A VN’s guide to degus: origins, natural behaviour, social activity and housing

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Wendy Bament RVN, MSc, BSc (Hons) discusses – in the first of a two-part CPD article – health, welfare and husbandry for a pet rodent that is increasingly being seen in the UK’s veterinary practices

DEGUS (*Octodon degus*), rodents that were first used in laboratories, are increasingly being encountered in veterinary practice as pets. The health problems they commonly present with, as with other rodents and rabbits, seem to be mainly related to husbandry. Degus are well adapted to their natural environment but require special consideration in captivity, particularly regarding their social and dietary requirements.

The degu is the most prolific mammal in Chile, in habitats varying from coastal areas to the western slopes of the Andes at up to 1,200 metres altitude, and is considered an agricultural pest1,2. The taxonomy of this species within the rodent family can be found in Table 1.

Captive housing requirements

Owing to their highly social nature (groups of up to 100 individuals in the wild), degus should be housed with at least one other degu to fulfil basic social enrichment needs and to avoid stress (Figure 1).

Same sex pairs or groups of up to four or five individuals are recommended, although male and female pairs or groups (one male to three or four females) work well too. Introductions should be made at an early age to ensure a strong bond.

Degu enclosures should be wire with a solid base and need to be large (a minimum 75cm by 85cm by 80cm for two degus) with shelves at different heights, a solid running wheel, plenty of hay, a nest box, wooden toys, deep bedding for burrowing, thick rope and fruit tree branches to gnaw3. A solid glass vivarium-type enclosure will predispose degus to respiratory problems due to the poor ventilation. Providing a regular dust bath (10 to 30 minutes a day) is thought to maintain coat quality and also possibly the high UV reflectance so useful for communication.

In the wild, degus eat tubers, twigs, seeds, livestock/hoof stock droppings and mostly dry vegetation and bark (60 per cent of their diet), and their gastrointestinal (GI) tract is well adapted to a diet of high fibre and low carbohydrate4.

The low (or non-existent) availability of dietary sugar in their natural environment, and their specifically adapted GI tract, predisposes them to developing spontaneous diabetes5.

Most importantly, degus must have ad-lib access to good-quality Timothy hay and clean water. The provision of species-specific pelleted diets or higher-fibre monocomponent formulas avoids selective eating of high carbohydrate items from “muesli” mixes.

Anatomy and physiology - species-specifics (Table 2)

Degus have excellent eyesight and their retinae contain rod cells and two types of cone cells that allow visualisation of UV light. This is thought to have some social function, as studies have shown 20 per cent of UV wavelengths from the sun are reflected from the surface of the degu’s pale ventrum and also from the urine. This is possibly used to warn other degus of predators or to identify their territory boundaries6

Like most rodents, the labial surface of the incisors is yellowish and chisel shaped for cutting vegetation (Figure 5). Specifically in degus, their cheek teeth are deeply folded, creating a figure of eight or octagonal shape, which has given rise to their genus name *Octodon*(“octo” means “eight” and “dont” means “tooth”7. The occlusal plane of the cheek teeth in degus and chinchillas is almost horizontal, unlike the guinea pig where it is oblique8.

Degus perform coprophagia and a study identified 38 per cent of produced faeces are re-ingested, with 87 per cent of this activity occurring at night. Coprophagia is demonstrated by infants from three days of age4. Like the guinea pig and chinchilla, the degu’s GI microflora is mainly Grampositive, and is, thus, very sensitive to antibiotics with a Gram-positive spectrum.

Male degus are called bucks, and have testes that remain intra-abdominal. No scrotum is visible, making sexing between male and female challenging (Figure 6)9. The anogenital distance in adult males is longer (approximately 6mm to 10mm) and the urethra has an obvious penile shape. Female degus tend to be larger than males and are referred to as does. The urethra becomes more conical in shape and prominent as the female degu gets older, similar to chinchillas5. The

vulva is small and slit-like, sitting just caudal to the urethral opening.

Female degus are thought to be induced ovulators, as they have no regular oestrus cycle and typically breed once a year – although reports from laboratory and pet degus show more than one litter a year can occur4,7. During the early stages of pregnancy, the vaginal membrane reopens and a red discharge is produced, referred to as red ring, and can be used as an indicator of pregnancy, rather than palpation10. The pups are considered precocial, being fully furred and active. However, until their eyes open at two to three days, they are still dependent on both male and female parents. Degus have been used as a model in human child developmental studies to show detrimental effects when deprived of contact and natural parent rearing from an early age (for example, in studies of attention deficit hyperactivity disorder (ADHD)11.

Blood sampling sites

As with chinchillas and guinea pigs, degus may demand some skill when acquiring blood samples from sites such as the femoral vein, jugular vein and the cranial vena cava. The tail veins should not be used, due to the tendency of the tail degloving when traumatised. Normal haematological values have been published10.

Handling and nursing

Degus can inflict a powerful bite if they are not used to being handled, or are scared or in pain.

As a result, it is recommended a towel or thick leather gloves are used when first retrieving the degu from an enclosure (Figure 7). A degu should not be picked up by its tail due to the degloving risk3. If the degu is known to be happy being picked up and held, it can be securely held around the pectoral girdle (chest and shoulders), with the other hand supporting the rest of the body. Sitting it in cupped hands can also be used.

General nursing initiatives for degus include providing a quiet and darkened environment, hide options, oxygen therapy, plenty of patience and time for treatments, warmth, and companionship to reduce stress levels. Collapsed, recovering or anaesthetised degus should be maintained in sternal recumbency with the chest slightly elevated to minimise abdominal pressure on the diaphragm.

Nutritional therapy

Prepared, palatable formulas for small herbivorous rodents are widely available, such as Supreme’s Recovery Plus, Oxbow’s Critical Care Formula and Vetark’s Critical Care Formula. Degus can object to its initial administration, although they do seem to enjoy the taste and eventually will sit happily on a table and voluntarily suck from the syringe (author’s personal experience). Otherwise, the degu can be gently wrapped in a towel and the syringe gently inserted

into the diastema (space between incisors and first premolar) and no more than 0.2ml of formula injected periodically (Figure 8).

Fluid therapy

The fluid maintenance requirement of degus is 100ml/kg/day. Compound sodium lactate/ lactated Ringer's solution is used for general purpose maintenance fluid therapy during, and following, surgery or if the degu is suffering GI problems. Fluids can be administered orally in degus, although care must be taken as fluid inhalation can occur. Fluids can also be administered subcutaneously, intraperitoneally, intravenously and intraosseously (under general anaesthesia).

• The second part of this article, which will feature CPD questions and references, will focus on degu health problems.