Goat kids are not small calves: Species comparisons in relation to disbudding

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Abstract

Limited scientific literature is available for developing ‘best practice’ guidelines for the management of dairy goats (Capra hircus), particularly goat kids. Disbudding practices for kids and calves appear to be similar; however, it is important to recognise that kids are not small calves. Disbudding causes pain and is performed on calves and kids — welfare concerns surrounding disbudding affect both industries. In this review, we evaluate literature on disbudding of kids and calves and compare methodologies across the two species. In addition, we catalogue behavioural and physiological responses to disbudding and, finally, review alternatives to disbudding (or refinements). Although there may be certain similarities between the response of goat kids and calves to cautery disbudding, it is important to highlight the differences that do exist between the species to reduce the risk of potential detrimental effects (eg brain injury). Cautery disbudding is the most common and efficacious method of disbudding kids and calves; however, kids have thinner skulls and are disbudded at a younger age, which can increase the risk of thermal injury to the brain. Kids and calves show behaviour and physiological responses indicative of pain; however, variability in these responses between studies are likely due to differences in disbudding methodologies, study design and within-species variation. Effective pain mitigation strategies may differ across species; therefore, future research is needed to optimise pain mitigation strategies for kids. Currently, alternatives to cautery disbudding including: (i) selection for polled animals; (ii) managing horned animals; or (iii) the development of novel disbudding methods (eg cryosurgery, clove oil injection) have been deemed unsuitable by the industries as the methods are either impracticable or ineffective. Therefore, if disbudding is to continue, species-appropriate pain mitigation strategies need to be refined. Establishing best practice guidelines for disbudding kids requires managers to recognise that they are not small calves.

Keywords: animal welfare, calves, dehorning, disbudding, goat kids, pain mitigation

Introduction

Disbudding is a common painful husbandry procedure performed on dairy goat kids and calves. Goats (Capra hircus) with horns pose a risk to other goats during agonistic encounters (Tolu & Savas 2007), or to their human handlers, potentially leading to serious injuries (Waiblinger et al 2011, 2012; Hartnack et al 2018); horned goats can also damage farm facilities (Smith & Sherman 2009) and may increase the amount of handling or management required in the milking parlour. Furthermore, horns increase the amount of space required at the feed rack (Loretz et al 2004). Similarly, cattle (Bos taurus) are disbudded when they are young to reduce the risk of injury to stockpeople, horses, dogs and other cattle (Stafford & Mellor 2005). Horns can cause bruising and damage to the hides of other cattle, especially during transport and lairage (Shaw et al 1976; Marshall 1977). Meat quality of horned cattle (eg assessed by measuring bruise trim) is also lower than that of hornless cattle (Meischke et al 1974).

Goat kids (Alvarez & Gutiérrez 2010) and calves (Misch et al 2007; Gottardo et al 2011; Cozzi et al 2015; Winder et al 2016; Staněk et al 2018) are commonly disbudded using a hot cautery iron. Disbudding is performed on kids and calves at an age when the horn buds are easily palpable, but before they attach to the underlying skull, which is assessed both visibly and by palpation. Goat kids are generally disbudded at a much younger age than calves (discussed below). Once the horns of goats have fused with the frontal bone and a keratinised horn is clearly visible, disbudding is ineffective, and horns must be removed by