

A photograph of a red mushroom with white spots, likely a fly agaric, growing on a bed of pine needles. The mushroom is the central focus, with its bright red cap and white spots contrasting sharply with the dry, brownish pine needles. The text "Drugs and the Bladder" is overlaid in a bold, yellow font across the middle of the image.

Drugs and the Bladder

common problems

- **cystitis**
- **urolithiasis**
- **incontinence**



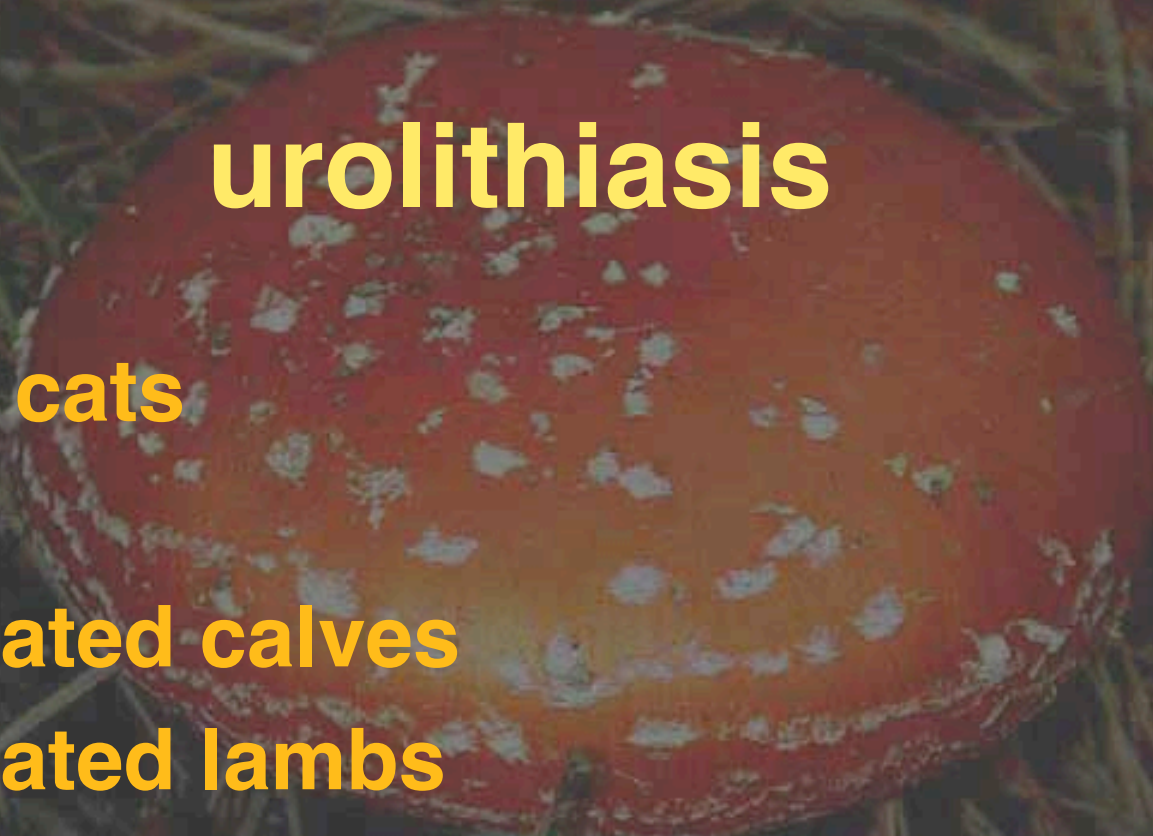
A red mushroom with white spots on a bed of pine needles. The mushroom is the central focus, with its cap showing a vibrant red color and several white, irregular spots. The background is a dense layer of dry, brown pine needles, creating a textured and natural setting. The overall lighting is somewhat dim, giving the scene a slightly moody appearance.

cystitis

- **commoner in females**
- **usually E. coli**
- **broad spectrum antibacterial**
 - **penicillins**
 - **eg, amoxicillin**
 - **urinary antiseptic**

urolithiasis

- male cats
- dogs
- castrated calves
- castrated lambs



urolithiasis

- **surgery & antibacterials**
- **dietary control**
- **drugs / medicated food to control pH**
- **diuretics??**
- **analgesics!**

urinary acidifiers

- ammonium chloride
- sodium acid phosphate
 - used with
 - penicillin
 - tetracyclines

urinary alkalinisers

- sodium bicarbonate
- sodium acid citrate
 - used with
 - potentiated sulphonamides
 - erythromycin

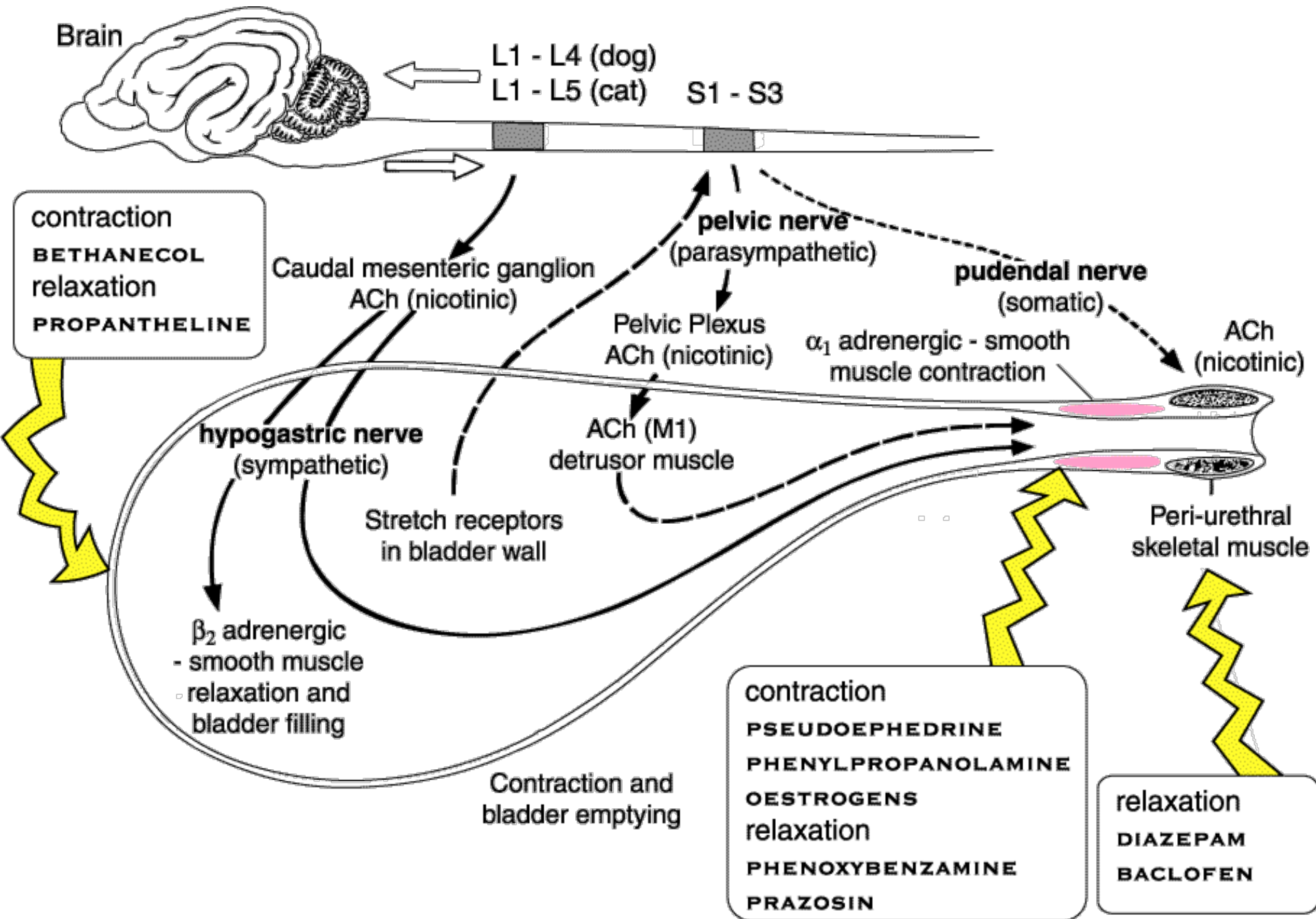
incontinence

- **detrusor instability**
 - **cystitis**
- **sphincter atony**
 - **spayed bitches**
- **detrusor paralysis**
 - **road accidents – spinal injury**

incontinence

A large, red, spotted mushroom with a thick stem, growing on a bed of dry pine needles. The mushroom has a bright red cap with white spots and a thick, light-colored stem. The background is a dense layer of dry, brown pine needles.

- **dribblers**
 - sphincter atony
 - overfull bladder
- **strainers**
 - cystitis
 - neoplasia
 - detrusor instability
 - sphincter incompetence
 - urolithiasis



dribblers

- **sphincter atony**
 - oestrogens & $\alpha 1$ agonists
- **overfull bladder**
 - bethanecol
- **ectopic ureters**
 - surgery

spayed bitches

- **oestrogens**
 - **oestradiol inj**
 - **oestrogen tablets**
 - **ethinyloestradiol**
 - **oestriol**
 - **oestrogen conjugates**
 - **(stilboestrol)**

spayed bitches

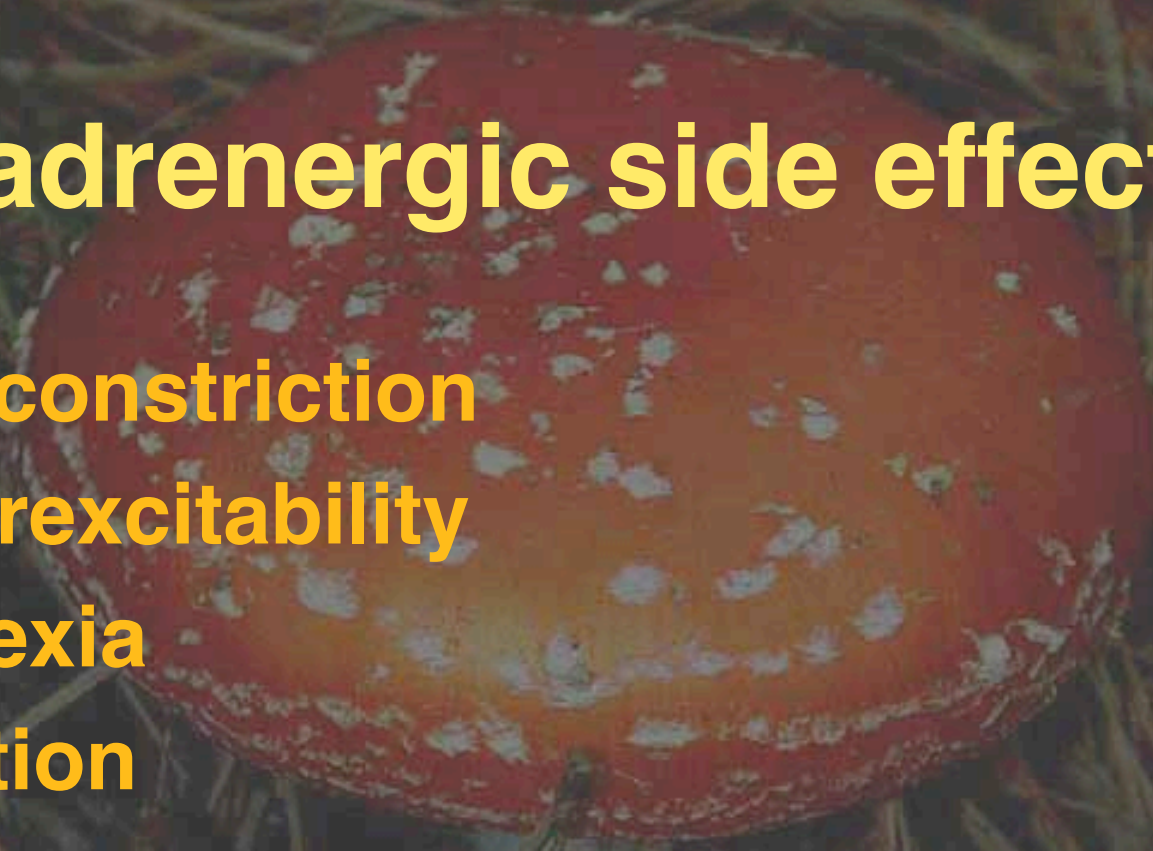
- $\alpha 1$ agonists
 - phenylpropanolamine
 - pseudoephedrine
 - ephedrine
 - P!!!

oestrogen side effects

- **bone marrow depression**
- **endometrial hyperplasia**
- **abortion if pregnant**
- **behavioural changes**
- **mammary tumours**

α 1 adrenergic side effects

- vasoconstriction
- hyperexcitability
- anorexia
- abortion





strainers

- **cystitis**
- **neoplasia**
- **detrusor instability**
 - **propantheline**
- **excess sphincter tone**
 - **phenoxybenzamine**
 - **diazepam**
- **urolithiasis**

anti-inflammatory drugs

- corticosteroids
- NSAIDs



7 yr old male Jack Russel

- frequent urination
- straining
- sometimes blood in urine



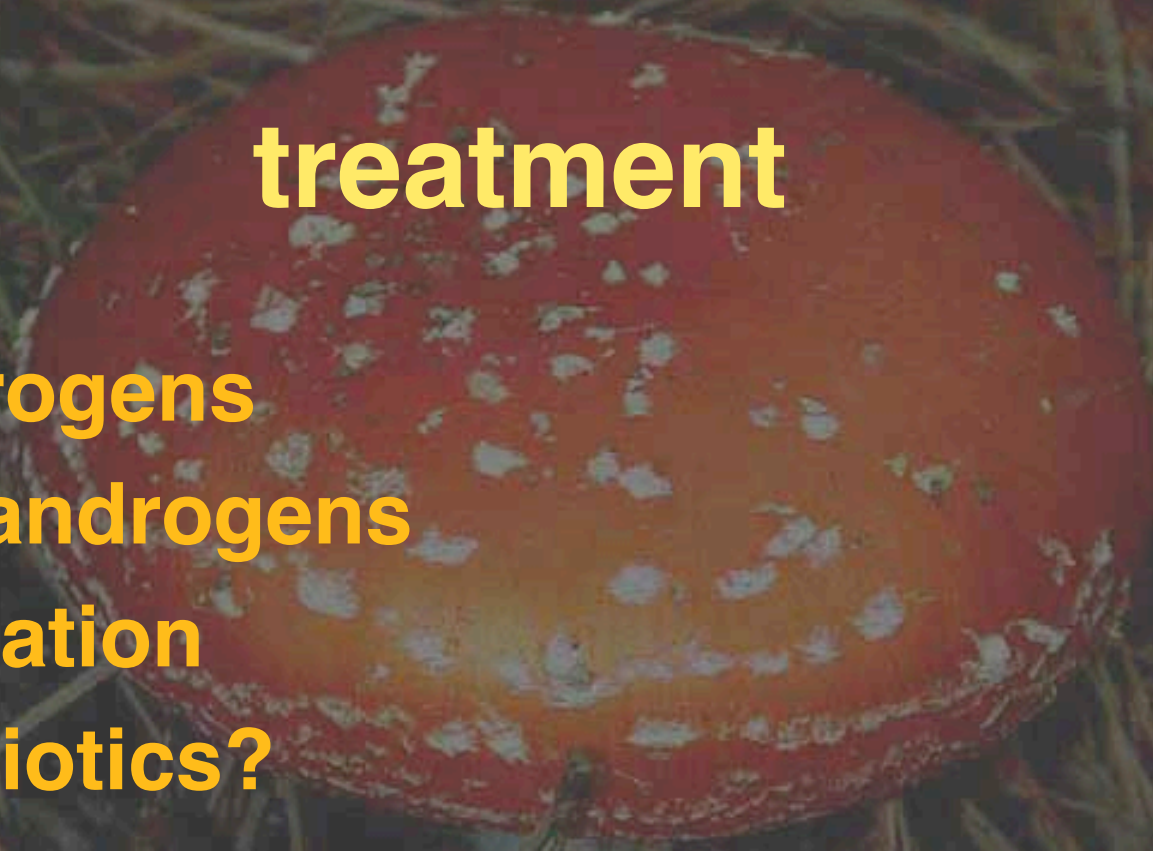
A photograph of a red mushroom with white spots, likely a fly agaric, growing on a bed of pine needles. The mushroom is the central focus, with its bright red cap and white spots contrasting against the brown, needle-covered ground. The text 'problems' is overlaid on the mushroom's cap in a bold, yellow font.

problems

- **prostatic hyperplasia**
- **infection?**

treatment

- oestrogens
- anti-androgens
- castration
- antibiotics?



8yr old male cat

- hit by car
- fractured pelvis
- not urinating
- large bladder



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problems

- pelvic nerve damage
- detrusor atony

treatment

A photograph of a red mushroom with white spots, likely Amanita muscaria, growing on a bed of pine needles. The mushroom is the central focus, with its bright red cap and white spots contrasting against the dry, brownish pine needles. The background is a dense layer of these needles, creating a textured, natural setting.

- muscarinic agonist
 - bethanecol
- (OP)

bladder

- **antibiotics (usually broad spectrum penicillins) used for cystitis ± urolithiasis**
- **oestrogens + α_1 agonists used for incontinence in spayed bitches**
- **bladder pH is sometimes manipulated to increase secretion of drugs or to dissolve uroliths**
- **drugs do not always work**

A photograph of a red mushroom with white spots, likely a fly agaric, growing on a bed of pine needles. The mushroom has a bright red cap with irregular white patches and a thick, white, ringed stem. The background is a dense layer of dry, brown pine needles.

The Uterus

relaxants

- **clenbuterol**
- β 2 agonist
- **(nifedipine)**
- calcium channel blocker
- **(glycerol trinitrate)**
- converted to nitric oxide

relaxants

- used to delay parturition
- used in obstetrics
- abused as growth promoter

contraction

A large, red, spotted mushroom with a thick stem, growing in a field of dry grass. The mushroom has a bright red cap with white spots and a thick, pale stem. The background is a dense field of dry, yellowish-brown grass.

- **oxytocin**
- mainly large animals at parturition
- **(prostaglandin F_{2α})**
- bitches
- care with handling
- women
- asthmatics

uterus

- **clenbuterol is used to relax the uterus to postpone calving by about 6 – 12 hours**
- **oxytocin is used to promote uterine involution after parturition and to promote parturition in sows with uterine atony**