to be believed if they are lying prone in a hospital bed following major surgery, than if they have just been told by the physical education teacher that a 3 km hike is to be undertaken. Even verbal measures of pain, then, considered to be among the most persuasive of all measures, are of limited veracity. A congruence between reporting pain and actually feeling pain can never be absolutely guaranteed.<sup>9</sup>

The problem of inferring pain is even greater in nonverbal populations.<sup>10,11</sup> In fact, in order to reduce our present reliance on verbal responses so that nonverbal organisms are adequately included, there have been calls for a change in the definition of pain.<sup>9</sup> Behavioural indices of pain, such as a reluctance to come in contact with a potentially painful stimulus and distress vocalisations, are often employed, as are physiological indicators, such as a raised concentration of plasma cortisol or corticosterone, depending on the species, and increased heart rate. Webster,<sup>12</sup> in his discussion of animal welfare science, argues that in order to adequately understand the nature of pain in animals it is necessary to consider three areas of research, physiology, behaviour and neurobiology, and that none of these are sufficient in isolation. As an example, Webster<sup>12</sup> discusses the fact that ruminant species, such as sheep and cattle, that are known to have thresholds to pain similar to those demonstrated by humans,<sup>13,14</sup> can sustain foot and leg injuries, that would reduce a human to immobility, without displaying abnormal behaviour. Evidence showing that species differ in pain reactivity and pain thresholds means that all of our current indices of pain are of limited value when applied to nonverbal humans and animals. We simply can never know for certain whether or not these organisms feel pain as we do and as we alone are able to subjectively report. Despite this difficulty, as a society we typically make the anthropomorphic assumption that animals and infants do feel pain when they show behavioural and/or physiological changes that human adults exhibit when undergoing a 'painful' experience.

Unfortunately, the problems associated with inferring pain are magnified again when considering very young infants and young animals, which may be physically incapable of displaying behaviours thought to be indicative of pain.<sup>15</sup> It may also be impossible in these organisms to extract blood or saliva samples in sufficient quantities to permit the measurement of stress-related hormones, and the very act of collecting the samples may be sufficiently stressful or painful to confound any results obtained. Generally, in the absence of more acceptable evidence, we make the assumption that these organisms feel pain when put in situations that would cause pain to ourselves. This is an

assumption that we feel justified in making on the basis of erring on the side of caution and, indeed, some would argue, one that is ethically mandated in our care of animals, young infants and disabled adults.

Perhaps it is due to the difficulty of unequivocally demonstrating the presence of pain in very young organisms that very few attempts have been made to assess whether pain is experienced when young puppies undergo tail docking. Studies using other species, available in larger numbers, may be instructive. Several research groups have reported that docking causes acute pain and distress in lambs,<sup>5,6</sup> piglets,<sup>16</sup> and calves.<sup>17</sup> In all studies the animals demonstrated behavioural and/or physiological changes in response to docking that were interpreted as being consistent with the presence of acute pain.

These results strengthen claims that the docking of dogs' tails is likely to cause acute pain, but this conclusion can still be challenged for two reasons. The first arises because most available studies used banding to dock the tails rather than surgical amputation. It could be argued, therefore, that the acute pain responses observed in agricultural animals were caused by the pressure of the bands on nociceptors in the skin at the site of application, and that a lesser response might be expected following the much more rapid surgery typically used to dock dogs. Little scientific evidence directly addresses this issue although, in two studies that compared three docking methods in lambs at 5, 21 and 42 days, banding did appear to cause more pain and distress, as measured using behavioural indicators<sup>6</sup> and plasma cortisol levels,<sup>7</sup> than surgical docking. A significant degree of pain resulted from surgical docking, however, and it appeared greater than that caused by banding in conjunction with application of a clamp, which destroyed innervation to tissue distal to the site of application. In addition, whereas all three methods of docking were reported to cause considerable pain for up to 3 hours following treatment, plasma cortisol concentrations returned to baseline levels more rapidly in the two banded groups than in the surgical group, in which they remained elevated for over 3 hours.<sup>7</sup> Interpretation of these results is made difficult by the poorly specified relationship between the various pain indicators used and actual pain, as was discussed above. This issue is also discussed further in two papers by Lester et al who argue that, since behavioural responses vary depending on the docking methodology employed, plasma cortisol concentrations may provide a more accurate measure of docking-associated distress.<sup>5,18</sup> On this basis, the results provided both by Lester et al<sup>5,18</sup> and by Kent and Molony<sup>7</sup> suggest that surgical docking may result in more acute pain and more prolonged distress than does banding, at least in lambs. Regardless of which method of docking causes relatively more pain or distress than other methods, if it is accepted that the degree of avoidance behaviour or the extent of change in physiological indices is an indication of relative severity of pain, then there are clearly reasonable grounds for arguing that surgical docking causes some amount of acute pain in the species studied, as does banding, and that either method is also likely to cause pain in other physiologically similar species, such as the dog.

A second issue that prevents easy generalisations from studies using agricultural animals to dogs relates to the fact that dogs are typically docked between 3 and 5 days of age, whereas lambs and cattle are sometimes docked much later. At a later age it might be expected that, since sensory and perceptive processes are more developed, any pain associated with docking may be

intensified. There have been several studies that have examined pain responses in animals docked at a fairly young age. In lambs less than one week old, tail docking using a banding technique caused distress for approximately thirty minutes, as indicated by both behavioural measures and plasma cortisol levels.<sup>19</sup> Interestingly, two breeds of lamb appeared to show an age-dependent but different increase in the plasma cortisol response to docking although, in both breeds, pain responses to tail docking peaked in the period between 4 hours and a few days following birth.<sup>20</sup> Contrary to expectations, it was also noted that the surgical method appeared more painful in 5-day-old lambs, according to some behavioural measures, than in older groups.<sup>6</sup> A similar age effect, with younger animals exhibiting more behavioural signs of pain than older animals, has also been reported following docking in cattle.<sup>21</sup>

It seems, then, that immaturity may not protect some animals against feeling acute pain during and immediately following the docking process. The relevance of this information to the current issue may still be questioned, however, on the grounds that dogs, like most carnivores, are born in a much less developed state than are most herbivores. Whereas a 3- to 5-day-old lamb exhibits a well developed nervous system and complex behavioural repertoire, young pups of the same age have few fully functional sensory organs and exhibit very few behaviours. Newborn pups are unable to perceive or respond to visual or auditory information. Might not they also be unable to feel pain?

This question is difficult to answer conclusively, although it has been established in other mammalian species that immaturity does not equal insensibility to pain. Newborn rat pups, for example, actively respond to painful stimuli immediately after birth, well before the modalities of vision and hearing are completely functional (reviewed in Anand and Craig<sup>9</sup>). Additional information comes from human studies. It is instructive that, before 1987, it was widely believed that neonatal humans lacked the neurophysiological equipment necessary to experience pain. This belief was used to justify the then common practice of performing invasive surgical procedures on infants without administration of analgesia, but was challenged in a series of studies in the late 1980s.<sup>22</sup> These established that the neonatal nociceptive system, and even that possessed by preterm infants on the very borderline of survival, has the anatomical and physiological equipment necessary for pain perception.

Newborn human infants, and even those born prematurely, also show behavioural and biochemical reactions consistent with the perception of pain in response to medical procedures that cause tissue damage.<sup>23-26</sup> In one recent study, human infants, born between the ages of 28 and 32 weeks gestational age, learned to anticipate the simple heel-stick procedure used to collect blood samples. These infants showed changed facial expressions, cardiac reactions and movement durations when their heel was raised before the procedure, indicating that they were anticipating its occurrence, believed to be only mildly painful.<sup>24</sup> Administration of analgesia to infants improves clinical outcomes following medical procedures expected to be painful, providing additional circumstantial evidence that the pain experienced by neonatal human infants is similar to that experienced by adults. Some authors have even argued that the immaturity of sensory processing within the newborn spinal cord of human infants leads to lower thresholds for excitation and sensitisation, therefore potentially maximising the central

effects of tissue-damaging inputs.<sup>27</sup> A similar relationship might be expected to pertain to adult and neonatal canines, unless dogs differ in this respect from other mammalian species.

Arguing against such a remote possibility, the limited behavioural evidence available supports the conclusion that docking is a painful procedure in canine pups. In a single available study,<sup>28</sup> in which the responses of 50 pups to docking were recorded, it was found that all puppies struggled and vocalised intensely and repeatedly at the time of amputation, recording an average of 24 'shrieks' and 18 'whimpers' during and immediately after docking. They also vocalised intensely as a suture was applied. Studies examining animal pain responses typically use vocalisation as an indicator of pain and stress.<sup>15</sup> Thus, the authors of this study reasonably concluded that the pups did feel significant pain at the time of docking.

It seems, then, that whereas the existence of pain in young dogs cannot be directly observed or measured at the present time, all available evidence reviewed thus far is consistent with the claim that docking causes acute pain to those dogs undergoing the procedure. In contrast, no evidence could be found to support the counter claim that newborn pups do not experience any pain at the time of docking.

*How much pain do puppies feel?* — A related issue, and perhaps an even more difficult one to resolve, concerns the magnitude of pain felt by pups during docking. It seems quite reasonable to accept that docking causes some pain, but to argue nonetheless that the pain is minimal and completely justified by the benefits that accrue. We do, after all, allow our children and pets to be vaccinated and we permit potentially painful medical procedures, such as circumcision, to be conducted on members of our community, such as the young, the aged and the intellectually disabled, who are unable to describe their experiences of pain or consent to medical procedures. Of course, such procedures are conducted only after careful consideration of the amount of pain likely to be inflicted and the potential benefits. The benefits reported to be associated with tail docking are evaluated later in this paper. In the following paragraphs, information relevant to determining the magnitude of pain experienced during docking is considered.

In their discussion of tail docking in dogs, Noonan et al<sup>28</sup> noted that breeders often use the fact that pups either suckle or fall asleep immediately following docking to support their view that the pups do not experience significant pain. However, while such behaviour may indicate that the pain felt during docking is minimal, there is no empirical evidence to support an association between lack of pain and these behaviours. On the contrary, other studies, in which young animals or humans show increased feeding or what is known as a 'sleeping fit' following a painful or stressful experience, have concluded that this may be either a displacement activity or an adaptive mechanism which ensures that the baby animal has sufficient nourishment and rest to survive under adverse circumstances.<sup>11,19,21</sup> In addition, as discussed in Noonan et al,<sup>28</sup> suckling behaviour may provide analgesia by stimulating the release of endogenous opioids, with oral administration of carbohydrate-laden solutions being commonly used to reduce pain responses in human infants.<sup>29</sup> It is possible, therefore, that pups suckle following docking to reduce docking-associated pain, rather than because the pain they feel is minimal. This issue could be investigated empirically by subjecting puppies to various experiences believed likely to cause pain and noting their responses, particularly whether their sleeping or suckling responses increase or

decrease with the magnitude of pain believed to be inflicted, but it would be ethically difficult to justify such a study.

A similar refutation can be levelled against the common argument that pups are unlikely to feel significant pain during docking due to a reported lack of myelination in the nerve cells responsible for pain conduction. This argument is not persuasive, since myelination is not necessary to enable nerve cell conduction, but merely speeds it up.<sup>11,30</sup> Puppies may experience docking related pain more slowly than older dogs, but an estimated 0.25 second delay<sup>2</sup> in pain perception says little about the magnitude of pain experienced. Indeed, some authors claim that puppies may be more sensitive to pain than adult dogs, because inhibitory nerve pathways are also poorly developed.<sup>1,2</sup> In human infants it is commonly argued that pain perception may be magnified by the immature state of the spinal cord<sup>27,31,32</sup> and, in rat pups, there is evidence that very immature organisms may experience pain more intensely than do more mature infants (cited in McVey<sup>31</sup>). In 'tailed' animals, like canines, the spinal cord extends further down the vertebral column in infants than it does in adults, perhaps leading to a higher risk of docking-related infection and, potentially, a greater magnitude of pain.<sup>2</sup>

It is difficult to imagine how the issue of accurately assessing the magnitude of pain associated with docking may be resolved. Indeed, the issue is a philosophical one rather than a technological one, in that pain is inherently subjective. As there can be no conclusive evidence of pain felt by others it may be instructive that, in similar cases, where the magnitude of pain experienced by members of our own community cannot be measured, we tend to feel most comfortable in assuming the worst. The tail docking procedure varies quite substantially from minor procedures such as vaccinations, in that it involves complete amputation of a limb. Very few people would feel comfortable amputating a limb from a human infant or an elderly family member in the end stages of dementia without anaesthesia, so perhaps there is cause to give puppies the same consideration. While the evidence that pups feel substantial pain during tail docking is not scientifically conclusive, it is compelling. Pups do exhibit those pain responses of which they are capable, and there is every reason to expect that they experience considerable pain while being docked.

Of course, this in itself does not argue against tail docking per se, but merely suggests that our present methodology should be improved. The implicit conclusion that puppies should not be docked without adequate anaesthesia and analgesia need not imply that they should not be docked at all although, as described above, any decision to impose a surgical procedure on an organism unable to provide informed consent requires careful analysis of the costs and potential benefits to that organism. Certainly, given that very few people do appear to administer anaesthesia or analgesia during docking, the potential painfulness of the procedure is a significant cost that needs to be considered.

#### *Chronic health problems associated with tail docking*

Many of those who argue against tail docking would continue to do so even were adequate anaesthesia and analgesia to be provided at the time of docking. Some would do this on the basis of claims that a number of chronic health problems are associated with tail docking. Problems reviewed previously<sup>1</sup> include atrophy and degeneration of tail and pelvic muscles, leading to an increased risk of faecal incontinence, and compro-

mised pelvic diaphragm integrity, leading to an increased incidence of perineal hernia. It has also been claimed that acquired urinary incontinence is over-represented in specific docked breeds,<sup>33</sup> with one large study finding a significant statistical association between tail docking and acquired urinary incompetence that was independent of other factors such as the size of the dog.<sup>34</sup>

While these studies provide some cause for concern, evidence supporting claims of increased health problems in docked dogs is typically weak. A significant issue concerns a lack of adequately controlled studies comparing docked dogs with undocked dogs of the same breed. Without such studies, it is possible to argue that some breeds are simply more susceptible to these health problems and that any association with docking is spurious, existing only because these breeds happen to be among those that are docked. Indeed, it is conceivable that some breeds were docked initially in an effort to minimise health problems associated with genetic weaknesses, although we were unable to find any evidence in support of this claim. Individual breeders who dock their puppies clearly do not believe that the risks outweigh the benefits of docking and, in the absence of evidence to the contrary, appear justified in maintaining this view for the present time.

This conclusion is not without some risk, however, as, in the absence of large scale, properly controlled studies, it is possible that a significantly increased health risk, affecting a substantial number of dogs overall, may not be evident to an individual owner or breeder, or even to a breed club. Those who argue against tail docking are equally justified, therefore, in maintaining the view that the procedure potentially causes harm to some dogs. Unless tail docking is justified on some defensible ground, the burden of proof falls on those who would dock to prove that the procedure does not lead to chronic health problems in even a small percentage of dogs. Studies investigating whether chronic health problems occur in the docked members of a breed but not in the undocked members of the same breed, or vice versa, are clearly required to resolve this issue.

#### *Chronic pain associated with tail docking*

The issue of whether chronic pain may occur in relation to tail docking is an important one. In humans, chronic pain following the amputation of limbs can take two forms. The first, in which pain is referred to the missing limb, is sufficiently common to warrant its own name, phantom limb pain (PLP). According to one comprehensive review,<sup>35</sup> PLP occurs in 50 to 75% of human amputees in the first week following amputation. In some people the pain resolves quite rapidly, but studies suggest that up to 60% of amputees experience referred pain for at least 2 years. Over 20% report daily pain attacks at 2 years post-amputation. Persistent severe pain continues indefinitely in 5 to 10% of human amputees. In addition to PLP, many amputees experience considerable pain in the remaining limb stump. Post-operative pain, lasting up to 3 weeks, occurs in 50% of amputees. Two years after amputation, stump pain affects 21% of amputees.<sup>35</sup> Some amputees describe the pain as a stabbing sensation or electric current that is strictly localised to the stump. Others report 'nerve storms' during which sharp shooting pains last for up to 2 days. Pain may be spontaneous or triggered by stimulating the stump; even a light touch can result in an unpleasant burning sensation.

The aetiology of PLP and stump pain remains controversial although there is an association between the condition of the

limb prior to amputation and the subsequent occurrence of PLP. Chronic pain is more common in those with severe pre-amputation pain. Neurological lesions can also moderate pain experiences, as can psychological factors and the type of limb injury sustained. None of these relationships is particularly strong, however, and chronic PLP is experienced by 'normal' persons who lose a perfectly healthy limb, either through accident or misadventure.<sup>35</sup> Stump pain is also most common in amputees with clear stump pathology, such as skin or circulatory disorders. Importantly, however, stump pain also occurs in people where the wound appears completely healed. According to Jensen and Rasmussen,<sup>35</sup> careful examination of stump sensibility reveals areas of hypalgesia, hyperalgesia, hyperpathia or allodynia in almost all amputees.

It is difficult to generalise from adult human amputees to neonatal pups, since amputation of an adult limb causes a sudden cessation of afferent input to the spinal cord from the severed nerves, while afferent input from the tail of a 3-day-old pup is likely to be poorly developed. In addition, the tails of most pups are assumed to be functioning normally prior to docking, with no pre-amputation pain and no limb pathology. There are reports that phantom limb experiences occur in up to 20% of people in which limbs are congenitally absent, or when amputation occurs before the age of 6 years.<sup>36</sup> Other studies, reviewed in Melzack et al,<sup>31</sup> have contradicted these findings, however, leaving the issue open to conjecture. The fact that ongoing pain occurs in even a small number of persons who experience limb amputation very early in life, or who are born with congenitally absent limbs, seems sufficient to raise concerns about tail docking in dogs, especially in cases where the potential benefits of docking are unclear or ethically indefensible. Since psychological factors are implicated in some cases of PLP and stump pain in humans, however, and it is not clear whether animals possess the cognitive apparatus required to feel psychological distress upon the absence of a limb, it is relevant to consider whether there are physiological mechanisms likely to lead to chronic pain following limb amputation in non-human species.

Peripheral nerve sections in all mammalian species produce many anatomical, physiological and biochemical changes. These include spontaneous nerve tissue activity, increased sensitivity to mechanical stimuli and specific neurochemicals, and the formation of nerve sprouts and neuromas. The presence of neuromas may be particularly relevant in the present context, as these are frequently observed to occur following amputation in animals. Neuromas are bundles of nerve fibres that develop almost inevitably when axons are severed in mammals and birds. They consist of swollen, tangled masses of nerves, present either as one large mass or as smaller, scattered masses.<sup>37</sup> In most cases, neuromas resolve over several weeks as the excess axon sprouts degenerate and the mass regresses. They can persist indefinitely, however, causing spontaneous nerve activity which may be perceived as chronic pain. Neuromas have been documented in lamb tail stumps up to 6 months after docking,<sup>38</sup> in pig tail stumps following docking,<sup>39</sup> and in the beaks of chickens that have had their beaks trimmed.<sup>40</sup> In chickens, neuromas formed after partial beak amputation continue to develop for at least 70 days and can persist for up to 70 weeks.<sup>37,40</sup>

We were unable to find any scientifically controlled studies demonstrating the presence, or absence, of neuromas in dogs following tail docking. This lack of evidence may simply be due

to the fact that dogs, unlike farm animal species, are not regularly killed in large numbers soon after docking takes place, so the appropriate assay cannot be conducted. It is possible that dogs, due to the very young age at which they are docked, develop less persistent neuromas than species treated later in life but there is no evidence to support this claim. Indeed, in one study in which three canines with docked tails were euthanased for behavioural problems, all of the dogs were found to have neuromas even though the docking process had occurred many years previously.<sup>41</sup> Due to the biased nature of this very small sample, it would not be appropriate to generalise the findings. In addition, those who support docking are typically able to argue that they have lived with docked dogs over many years without observing signs of pain associated with the tail stump. Such anecdotal observations do not 'prove' that docked dogs do not develop neuromas or feel persistent pain, because dogs are adept at hiding injuries and disguising pain. Certainly, many people in our community experience constant pain due to arthritis or other debilitating diseases without revealing this pain to those around them. An alternative explanation is that subtle signs of pain or discomfort are simply not noticed by many dog owners, or that they are misattributed to other factors, such as a bad temperament. While researching this paper the authors obtained several anecdotal reports of docked dogs with extremely sensitive tail stumps and other odd, stump-associated, behaviours. Most owners of docked dogs report seeing no such behaviours, however, and, in the absence of convincing evidence one way or the other, the issue remains undecided.

The potential development of neuroma-associated pain following docking, even if not established beyond doubt in dogs, seems sufficient to raise welfare concerns about tail docking. One might hope that neuromas develop in only a small proportion of docked dogs and that most of them resolve over a period of weeks or months. Even in this best case scenario, however, one must question the value of subjecting any dog to prolonged or constant pain unless there are clearly defensible benefits associated with tail docking. Perhaps more importantly, docking is typically carried out just before the critical formative period of a dog's life, in which most of its enduring social skills and behaviours are established. Since the impact of chronic pain on our own ability to function adequately in society is unquestioned, the justification for subjecting any dog to this experience needs careful consideration.

Before completing this section, it is worthwhile briefly considering evidence emerging from human infant studies, which suggest that pain experienced early in life may increase later sensitivity to pain and have behavioural ramifications (reviewed in Whitfield and Grunau<sup>32</sup>). Male infants circumcised soon after birth with no analgesia display increased distress when given vaccinations at 4 or 6 months of age, when compared to infants either not circumcised or circumcised following application of an analgesic cream.<sup>42,43</sup> Preterm infants who require treatment in an intensive care unit, later (at 4 to 5 years of age) similarly display higher somatization scores (physical complaints such as headache or stomach ache in the absence of a clear organic cause) than age-matched controls.<sup>44</sup> According to one review, prolonged pain in the newborn period in preterm infants may produce a relatively permanent shift in basal autonomic arousal, which may have long term sequelae including effects on attention and learning and the development of behaviour problems.<sup>32</sup> It is argued that the plasticity of peripheral and central sensory connections in the neonatal

period means that early damage can lead to prolonged structural and functional alterations in pain pathways that can last into adult life.<sup>27</sup> While these effects have not been demonstrated to occur in species other than humans, the benefits of tail docking would need to be reasonably compelling to justify exposing any animal to the potential risk of a prolonged sensitivity to painful stimuli.

#### *Impaired locomotion associated with tail docking*

Some authors who argue against docking claim that the tail is important for balance and agility and, therefore, that docked dogs may be handicapped relative to their tailed conspecifics.<sup>1</sup> This argument seems intuitively plausible but is not supported by empirical evidence. Given that most animal species, particularly those with lifestyles requiring speed and agility, possess tails, one might assume that these limbs confer some kind of evolutionary advantage. Unfortunately, however, no scientific studies have been published comparing the locomotion of docked dogs with those that are undocked. In the absence of such evidence, the 'impaired locomotion' argument against tail docking is unconvincing, particularly when one considers the success of docked dogs in agility competitions and in such demanding activities as hunting, retrieving and herding. It is possible that dogs are just so good at these activities that minor performance deficits due to docked tails are not easily detected. Studies examining the development of agility, balance and general locomotion in docked and undocked pups of the same breed would be required to clarify this issue. A comparative gait analysis of docked and undocked members of the same breed would also be invaluable.

#### *Impaired communication associated with tail docking*

Another argument against tail docking is that docked dogs may be socially disadvantaged relative to other dogs, in that they lack one of the main appendages used in canine communication.<sup>2</sup> Again, there is little evidence to support this claim. It is well established that dog tails are used for communication<sup>45</sup> and it is possible that docked dogs, particularly those that are docked close to the base of the tail, might be socially disadvantaged. Indeed, it is often stated that docked dogs engage in a number of compensatory behaviours, such as butt-wiggling (in which the entire back end of the dog wiggles furiously from side to side), in order to communicate. Whether docking may lead to an increase in social misunderstandings, particularly aggression, either from or towards the docked dog, however, has not been rigorously investigated. It would be informative to investigate this issue in adult dogs that receive tail amputation for medical reasons, but no such studies could be located.

A related difficulty concerns the docked dog's ability to communicate with members of the human species, who are typically taught in pet education programs to read dog body language primarily by observing the tail. It is possible that our children are endangered by docked dogs, simply because their ability to communicate with the dog is impaired, although this has not been demonstrated. Studies examining the ability of children to understand dog posture in docked and undocked breeds would be useful in this respect, as would studies comparing the number of bites each year inflicted by docked and undocked dogs, relative to their prevalence in the community.

#### *Summary of arguments against tail docking*

From the preceding discussion it can be seen that there are several reasons why the practice of tail docking might be opposed, especially when carried out in its present form. There

seems little doubt that docking causes acute pain in all species studied and, although the magnitude of pain cannot be ascertained, there is no reason to believe that amputation of a limb in a young puppy should be any less painful than amputation of a limb in any other animal, whether infant or adult. The fact that puppies appear to recover quickly from the docking process may indicate that the pain is minimal, but this cannot be tested and the relationship between apparently 'normal' behaviours, such as sleeping and suckling, and pain relief is unknown. In the absence of evidence to the contrary, therefore, docking should perhaps always be carried out after administration of an appropriate anaesthetic and using the best possible technique. Analgesia following docking is also clearly indicated.

Whether docking should be completely banned for the reasons listed above is less certain. Evidence suggesting that docking may be associated with several physical difficulties, locomotor deficits and/or impaired communication skills may be accumulating but, with well controlled studies lacking, it is yet to be convincing. Perhaps the strongest argument against docking is the fact that it may be associated with the presence of neuromas and chronic pain, or increased pain sensitivity, in at least some dogs. This has also not been demonstrated empirically, however, and it is perhaps unlikely that many docked dogs experience significant chronic pain as, even though dogs may mask pain extremely well, it might be expected to affect their behaviour in a systematic way, evident to those who know the species well. At most, then, it might be claimed that there is a weak *prima facie* case against tail docking on the basis that it may have detrimental effects, even though these have not yet been conclusively demonstrated. Whether this justifies a total ban on the process then depends on whether significant benefits are derived from tail docking, and whether these outweigh the potential for pain and suffering inherent in the procedure.

### Arguments in support of tail docking in domestic dogs.

Given *prima facie* evidence that even a minimal amount of 'harm' is likely to be associated with docking, the burden of proof falls on those who support docking to show that definite benefits outweigh the possible costs. In agricultural species such as lambs, pigs and dairy cows, docking is considered by some to be necessary because it serves some utilitarian function, preventing injury or disease in the docked animals, their conspecifics, or their human handlers.<sup>46</sup> Whether docking achieves these aims, and whether they justify the removal of an animal's tail, are issues for debate elsewhere. The task in this paper is limited to establishing whether there are valid reasons for docking dogs. The main arguments raised by pro-docking lobby groups are considered below.

#### *Maintaining tradition*

Tail docking in many dog breeds is an established custom believed to have been introduced some 2000 years ago in order to satisfy various motives. These include primarily functional reasons, such as to prevent damage to vulnerable tail tips in breeds used for hunting and retrieving in dense undergrowth, for ease of manipulation of terriers working in burrows and other confined spaces, and to prevent diseases such as rabies. They also include economic reasons, with some working dogs being docked to prevent the imposition of 'luxury dog' taxes in some circumstances. Some breeds also appear to have been docked initially for primarily aesthetic reasons, while others, representing breeds where some members are born with natu-

rally bobbed tails, were presumably originally docked to preserve breed uniformity.<sup>2</sup>

Some might argue that traditionally docked breeds should remain docked simply to preserve these traditions and to retain the distinctive appearance of the relevant breeds. Indeed, many people who dock claim that they do so mainly in order to comply with the official standard for the breed concerned. This argument from tradition, while popular, seems ethically unconvincing as a justification for tail docking. While it is true that some breeds have traditionally been docked within the limited history of the specific breed, the development of purebred dogs is itself a relatively recent phenomenon. Doubtless, the ancestors of some breeds can be traced back to antiquity, and there are claims that docking was introduced as early as 65 AD.<sup>47</sup> There is little indication that dogs, as they evolved from their wolfish forefathers, emerged sporting a 'traditionally' docked appearance, however, and there is no convincing evidence to suggest that docking was a common procedure in primitive societies, from whose canine companions modern day dogs were developed. Humans living in developed countries cannot use surgical techniques to create a distinctive looking animal and then argue that such a look is natural or even traditional. Dogs were 'traditionally' undocked long before they were 'traditionally' docked and any argument for tail docking purely in terms of retaining tradition is flawed in that it exists only by reference to our own limited cultural history.

The 'traditional' grounds for tail docking should also be evaluated within the context of our current social climate. A persuasive argument against docking tails merely to preserve tradition concerns the fact that when the 'traditionally' docked breeds were being developed, animals were defined by most people purely as human possessions. They enjoyed no legal or moral protection and humans were free to do with them as they liked. The prevalent view, based on the thesis of the French philosopher, René Descartes (1596-1650), was that animals were simply mechanical automatons, unable to feel pain or emotions.<sup>48</sup> Vivisection without any form of anaesthesia was widely practiced by scientists and mistreatment of animals was a legal issue only if it impacted on the physical or financial well-being of their owners.

The Cartesian philosophical position regarding the status of animals is no longer widely accepted, at least not overtly. Physiological, biochemical, behavioural and psychological similarities between humans and other mammals are now well documented and animals are widely perceived as feeling, and in some cases possibly even thinking, biological organisms, to which humans, as moral agents, owe a substantial duty of care.<sup>49,50</sup> This is reflected in our support of animal welfare organisations and is codified in relevant laws. Given this significant change from the views held by our forebears, recourse to a defence of tail docking purely on the grounds of tradition appears untenable.

It is equally unacceptable in our contemporary context to dock tails simply to comply with a written standard of the kind used by purebred canine bodies in order to define the characteristics of each particular breed. Many breed standards were originally drafted at a time in which there was little knowledge of comparative physiology and in which animal welfare was of little concern. Breed standards, like all written laws and community guidelines, can and do change as cultures evolve and knowledge accumulates, with amendments to breed standards being published on a regular basis. One might be justified in preserving human traditions involving inanimate objects

such as steam trains and clothing styles, and one might like to adhere to written specifications when reproducing historical artefacts. When our traditions and our written codes concern practices involving species capable of pain and suffering, in contrast, they cannot be condoned on this basis alone.

The argument from 'tradition', then, is critically flawed. It reflects both a human arrogance towards history and tradition and a disregard for the changing status of animals within our community. If tail docking in dogs is to be continued then the defenders of the practice have a burden of proof to show that it is justified in terms of some kind of overall gain for either the individual animal or the community, as is claimed to be the case for other docked species, and/or that amputating a dog's tail simply has no significant welfare implications. Having already established that tail docking may indeed have significant welfare implications, the following sections consider whether the procedure may nonetheless be justified by some kind of gain for the individual organism.

### *Prevention of tail damage*

Proponents of tail docking often cite many practical benefits believed to be associated with the procedure, although these purported benefits appear rarely, if ever, to have been demonstrated scientifically.<sup>1,2</sup> One of the most common claims is that some breeds that are traditionally docked tend to engage in activities as adults during which tail damage is likely to be frequent. Docking is argued to be necessary, therefore, to prevent the pain and discomfort associated with adult tail damage. This rationale for tail docking clearly does not condone the widespread practice that exists today, which includes many dog breeds that were traditionally docked for reasons other than preventing injury. Moreover, if docking is to be justified for the purpose of preventing adult tail damage in any breed, two assumptions require empirical support. First, evidence is required to support the claim that these traditionally docked dogs are particularly likely to sustain tail damage if left undocked, and that they are likely to do so in sufficient numbers to justify docking all members of the particular breed. Second, it is necessary to establish that tail damage in adult dogs is likely to cause substantially more suffering than does the docking process.

Unfortunately, persuasive evidence with which to either support or refute such claims is lacking. Since tail docking has been banned in Sweden, there has reportedly been a significant increase in the number of dogs from some breeds presenting to veterinary clinics with tail damage.<sup>51</sup> There are also anecdotal reports of increased tail damage in dogs left undocked in other countries, and the Council for the Promotion of Docked Dogs displays numerous graphic photos of tail damage on their web site.<sup>52</sup> No scientifically controlled studies have been reported, however, and other available anecdotal evidence, suggesting that the incidence of tail damage in European countries remains low, indicates that these few examples may be misleading. Many traditionally docked breeds for which a propensity for tail damage is claimed, simply do not engage in high risk activities. In addition, for almost all breeds that are traditionally docked, a corresponding breed can be found that engages in the same kind of activities but that has traditionally not been docked.<sup>2</sup> This calls into question the veracity of the argument, although it has not yet been established empirically whether some breeds do suffer extensive tail damage as a result of carrying out particular activities or whether some breeds may have specific tail characteristics that render them genuinely more predisposed

towards tail damage. This will only be established if controlled scientific comparisons between docked and undocked dogs of the same breed are undertaken.

Perhaps more significantly, the percentage of dogs that engage in traditional activities appears to have declined substantially in our increasingly urban communities, with most dogs now serving primarily as companion animals. While companion dogs, especially those with long thin tails, may sustain tail damage through repeatedly banging their tail on hard indoor surfaces, there is little evidence to suggest that this is a common occurrence. Indeed, one study which examined records from over 12,000 dogs treated at a university clinic found only a low incidence (47 cases) of tail damage overall. This study found no significant difference in the rate of tail injury (fractures, lacerations, dermatoses, self-trauma and neoplasia) between docked (0.31%) and undocked (0.41%) breeds so the findings do not support the argument that docking serves to reduce tail damage.<sup>53</sup> It should be noted, however, that the study did not contain undocked dogs from customarily docked breeds. As mentioned previously, only a controlled study, including equal numbers of docked and undocked dogs from the same breed, is likely to reveal whether these breeds are particularly prone to tail damage, and whether docking significantly reduces the incidence of injury in such breeds.

Another study, surveying over 2000 visits to an animal emergency clinic in Australia, found only three presentations for tail injuries, all of which reflected difficulties that occurred immediately post docking.<sup>1</sup> It would be useful to supplement this information with similar studies conducted in rural areas, where the number of dogs engaged in high risk activities may be greater, and with the type of controlled study mentioned above. In the absence of such information it is impossible to conclude that tail damage is likely to become a frequent event if docking is ceased or, conversely, to conclude that tail damage will not become more frequent. The percentage of dogs that actually engage in high-risk occupations, and their rate of tail injury relative to those sold as companion animals, must also be ascertained. Until this is done, it is impossible to sustain the argument that all dogs from certain breeds should be docked for the purpose of preventing future tail damage.

Even if it is conceded that a percentage of dogs from some traditionally docked breeds may sustain tail damage as adults if docking ceased, the argument for docking any individual dog on this basis requires the additional assumption that tail damage creates more overall suffering than does the practice of docking. This argument would be strengthened if it was established that tail damage in adult dogs is particularly painful and difficult to treat, compared with the acute, and possibly chronic, pain suffered following neonatal tail docking, but this has not been demonstrated. Until such evidence is available, the argument is moot. It is possible that some dogs are more prone to tail damage, either because of the structure of their tail or because of their traditional occupation, and that tail docking prevents substantial future pain in these dogs. It is equally possible that this is not correct.

Given a presumption against removing animal limbs without convincing evidence to justify such procedures, the absence of appropriate studies in this area represents a significant difficulty for those who support tail docking, even in those breeds that may be expected to sustain tail damage. Indeed, the removal of tails in all members of a dog breed, just because some may sustain tail damage as adults, does not appear justified unless



the degree of suffering is at least suspected to be substantial. Even here, the ethical dilemma is one of weighing potential pain from the possibility of tail damage against certain pain from what may turn out to be an unnecessary preventative measure. As a society we are often comfortable in making such judgements and readily sanction vaccination procedures in order to prevent later illness. With respect to tail docking, however, the judgement seems more akin to routinely removing tonsils or appendices from all infants in order to avoid possible tonsillitis or appendicitis in a few adults later in life. Fewer people would presumably feel comfortable making a decision of this type. Even those who would agree to dock all tails from a particular breed, where a reasonably large number of dogs seem likely to engage in a high risk activity, cannot use this argument to defend tail docking to the extent that it is currently practiced.

#### *Prevention of accumulation of faecal material*

Another claimed benefit of docking in some breeds is that it potentially reduces the accumulation of faecal material around the tail area on dogs with excessive coats. Such accumulation, it is argued, is likely to result in significant irritation of the dog by flies and possibly eventual infestation by maggots, as well as considerable inconvenience to the dog's owner.<sup>2</sup> Again, there is little direct evidence to support this claim, although studies involving sheep and cows may be instructive. In one study involving 3000 lambs on seven different farms, half of which were docked in the first week of life, it was found that undocked lambs tended to accumulate slightly more faecal material around the tail area than did their conspecifics, and that undocked lambs did become infested by flies significantly more often than those lambs that were docked.<sup>54</sup> Another recent study, involving dairy cows, found no association between docking and faecal accumulation,<sup>46</sup> however, and earlier studies (cited in Tucker et al<sup>46</sup>) found that docked dairy cattle actually carried a higher fly load than did their undocked conspecifics. In addition, there is evidence that docked cows, unable to use their tail to dislodge flies, engage in several unusual fly avoidance behaviours.<sup>55</sup> The different findings in these studies almost certainly reflect the different species studied, in that the thick wool possessed by sheep is more prone to accumulate faecal matter than the flatter coat of dairy cows. Hence, one might argue that these studies support claims that long-haired dogs, such as Old English Sheepdogs, are most likely to benefit from docking. Those who propose this argument, however, must take into account the many similarly long-haired dog breeds that are not traditionally docked, and the general observation that dogs are rarely, if ever, intensively farmed under conditions that render other coat management systems impractical. If docking is genuinely beneficial to long-haired dogs, then one might argue that all long-haired breeds should be docked and, conversely, that docking should perhaps be restricted to long-haired breeds. Unless docking is conclusively shown to cause no significant pain or suffering and the presence of a tail is demonstrated to be unimportant for other reasons, however, it is difficult to justify removal of a dog's limb for hygiene purposes. Other, less intrusive, options, such as clipping, grooming or a change of diet, clearly exist in nearly all cases.

#### *Maintaining breed quality*

Another argument, which is put forward to support a continuation of tail docking in some breeds, concerns the maintenance of breed quality. A ban on tail docking may compromise

this in several ways. First, in dog breeds that have been docked for many years, no consideration has been paid to characteristics like tail set or length. A wide variety of appearances may therefore be expected if docking ceased. Individual breeders, trying to develop and maintain a breed 'type', may feel compelled to select their breeding stock on the basis of tail characteristics alone, perhaps resulting in neglect of other important characteristics such as structural soundness or temperament. Breeder selection for traits believed to be desirable has already resulted in enormous difficulties in some breeds. Selection for large heads, for example, has created breeds unable to deliver puppies naturally, while selection for brachycephalic faces has led to breeds unable to exercise or control heat loss effectively. In breeds where some individuals are born with naturally bobbed tails, it has been claimed that selection for shorter and shorter tails, in order to mimic the docked appearance, may lead to a higher incidence of spina bifida and other spinal cord defects. A related argument is that the cessation of docking in some countries, such as Australia, would prevent export of some dogs to overseas countries where docking is accepted. Since overseas sales are typically more lucrative than local sales, this may damage the dog breeding industry in these countries and have indirect effects on the quality of dogs able to be produced.

Possibilities such as this warrant some consideration in the tail docking debate but are not compelling, especially if there are significant welfare concerns associated with the docking process. An increased incidence of spina bifida or any other related health difficulties has not been documented in those countries in which docking has been banned and improved breeder education would seem to provide a potential solution to this possibility. The economic problem may seem more intractable, although the banning of tail docking in several European countries means that undocked dogs from other countries may actually be more desirable in those countries. As with previous arguments, however, it seems difficult to maintain that all members of a particular breed should be docked simply because a handful of dogs might be expected to find homes in countries where docking is practiced. More importantly, performing any surgical manipulation of an individual dog for the purposes of export dollars or for maintaining a breed 'type' seems at odds with the ethical codes adopted by most breeder organisations. These codes typically emphasise that the welfare of individual dogs should be considered in all breeding decisions. They also typically include a clause stating that the breeder will breed only to improve the standard of the breed, and not for any commercial purpose. If there is compelling evidence to suggest that tail docking may compromise the welfare of any given dog, engaging in the practice for profit may inadvertently contravene the ethical codes of the very same breed clubs that promote the practice. Certainly, with respect to the ANKC Code of Ethics<sup>4</sup> discussed previously, any justification for docking other than direct health and welfare benefits is disallowed.

#### *Maximising quality of life for individual dogs*

As mentioned previously, a percentage of pups in some traditionally docked breeds are born with tails that are naturally shortened or bobbed. In some breeds, these natural bobs include animals born with misshapen or deformed tails. Tails may be kinked or twisted or simply short and poorly positioned. Breeders who cease docking may find that these dogs are difficult to find homes for, although an appropriate publicity

campaign may result in members of the public being prepared to offer homes to dogs with 'unusual' tails simply because they support an anti-docking policy. It is also possible, however, that there is pain or discomfort associated with the misshapen nerve endings in these deformed tails, and that the dogs, in these cases, might benefit from the docking procedure. This has not been demonstrated as yet, but the argument may provide a defensible therapeutic rationale for docking at least some dogs, on the grounds of the dog's own welfare. It does not, of course, justify docking all members of a breed, most of which will not have deformed tails.

### *Personal preferences*

A final argument in defence of tail docking concerns the fact that some people simply prefer docked dogs. For some, this may be a convenience issue, in that docked animals may be less likely to knock valuable objects from coffee tables or hall stands and less likely to spray mud across the furniture. More common, however, are dog owners and breeders who select their breed on the basis of its distinctive characteristics, including the way the animals look, and who have a personal preference for the docked look. These people may well acknowledge that there is some pain associated with the docking process, that there is a small chance that the dog will experience ongoing physical problems or chronic pain, and that no benefits accrue to the dog directly as a result of tail docking. They insist, however, that the suffering the dog experiences is negligible or at least insignificant and, therefore, that docking can be justified on cosmetic grounds, simply because the dog will look 'better' with no tail.

Whether personal preference is sufficient to justify tail docking depends on other factors. As a community we support the 'rights' of individual members to select the type of dog they own, its gender, coat length and colour, as well as a host of other characteristics. If it were established beyond doubt that tail docking has no welfare implications, then personal preference might justify tail docking, particularly if it meant that dogs, which were otherwise left homeless or in poor homes, found loving and caring owners. On the other hand, a pertinent ethical issue here is not simply whether an individual has the 'right' to physically manipulate the appearance of a pet dog, but what the exercise of this 'right' might say about our community values.

Dogs are an extremely important part of our community and are used by many parents to teach appropriate values to their children. Some couples raise a litter of pups in order to teach their family about nurturing and care and others spend large sums of money on a sick or injured pet rather than have their children think that animals are expendable. Feeding the pet dog is one of the first responsibilities assumed by many children and regular grooming and walking schedules may be used as an enjoyable chore for which the child receives their first pocket money. Dealing responsibly with doggie behavioural challenges can be a useful way of demonstrating to children that they remain valued even when their behaviour is unacceptable, although all too often dumping the inconvenient family pet provides a model of irresponsibility that most children could do without. Pets play a large role in teaching children empathy towards animals, which has been shown to generalise to other situations.<sup>56,57</sup> They also function as important therapeutic agents in many contexts,<sup>58</sup> with visiting dogs becoming a regular sight in Australian nursing homes and hospitals.

If docking results in pain and there are no sufficiently

compensating gains *for the animal*, then it may well be a practice that can justifiably be classified as a form of abuse. According to Agnew,<sup>59</sup> definitions of animal abuse typically include three features: that the harm inflicted is socially unacceptable; intentional or deliberate; and unnecessary. Certainly, tail docking appears to fulfil the second and third criteria. Many people would feel justified in arguing that it also fulfils the first. It may be argued, therefore, that a community in which tail docking is condoned, despite fairly convincing evidence that it has no demonstrated benefits and may significantly compromise the welfare of at least some of the dogs involved, provides a paradoxical model of pet dogs. On the one hand, dogs are revered as much loved companions and family pets. On the other, they are seen as objects, able to be bought and sold, disposed of, euthanased, mistreated, exploited and surgically modified at will. While such a perception of animals does persist in many sections of our society, it is neither a defensible nor a desirable one, except within a most perverse form of ethical and moral philosophy. Moreover, since there is an established association between animal abuse and other forms of anti-social behaviour,<sup>60,61</sup> it is possible that a community in which tail docking is condoned on a large scale, purely to satisfy personal preferences, sets a dangerous precedent for at least some of its young members.

### *Summary and conclusion*

In summary then, it seems difficult to argue that tail docking, as the widespread practice that it presently is, is justified. It cannot be defended on the basis of arguments from tradition or to satisfy a breed standard created in another time and place. Moreover, there is no clear evidence that any kind of benefit associated with tail docking exists that can outweigh the potential harm that may be caused to the animals involved. There are several reasons that may be used to support tail docking in some breeds, or at least to justify the docking of specific dogs within those breeds. These reasons concern individual dogs that are expected to engage in activities as adults in which tail damage is encountered on a frequent basis, particularly if appropriate veterinary care is unlikely to be available, those in which accumulation of faecal material may become a health issue, those born with deformed or painfully misshapen tails, and those for which the presence of a docked tail may result in a significantly improved quality of life. In all of these cases tail docking of individual dogs could potentially be justified on utilitarian grounds, but only if the expected benefits outweigh the harm that is potentially associated with the docking process, and also only if adequate anaesthesia and analgesia is provided at the time of docking.

More difficult, if not impossible, to sustain is the argument that tail docking is justified simply because some humans prefer the docked look or find it more convenient to own a tailless dog. This would constitute an acceptable reason for docking only if it was conclusively demonstrated that absolutely no harm is ever associated with the process. On the contrary, although the potential for harm cannot be proven scientifically for philosophical reasons, available evidence strongly suggests that docking may be associated with both acute and chronic pain. Relevant anatomical and physiological differences between dogs and members of our own species are minimal and there is every reason to suspect that even very young pups do experience substantial pain when their tails are removed, and that they continue to experience pain as the normal physiolog-

ical processes known to be associated with limb amputation take place. That the docking process occurs just before the critical socialisation period simply makes the practice more difficult to justify, as does the fact that it may leave some dogs with chronic physical problems and possibly unable to communicate effectively with both conspecifics and humans.

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