

A photograph of a red mushroom with white spots, likely a Amanita muscaria, resting on a bed of dry pine needles. The mushroom is the central focus, with its bright red cap and white spots contrasting sharply with the brown, needle-covered background. The text is overlaid on the mushroom.

# **Behaviour Altering Drugs**

**Psychopharmacology**

# Fred

- **3 month old male kitten**
- **runs round house just after dark**
- **very excited**
- **attacks owners**

# Fred

- **Cat's (or owner's) problems?**
- **Does he need drugs?**
- **What do you want the drugs to do?**
- **What do you want the drugs not to do?**
- **Which drug?**

# Fred

- **Cat's (or owner's) problems?**
- **Is Fred's behaviour:**
  - **normal?**
  - **adaptive?**
  - **abnormal?**
- **Why is he doing it?**

# Fred

- **Cat's (or owner's) problems?**
- **Does it need drugs?**
  - training?
  - drugs?
  - combination?

# Fred

- **Cat's (or owner's) problems?**
- **Does it need drugs?**
- **What do you want the drugs to do?**
  - **reduce unwanted signs**
- **What do you want the drugs not to do?**
  - **not make the problem worse**
  - **not introduce a new problem**

A photograph of a mushroom with a bright red, slightly convex cap and numerous white, irregular spots. The mushroom is growing on a bed of dry, brown pine needles. The stem is short and appears to be a pale, fibrous color. The overall scene is dimly lit, with the mushroom's cap being the most prominent feature.

**Fred**

- **Which drug?**

# unwanted behaviour

A red mushroom with white spots is centered in the background, resting on a bed of dry pine needles. The mushroom has a bright red cap with numerous white, irregular spots. The background is a dense layer of dry, brown pine needles, creating a textured, natural setting.

- **cats**
  - spraying
  - scratching furniture
- **dogs**
  - aggression
  - barking
  - chewing / digging
  - fear



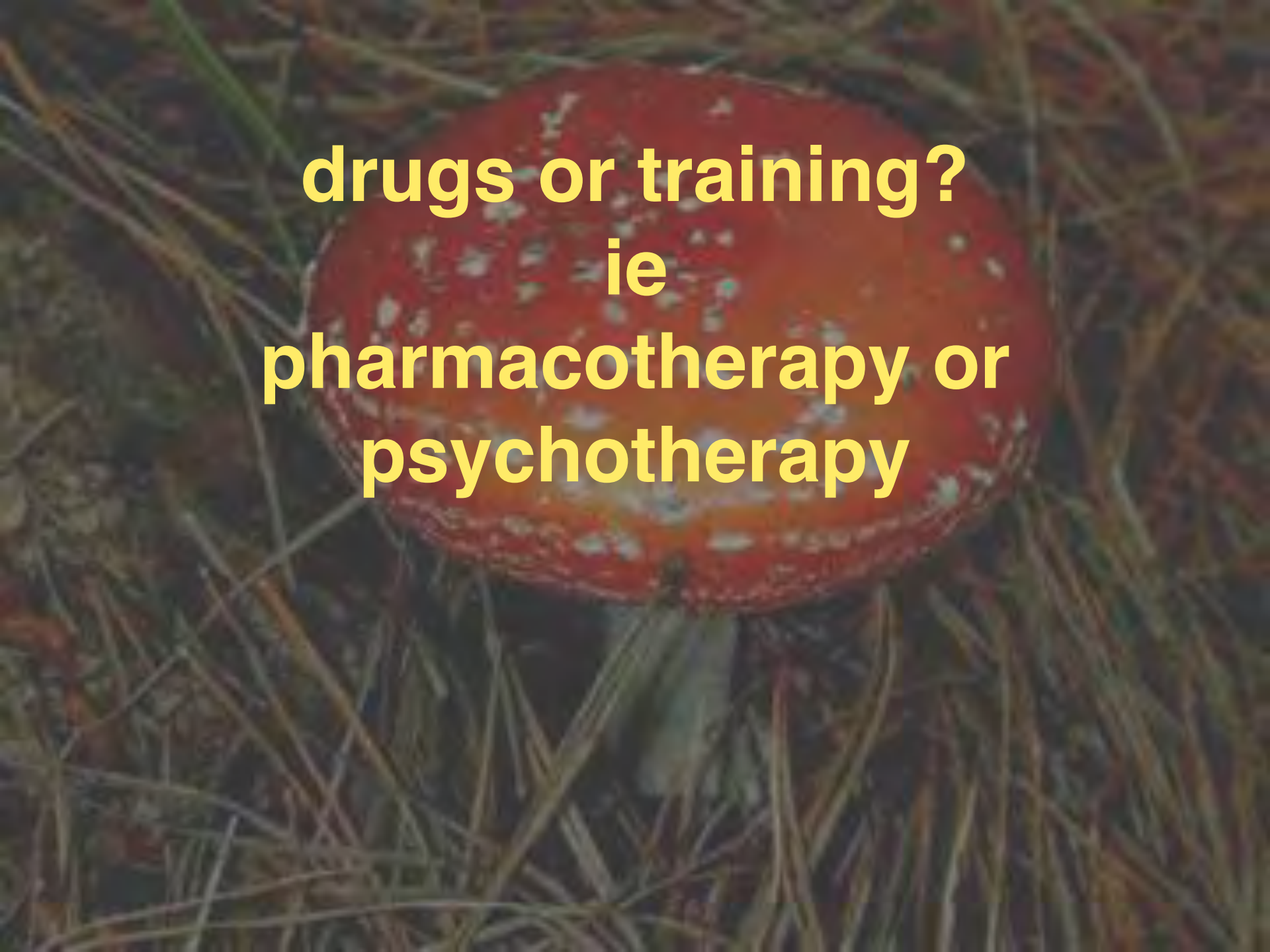
A close-up photograph of a bright red mushroom with white spots, resting on a bed of dry pine needles. The mushroom is the central focus, with its gills visible at the bottom. The background is a dense layer of dry, brown pine needles, creating a textured and natural setting. The lighting is soft, highlighting the vibrant red of the mushroom against the muted tones of the needles.

**Why do animals behave in  
the way that they do?**

# unwanted behaviour

A red mushroom with white spots is growing on a bed of dry grass. The mushroom is the central focus of the image, with its stem visible at the bottom. The background is a dense layer of dry, brownish grass.

- boredom
- anxiety / fear
- depression
- (senility)

A red mushroom with white spots is centered in the image, resting on a bed of dry, brown grass. The text is overlaid on the mushroom.

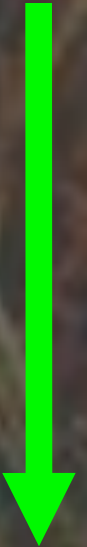
**drugs or training?  
ie  
pharmacotherapy or  
psychotherapy**

# unwanted behaviour

- **boredom**
  - **distraction**
- **anxiety / fear**
  - **anxiolytics ± TCAs, pheromones**
- **(depression**
  - **antidepressants)**
- **(senility**
  - **stimulants)**

# **anxiety**

- **normal / useful**
- **attention seeking**
- **interference with normal activities**
- **phobic anxiety**
- **panic attacks**



A red mushroom with white spots is centered in the image, resting on a bed of dry pine needles. The word "anxiety" is written in yellow text across the top of the mushroom.

# anxiety

- **subjective in people**
- **interpretation of animal behaviour??**
- **effects of drugs?**

# conflict situations

- **mixing groups of animals**
- **new / potential danger**
- **objective danger**
- **animal / owner interaction**

# measuring anxiety

- **animals**
  - behaviour
  - response to drugs
- **people**
  - anxiety scales
  - autonomic responses
  - response to drugs



# anxiety related behaviour

A red mushroom with white spots is centered in the background of the slide. The mushroom is surrounded by a dense layer of dry pine needles, which are out of focus. The overall lighting is somewhat dim, giving the scene a natural, outdoor feel.

- **cats**
  - **spraying**
- **dogs**
  - **aggression**
  - **barking**
  - **chewing / digging**
  - **fear**

# anxiolytic drugs

- benzodiazepines
  - diazepam
- 5HT<sub>1A</sub> agonists
  - buspirone
- pheromones
- (barbiturates)
- ( $\beta$  blockers)
- (chloral hydrate, etc)
- antidepressants

# benzodiazepines

- **safe**
  - rarely liver failure in cats
- **reduce effects of training**
  - beware working dogs!
- **interfere with learning?**
  - block memory
- **withdrawal syndrome / dependence?**
- **effects increase with age – senility?**
- **tolerance?**

# buspirone

- $5HT_{1A}$  agonist
- mechanism unknown
- effects take weeks
- side effects restlessness

# pheromones

- **feline facial pheromone**
- **dog appeasing pheromone**
- **both reduce stress-related signs**

# antidepressants

- depression induces anxiety
- depression induced by stress?
  - 75% of cases in people

# depression in people

- **unipolar**
  - reactive
  - endogenous
- **bipolar**



# depression in animals

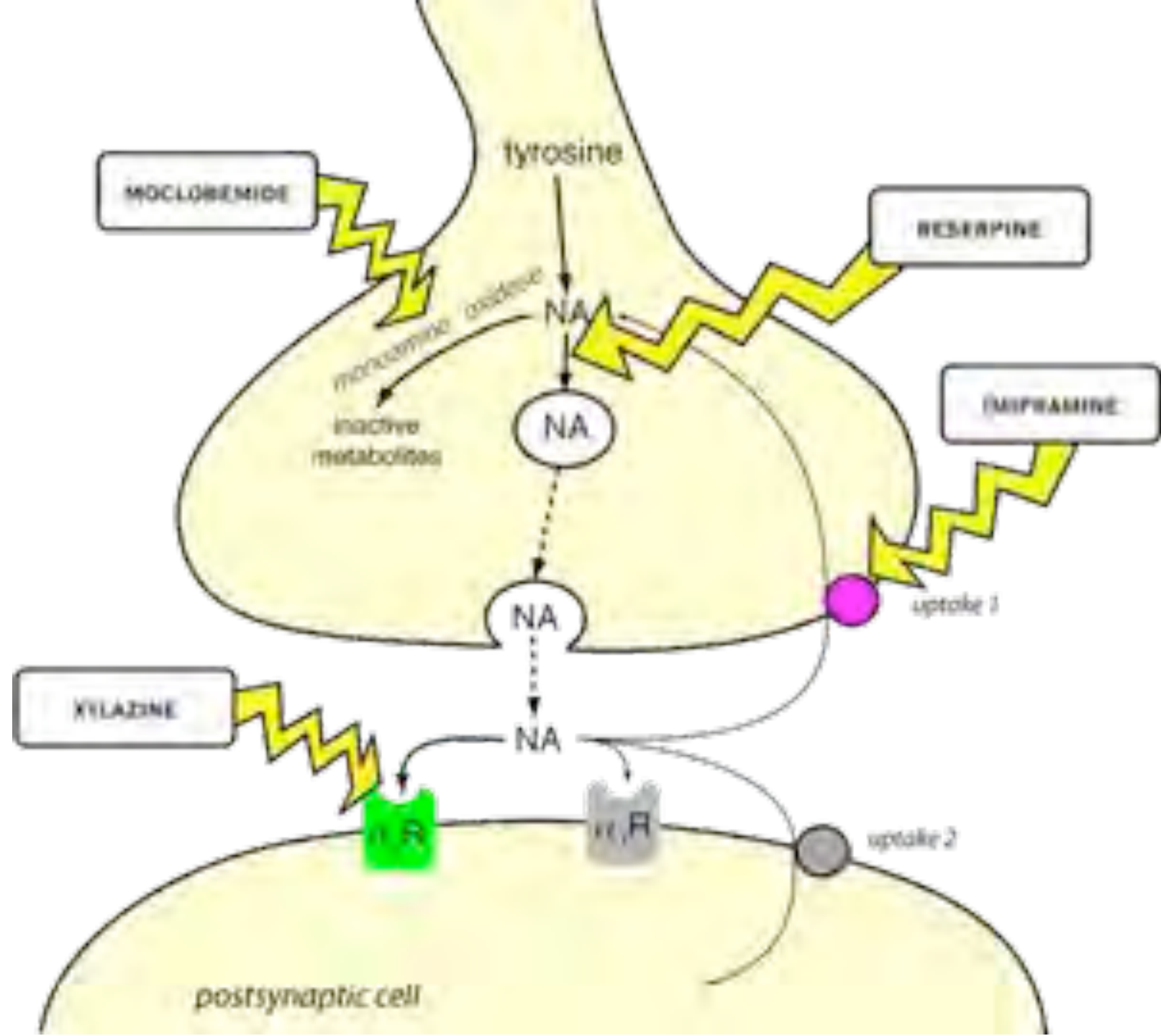
- ???





# depression

- **monoamine theory**
  - depression is caused by a functional deficit of monoamines
  - supported by known effects of some drugs
  - much contradictory evidence
  - manipulation of monoamines works in people



# antidepressant drugs

- **tricyclic antidepressants**
  - amitriptyline, imipramine, clomipramine
- **selective serotonin reuptake inhibitors**
  - fluoxetine, paroxetine, sertraline
- **monoamine oxidase inhibitors**
  - phenelzine, tranylcypromine, moclobemide (A), selegiline (B)
- **atypical antidepressants**
  - maprotiline, mianserin

# side effects

- **tricyclic antidepressants**
  - sedation, anticholinergic effects, arrhythmias, seizures, memory?
- **selective serotonin reuptake inhibitors**
  - nausea, diarrhoea, insomnia
- **monoamine oxidase inhibitors**
  - sedation, insomnia, weight gain, cheese reactions, pethidine reactions?
- **atypical antidepressants**
  - sedation, hypotension, seizures

# antidepressants

- take 2 – 4 weeks to work in people
  - spontaneous recovery
  - lack of efficacy
  - huge placebo effect
- dogs?
- cats???
- many active metabolites in people

# depression related behaviour?

- **cats**
  - spraying
  - scratching furniture
- **dogs**
  - aggression
  - barking
  - chewing / digging
  - fear

A red mushroom with white spots, likely a fly agaric, is the central focus of the image. It is surrounded by a dense layer of dry pine needles. The word "sex" is written in yellow text above the mushroom.

# sex

- **progestagens**
  - **antiandrogen effect**
  - **anxiolytic effect?**
  - **delmadinone**
  - **megoestrol**
  - **medroxyprogesterone**

# sex related behaviour?

- **cats**
  - **spraying**
- **dogs**
  - **aggression**
  - **barking**
  - **chewing / digging**
  - **fear**





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-green needles. The text is overlaid on the image in a bright yellow color.

# stimulants

- **indications?**
  - **senility**
- **problems**
  - **drugs of abuse in people**

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 numerous small white spots. The background is a dense layer of dry, brown pine needles, creating a textured and natural setting.

# stimulants

- **amphetamines**
- **amphetamine like drugs**
  - methylphenidate
- **methylxanthines**
  - caffeine etc
  - oxpentifylline

# stereotypies

- **inappropriate repetitive behaviour**
  - **boredom?**
    - **provide distraction**
  - **inappropriate stimulation of reward pathway?**
    - **opioid antagonists**
    - **dopamine antagonists**

# Fred

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A close-up photograph of a mushroom with a bright red cap and numerous white spots. The mushroom is growing on a bed of dry, brown pine needles. The lighting is soft, highlighting the texture of the cap and the surrounding needles.

**Fred**

A close-up photograph of a mushroom with a bright red cap and numerous white, irregular spots. The mushroom is growing on a bed of dry, brown pine needles. The lighting is somewhat dim, giving the scene a slightly somber or mysterious atmosphere.

# Fred

- Does he need drugs?

A close-up photograph of a red mushroom with white spots, likely a fly agaric, growing on a bed of dry pine needles. The mushroom is the central focus, with its bright red cap and white spots contrasting sharply with the brown, needle-covered ground. The text 'Fred' is overlaid on the top part of the mushroom cap.

# Fred

- **Does he need drugs?**
  - **dubious**

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# Fred

- **Does he need drugs?**
  - **dubious**
- **What can you reasonably expect drugs to do?**



# Fred

- **Does he need drugs?**
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- **What can you reasonably expect drugs to do?**
  - **reduced activity / sedation**

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- **Which drug?**
  - **benzodiazepine?**

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- **Which drug?**
  - **benzodiazepine?**
  - **antidepressant?**

# Fred

- **Does he need drugs?**
  - **dubious**
- **What can you reasonably expect drugs to do?**
  - **reduced activity / sedation**
- **Which drug?**
  - **benzodiazepine?**
  - **antidepressant?**
  - **pheromone?**

# behaviour altering drugs

- **the cause of altered behaviour should be addressed – the problem may be the owner!**
- **psychotherapy is usually better than drugs**
- **drugs seem to work best in combination with psychotherapy**
- **benzodiazepines and antidepressants are used for anxiety related problems**
- **beware side effects!!!**