

## Urinary Incontinence

There are many causes of urinary incontinence in cats, although the condition is fairly rare. Symptoms of urinary incontinence can be distinguished from other forms of inappropriate urination by the fact that it occurs without the cat being aware, such as during sleep. It is a problem that affects mainly older spayed female overweight cats. Most cats with incontinence will have contributing urinary tract or kidney disease, so it is important to perform comprehensive diagnostics before making the assumption that the problem is uncomplicated urinary incontinence. The cat's history of symptoms and a urinalysis can quickly rule out a bladder infection or kidney disease as being the cause of leaking urine. Excessive water consumption due to underlying diseases like Diabetes and renal insufficiency should be ruled out as well. A complete blood count, chemistry panel, thyroid level, abdominal x-ray, and blood pressure will be performed on all symptomatic cats as a diagnostic workup. In the case of hormone related urinary incontinence, the urine is completely normal. It should be noted however, that incontinent cats are more susceptible to ascending bacterial bladder infections because of the mechanism that causes the bladder to leak.

Reproductive hormone (estrogen) responsive urinary incontinence is rarer in cats than in dogs. The cause of estrogen responsive urinary incontinence is not completely understood, but the fact that it occurs in spayed females and responds to estrogen supplementation leads us to believe that the mechanism involves reduced levels of the hormone or reduced estrogen-receptor function. Urine is kept in the bladder by a sphincter muscle at the top of the urethra, the tube that carries urine outside the body. In older spayed female cats, this sphincter muscle loses tone, and urine begins to leak. During rest and sleep, the muscles especially relax, leading to complete incontinence. Obesity further complicates this condition, probably from excess weight pushing on the bladder. Not all spayed female cats will develop urinary incontinence; therefore, the exact role that estrogen plays is uncertain.

When uncomplicated urinary incontinence is diagnosed, treatment with synthetic estrogen (diethylstilbestrol - DES) may be prescribed. DES has a wide margin of safety in cats; however, over-dosage can result in serious side effects, and long term usage can cause bone marrow suppression, reducing the cat's white blood cell count. Blood counts should be measured periodically on cats that take DES. Reduced availability of the drug has caused veterinarians to seek alternative therapies.

Phenylpropanolamine (PPA) may be used as an alternate drug to DES. It is a neuro-stimulant that improves bladder muscle tone and is safe for use in healthy cats. It must be used with caution in kidney and heart failure patients, and those with high blood pressure. Side effects are dose dependant; so the amount may be reduced, but efficacy in controlling incontinence may diminish. A low-dose combination of DES and PPA may be a good solution for cats who do not tolerate therapeutic doses of either drug. If symptoms suddenly worsen, or if inappropriate urination occurs outside of sleep, a bacterial infection or other disease process should be considered.