

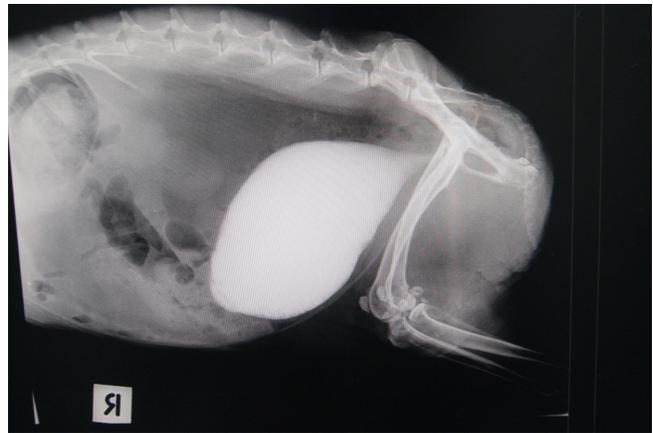


## URINARY STONES, SLUDGE AND GRIT

Bladder problems involving stones, sludge and grit develop when there is a collection of excess calcium which builds up in the urinary tract. Sludge (dense calcium crystals) has a tooth paste like consistency and is often difficult to remove completely with normal urination. Often we see the sludge settling at the bottom of the bladder with normal urine on top and it is often only in the last part of urination that we see this gritty grey paste being passed. Urinary stones and sludge can be very painful for your rabbit or guinea pig however there are a number of treatment options.

### Signs that your rabbit or guinea pig may have a bladder or urinary problem:

- Loss of litter tray habits
- Straining to urinate
- Hopping in and out of the litter tray excessively
- Dripping urine
- Producing lots of small amounts of urine
- Wetness around the genital area
- Urine scolding on the skin
- Sludgy urine or white urine
- Urine colour change



### Causes of bladder stones, sludge or grit:

- *Insufficient water intake* – if the animal isn't taking in enough water then the urine becomes more concentrated which can lead to an increased risk of problems over time
- *Inactivity* – an animal that sits all day may not drink as often or urinate as frequently. An active rabbit will consume more water and urinate more often which helps to flush the bladder. In the wild, both guinea pigs and rabbits are 'housed' in large areas and are constantly urinating to mark their territory. This helps to remove urine often from the bladder and prevent 'settling' of calcium and thus sludge and stone formation. Large amounts of activity (eg free range in a safe backyard area) will help your pet to eliminate all the extra calcium it doesn't need via the urine.





- *Lack of appropriate toilet areas* - if rabbits and guinea pigs are confined in small spaces and the toileting area or cage is not kept clean, they may tend to hold urine in longer and thus urinate less frequently.
- *Kidney disease* – can cause a change in the way calcium is excreted
- *Bladder disease* – can cause a change in the lining of the bladder. Infections, tumours and grit can cause inflammation of the bladder wall.
- *Diets excessively high in calcium* - if feeding a diet high in calcium the body is unable to use all the excess that is left behind after all the calcium that is needed by the body is absorbed. It then can accumulate in the bladder.
- *Inadequate access to sunshine* - the Vitamin D absorbed from natural sunlight helps to regulate the calcium metabolism in your rabbit or guinea pig.
- *Pain* – Pain from other medical conditions can lead to improper posture when urinating which can prevent urine from being voided properly or fully.



#### Treatment/Prevention of bladder stones, sludge and grit:

Bladder sludge and stones can irritate the bladder and cause cystitis or bladder infections. They also can cause an increase the need to urinate, resulting in urine-soaked fur and scalded skin. Bladder sludge when it is not expressed can accumulate in the bladder distending the bladder and causing the bladder wall to lose its elasticity. This large dilated bladder can severely affect the rabbit's ability to control urination and may result in incontinence. If bladder stones form they can potentially block the outflow from the bladder and prevent urination, this is an emergency situation. A few tips to prevent and/or treat bladder stones or sludge are provided below:

- If a bladder stone has been detected then surgery is generally the best option. Once formed, bladder stones are painful and hard to pass so surgical removal of the stone will generally give the best outcome.
- Increasing fluid intake – This helps to flush the bladder as your pet will urinate more.
- Sometimes diuretic medications such as hydrochlorothiazide can be used to encourage drinking. Treating your rabbit with potassium citrate can also help to promote calcium excretion.
- Overweight pets or pets with foot problems are often unable to assume the correct stance to urinate and therefore retain urine so it is best to keep your pet in a healthy weight range.





- Guinea pig owners should try to avoid feeding more than 50mg/kg of Vitamin C daily as this can increase the risk of bladder stone formation.

Important things you can do at home:

1. Increase the amount of water your rabbit or guinea pig consumes. Normal water consumption for rabbits and guinea pigs is approximately 100ml/kg/day however each individual animal is different. Tips to encourage your pet to drink more include

- Wetting down the vegetables or grass offered

- Frequently changing the water so that it is fresh

- Presenting water in various means: bowl, dripper, water fountain

- Providing multiple water bowls

- Changing the taste of the water with natural, unsweetened fruit juice (apple, pear, banana, pineapple, cranberry juice and give just enough for the rabbit to taste it)

- In early (and sometimes ongoing) treatment we will teach you to give maintenance fluids by injection under the skin.

2. Increase the number of litter trays in the exercise area. The more litter trays around the more this encourages your rabbit (and to a less extent your guinea pig) to urinate. Increased urination promotes frequent emptying of the bladder and prevents 'settling' of the urine.

3. Encourage more exercise. Increase the area and time in which your pet can exercise. This gentle exercise will help weight loss, tone muscles and prevent mobility issues. Exercise will also encourage your rabbit or guinea pig to urinate more often. 4 hours of free ranging exercise is recommended daily.

4. Weight management if your pet is overweight. A good body condition is ideal.

5. Diet alterations.

- Decrease the amount of pellets, muesli and grain mixes in the diet. This will help with weight loss (essential in an overweight patient) and reduce excessive calcium intake.

- Increase the amount of low calcium fresh green leafy veggies fed to your pet





- Limit vegetables high in calcium

- Feed low calcium grass hay. Avoid feeding lucerne hay (which is high in calcium)

If you can at all concerned about your rabbit or guinea pigs bladder health then please don't hesitate to contact us.

