



สมาคมสัตวแพทย์ผู้ประกอบกิจการบำบัดโรคสัตว์แห่งประเทศไทย  
โครงการ VPAT ACADEMY

# VPAT ACADEMY WEBINAR

วีดีโอสำหรับทบทวนความรู้พื้นฐานด้านสัตว์เลี้ยง และสัตว์เลี้ยงชนิดพิเศษ



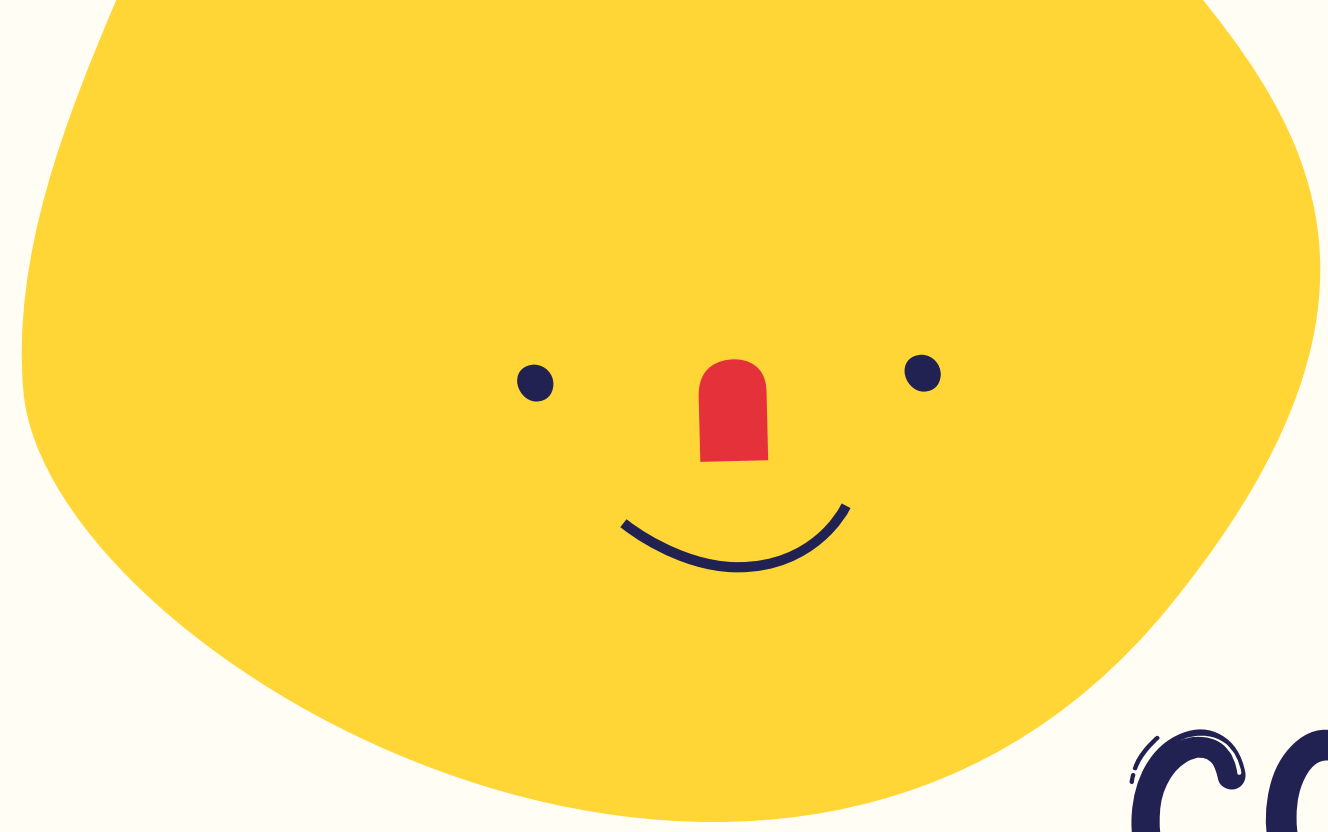
# VPAT PARTNERSHIP 2021





“เนื้อหา ข้อความ รูปภาพ ภาพเคลื่อนไหว และเสียงทั้งหมด  
ในคลิปบรรยายที่จัดทำขึ้นนี้ เป็นลิขสิทธิ์อย่างถูกต้อง  
ของสมาคมสัตวแพทย์ผู้ประกอบการบำบัดโรคสัตว์แห่งประเทศไทย (VPAT)  
ห้ามผู้ใดทำซ้ำ คัดลอก ดัดแปลง จัดเผยแพร่ จำหน่าย โดยไม่ได้รับอนุญาต”

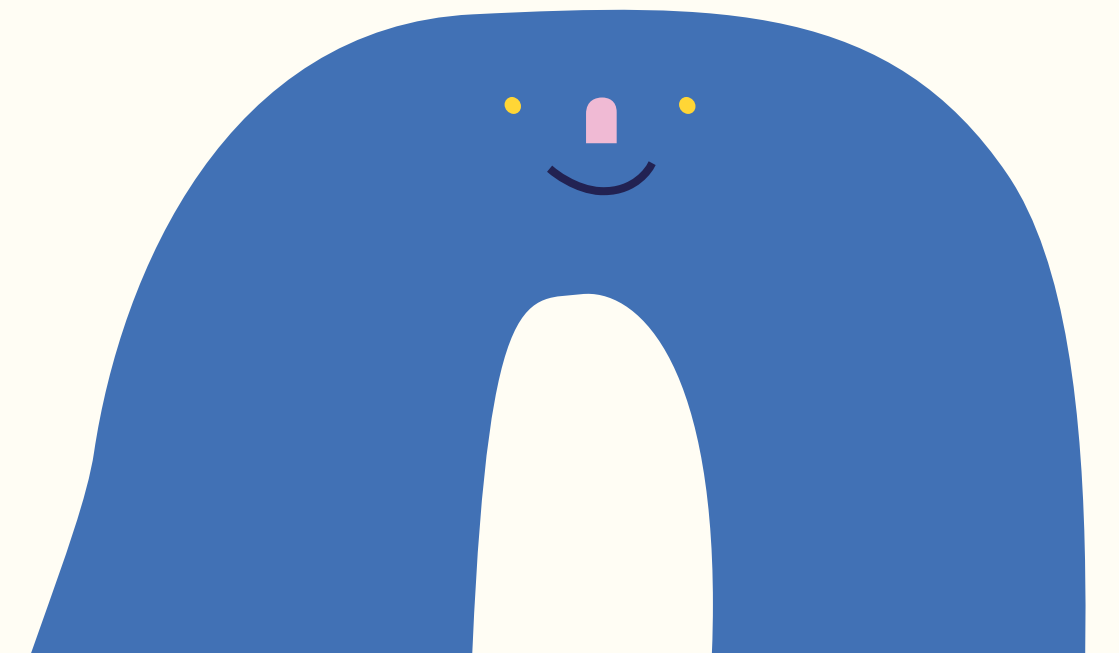


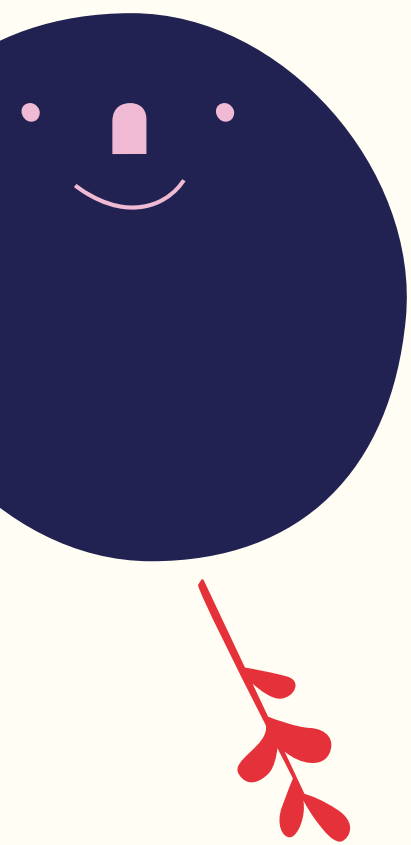


# COMMON DISEASE IN SMALL MAMMAL EXOTIC PET

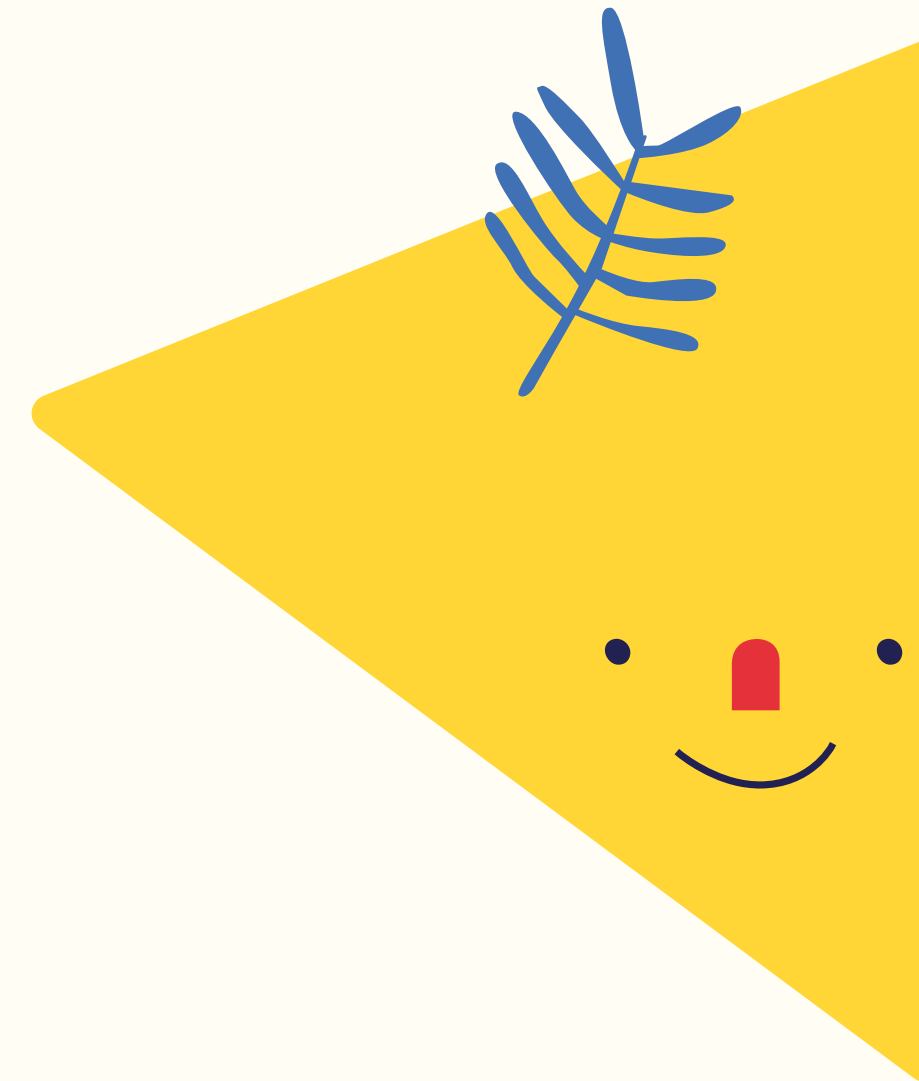


Kanthita Paweenasakol (P'Lukket) D.V.M.

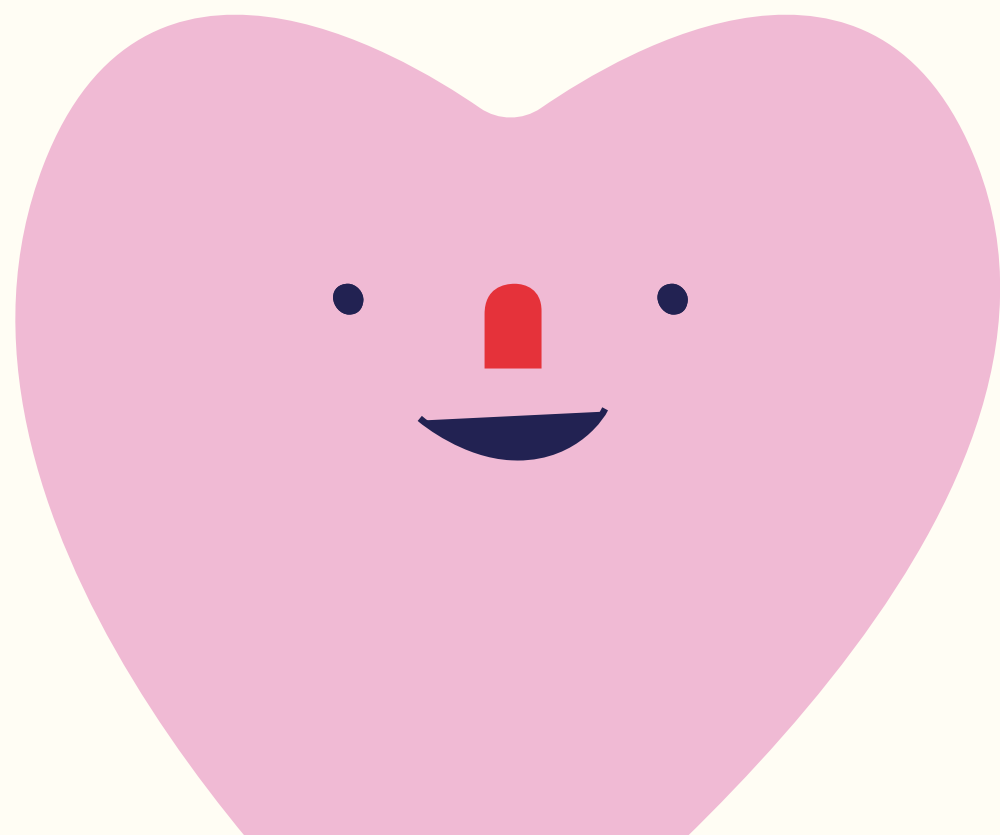




# OUTLINE



Rabbit/Guinea pig/  
Chinchilla/Hamster/Squirrel/  
Prairie dog/Ferret/Hedgehog/  
Sugar glider/Marmoset



Biology  
Anatomy  
Physiology  
Common disease

# RABBIT

- Order - Lagomorpha
- Crepuscular feeder
- Buck = Male, Doe = Female
- Strict herbivores



IG: Bunnydayoff

VITAL STATISTICS			
Life span	6-9+ years	Dentition	2 small peg teeth behind upper incisors, all open-rooted; incisors grow 10-12 cm/year
Body weight (breeds vary)			
Adult male	2-5 kg		
Adult female	2-6 kg		
Birth weight	30-80 g	Dental formula	I 2/1 C 0/0 P 3/2 M 3/3
Rectal temperature	101.3-104.0°F (38.5-40.0°C)	Age of sexual maturity	
		Males	22-25 weeks
		Females	22-25 weeks
Respiratory rate	30-60 bpm	Estrus cycle	induced ovulators
Heart rate	180-250 bpm	Gestation	30-33 days
Blood volume	55-70 ml/kg	Litter size	4-12 kits
Food consumption	50 g/kg/day	Weaning	4-6 weeks
Water consumption	50-100 ml/kg/day		

# RABBIT

- Common exotic pet
- Restraint: Burrito technique!

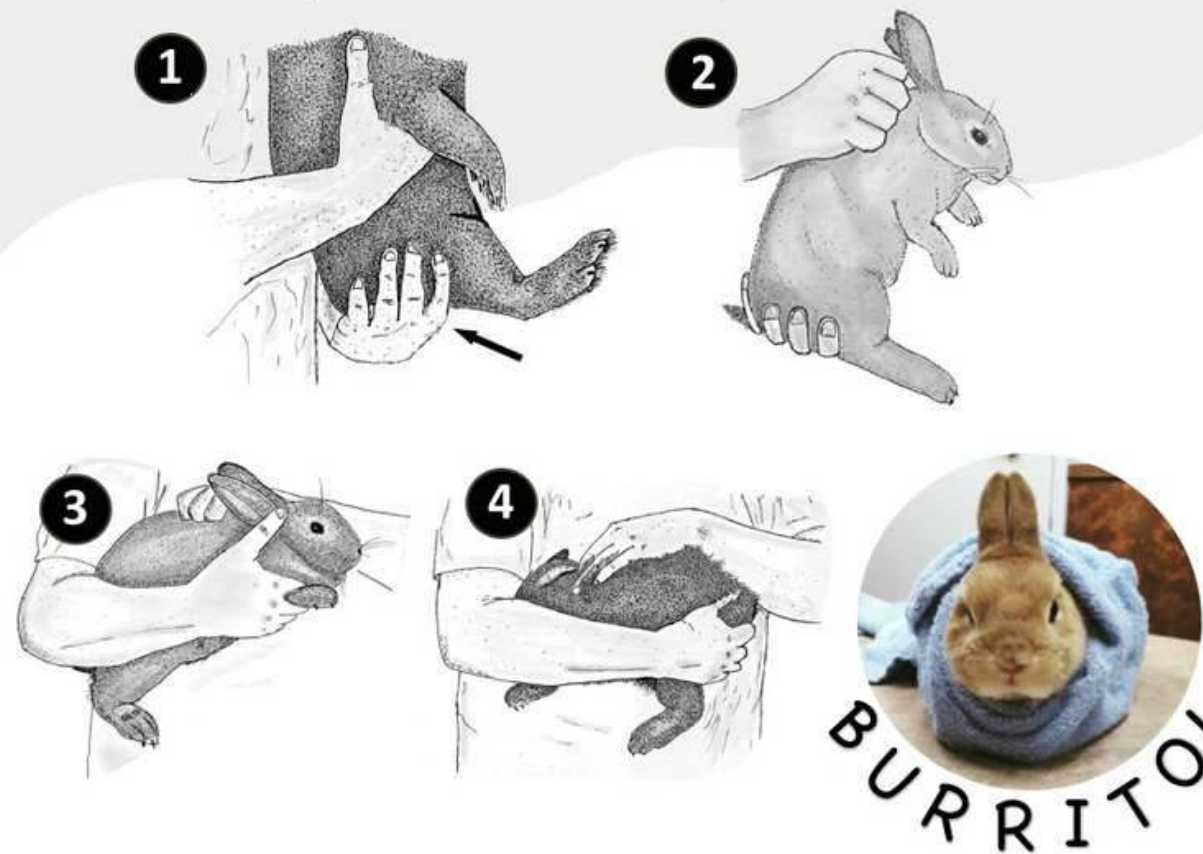
Grasp the rabbit's scruff  
Support the rabbit's bottom  
Never pick rabbits up by their ears

Rabbits are highly susceptible to lumbar spinal luxation, resulting in paralysis

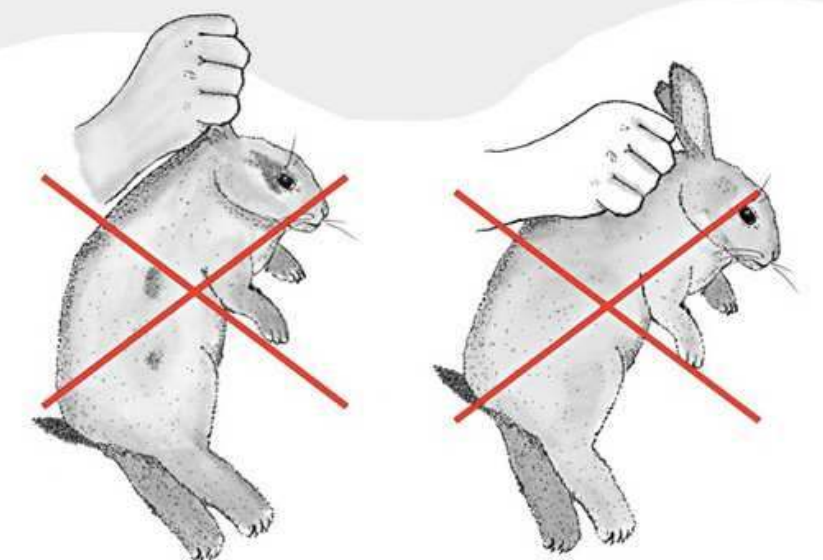


IG: Peterpom221

ทำอุ้มกระต่ายที่ถูกต้อง!



แบบนี้ห้ามอุ้มเด็ดขาด!



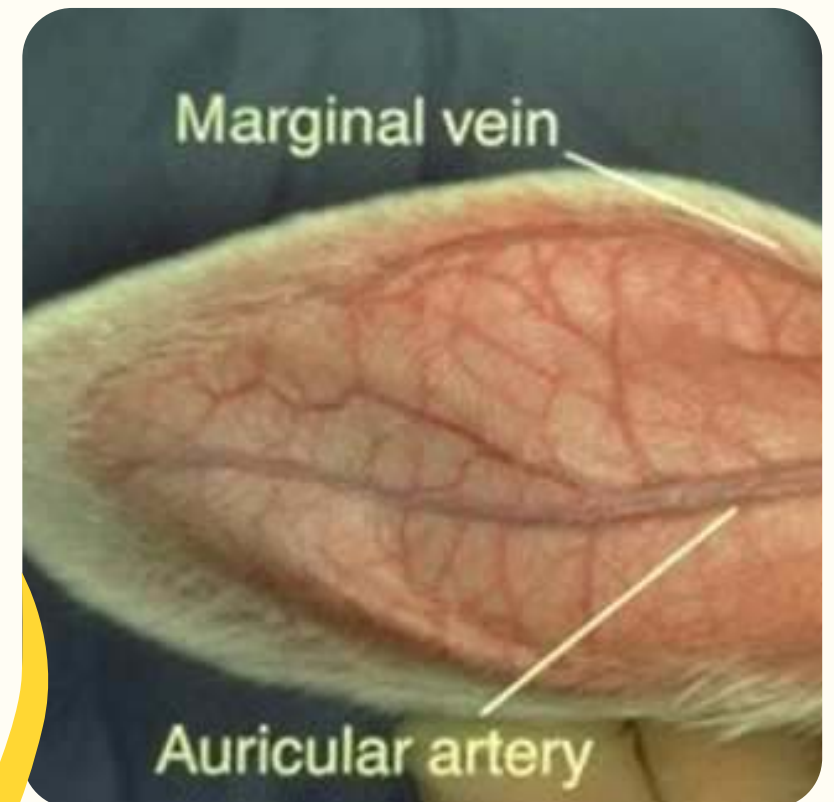
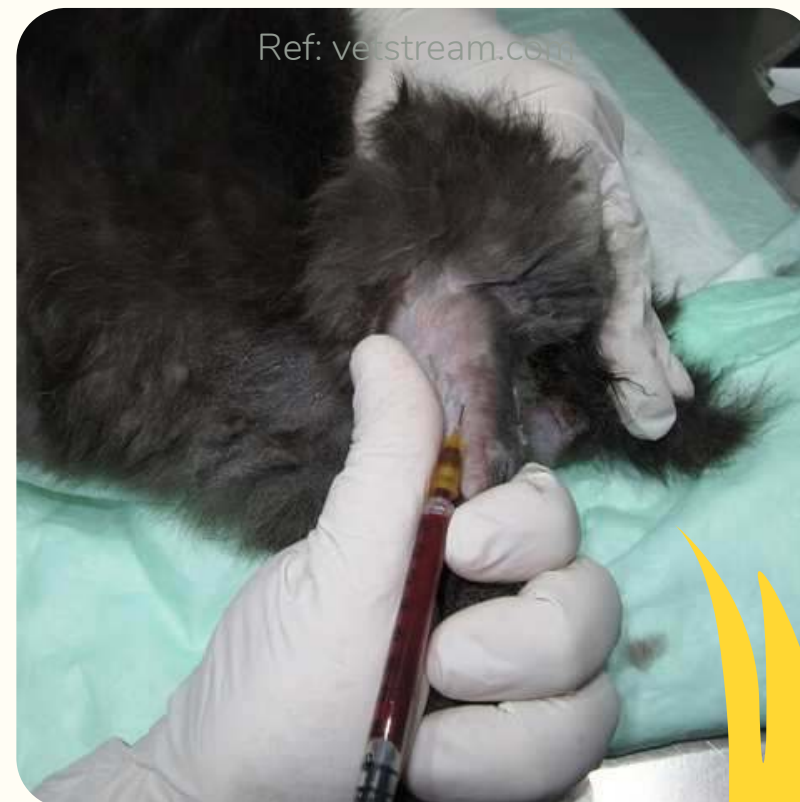
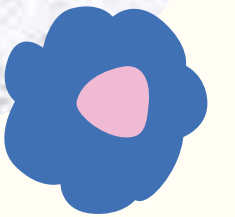
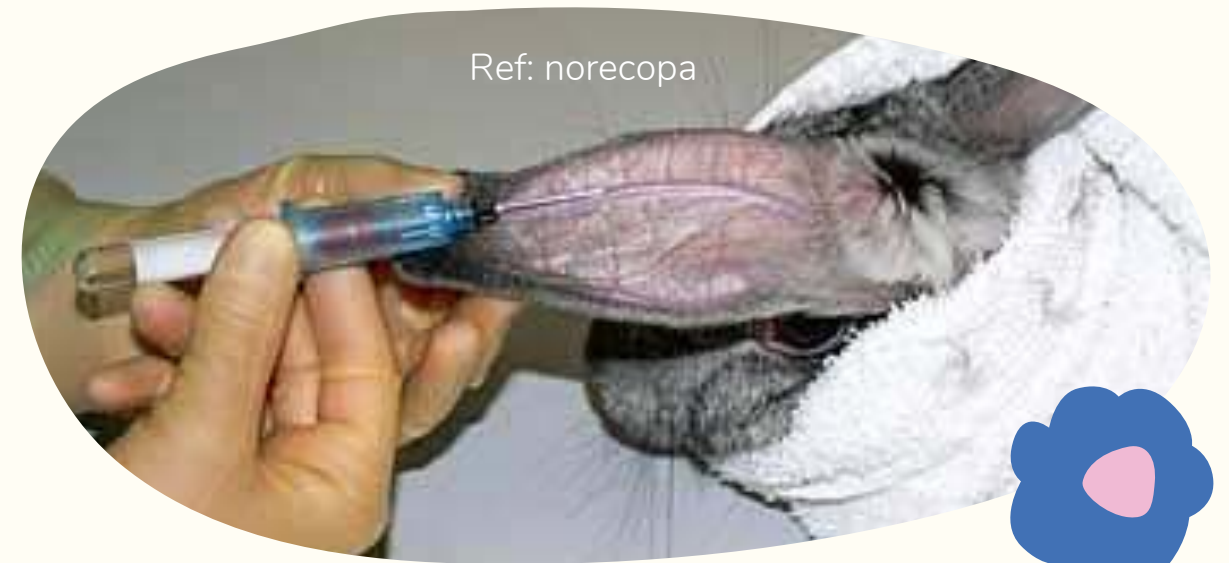
โดย สพ.ญ.กัณธิตา ปวีณสกุล  
ขอบคุณรูปภาพจากMediRabbit.com



# RABBIT



- Blood collection: Lateral saphenous vein  
Marginal ear vein  
Central ear artery





# RABBIT

- Herbivore

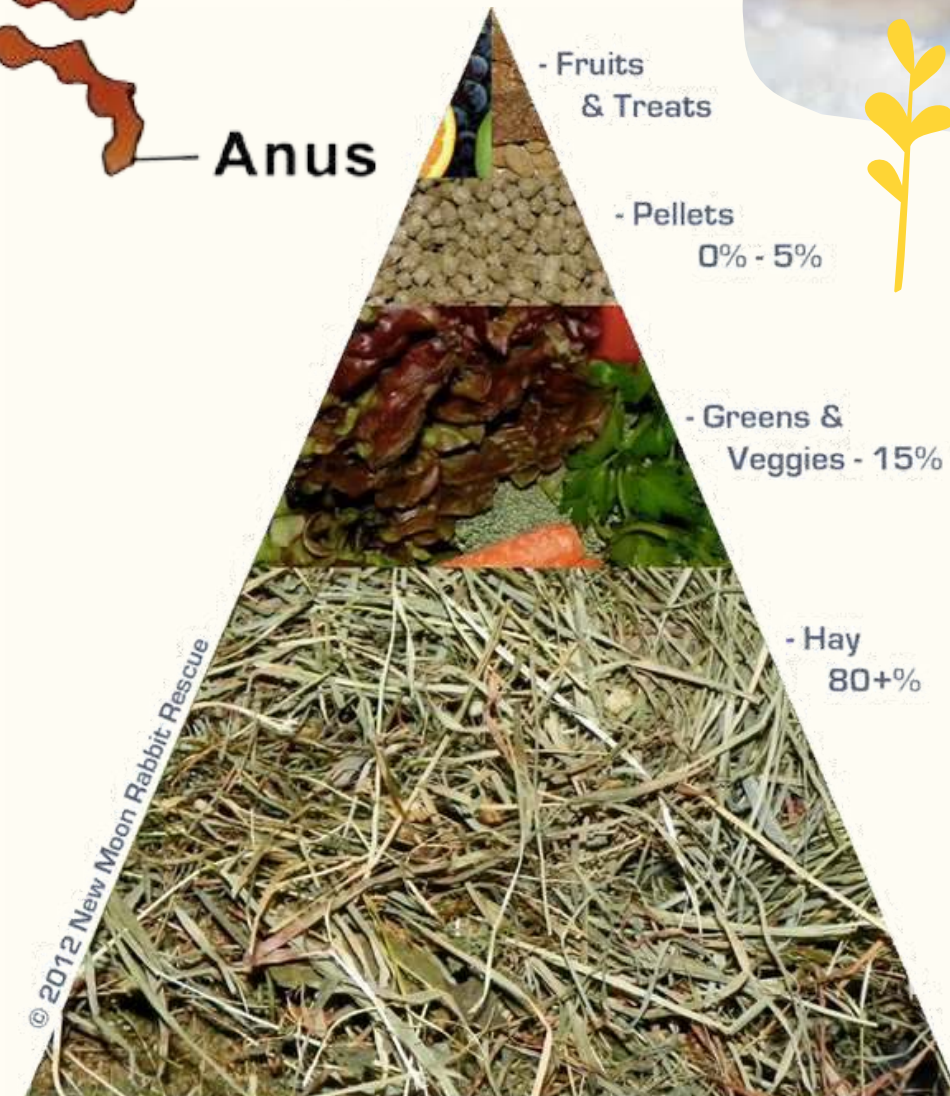
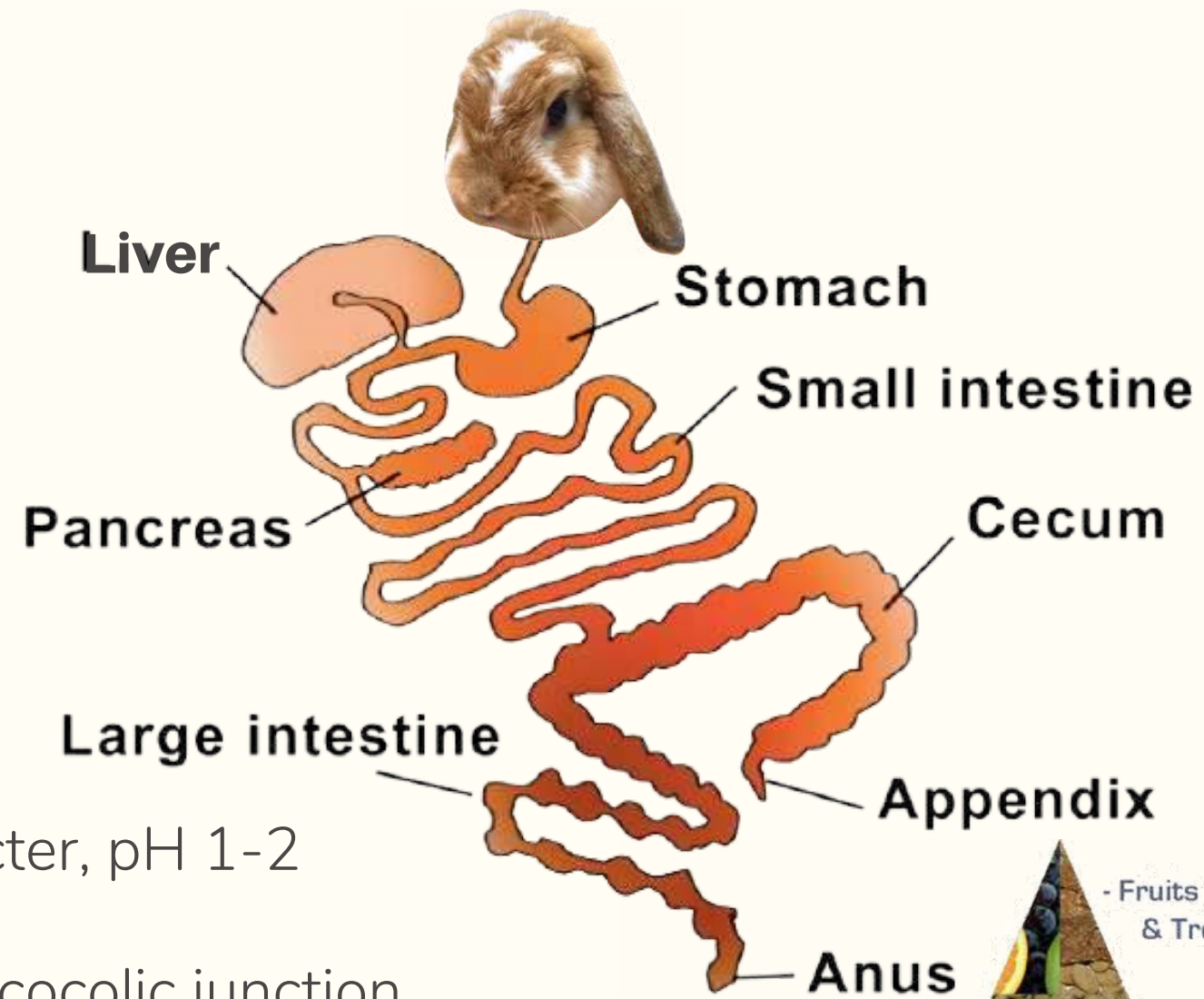
- Very sensitive GI tract sys!

Stomach: cardiac and pyloric sphincter, pH 1-2  
Small intestine: hormone motilin  
Large intestine: Sacculus rotundus, ileocecolic junction  
- lymphoid tissue/Preyer's patch, colon - Fosus coli

- Caecotrop



- Saccharomyces guttulatus



Rabbit Food Pyramid

© 2012 New Moon Rabbit Rescue



Animal Space  
Pet Hospital



โดย สพ.ญ.กัณธิตา ปวีณสกุล  
(หมอลูกเกิด)



อีเหฺลว

บ่งบอกว่ากินอาหารที่มีโปรตีนหรือน้ำตาลมากเกินไป

หรือเกิดจากความเครียด การติดเชื้

และหากอิมมูบปน บ่งบอกว่าลำไส้มีการอักเสบ

ควรรีบพากระต่ายไปพบสัตวแพทย์



อีเล็กแ่นแข็งสีเข้ม

แปลว่าน้องกระต่ายกินหญ้าไม่เพียงพอ

ควรเพิ่มปริมาณหญ้าแห้ง น้ำสะอาด

และลดปริมาณอาหารเม็ดลง



อีพวงอูงุ่น

นิ่มและมันเงากว่าอีปกติ มีวิตามิน แร่ธาตุ กรดอะมิโน  
จุลินทรีย์ที่มีประโยชน์ ที่กระต่ายจะกินกลับเข้าไป เพื่อนำเอา

สารอาหารดังกล่าวกลับเข้าไปใช้ หากเจออีพวงอูงุ่นเยอะ

บ่งบอกว่าได้รับอาหารที่มีโปรตีนสูงเกินไป โยอาหารต่ำ

หรือมีอาการเจ็บป่วย เช่น เป็นอัมพาตหรืออ้วน

ทำให้ก้มลงไปกินอีพวงอูงุ่นไม่ได้นั่นเอง



อู

ของกระต่ายบอกอะไรได้บ้าง?

Natalie Dee.com



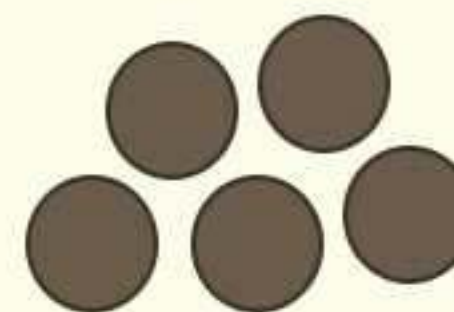
อีสายสร้อย

มักเจอช่วงผลัดขน

แปลว่ามีการเลียขนเข้าไปเป็นจำนวนมาก  
จนขนจับตัวกับอี มีโอกาสที่จะอุดตันทางเดินอาหารได้

จึงควรช่วยแปรงขน เพื่อลดไม่ให้เลียขน

เข้าไปในทางเดินอาหารเยอะเกินไป



อีปกติ

รูปร่างกลม ขนาดสม่ำเสมอ สีน้ำตาล

ไม่แห้งหรือชื้นจนเกินไป

แปลว่าน้องกระต่ายกินหญ้าและน้ำอย่างเพียงพอ

มีระบบทางเดินอาหารทำงานปกติดี

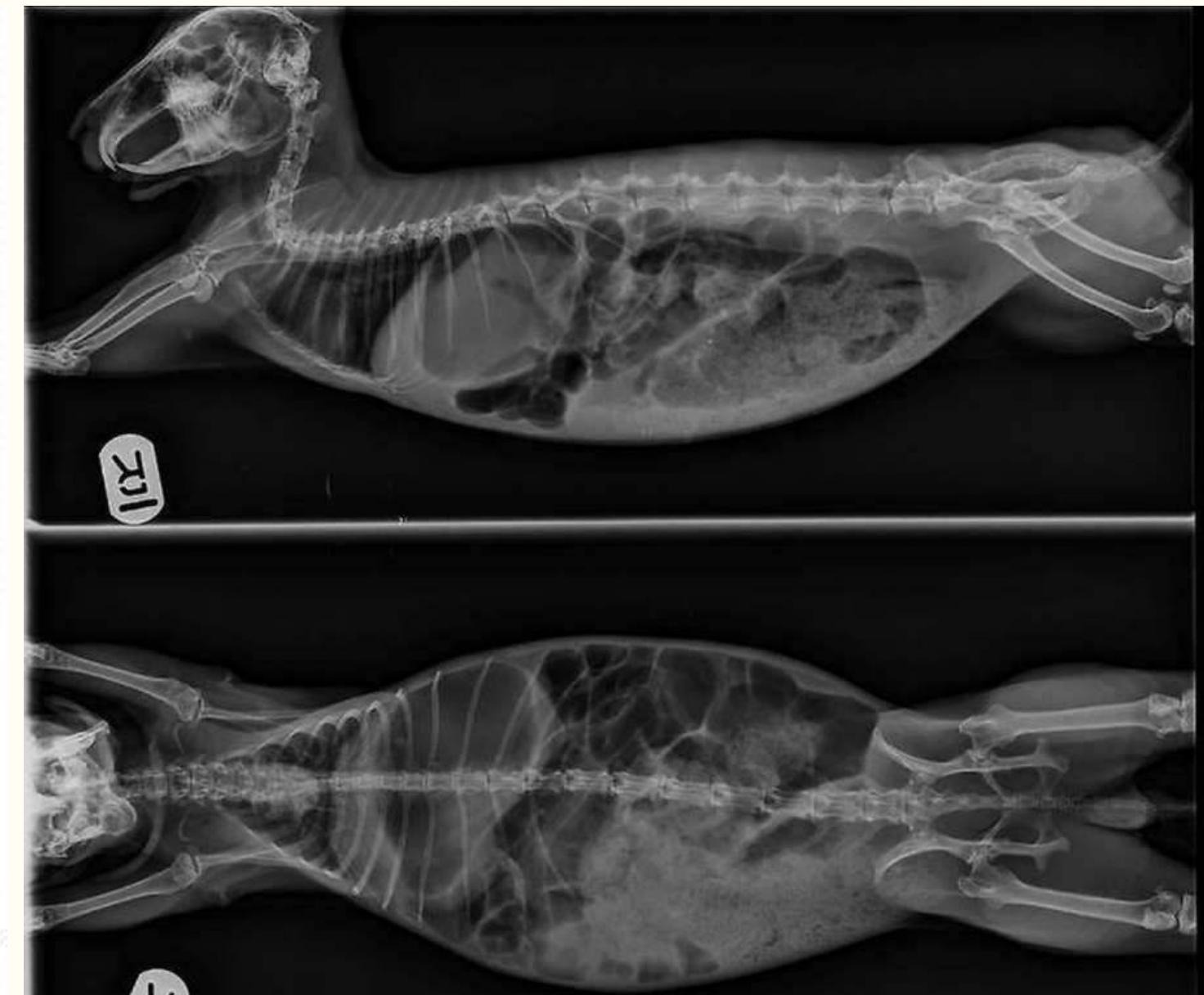
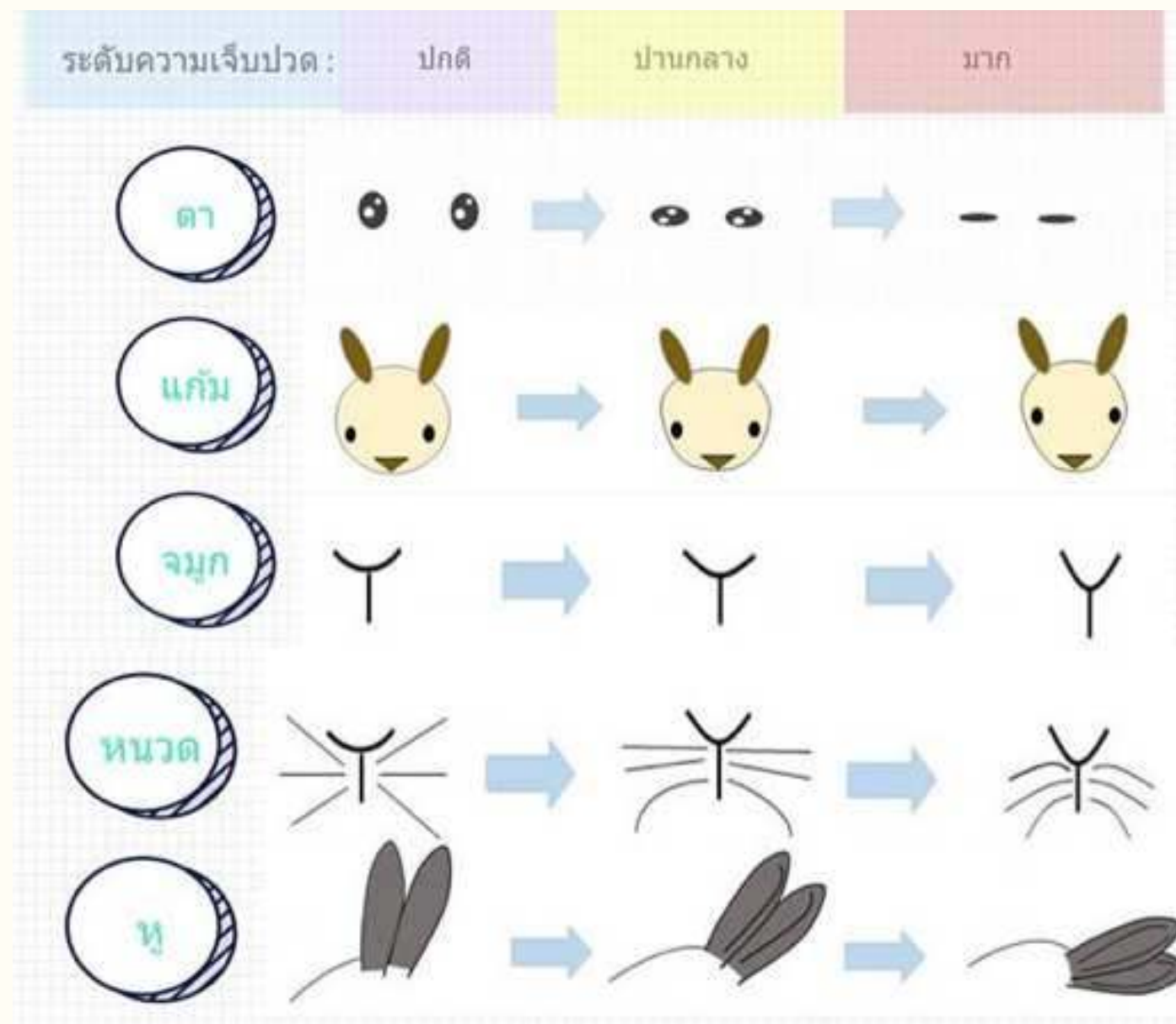
# RABBIT

## • RGIS(Rabbit gastrointestinal syndrome)

Gastrointestinal hypomotility, Impaction, Obstruction



- Cause: stress, diet, FB, etc.
- Dx: HT, PE, X-ray +/-contrast study, US, blood exam
- Tx: Med(Pro-kinetic drug/Analgesic drug), Surgery



IG: rene\_cara.hr0106

# RABBIT



- **Diarrhea**

Infection; Coccidiosis, Non-infection; Dysbiosis

## ANTIBIOTIC TOXICITY

### USE!

S = SULFONAMIDE

A = AMIKACIN

M = METRONIDAZOLE, MARBOFLOXACIN

E = ENROFLOXACIN

D = DOXYCYCLINE

### DON'T USE!

P = PENICILLIN (PO)

L = LINCOMYCIN

A = AMOXYCILLIN, AMPICILLIN

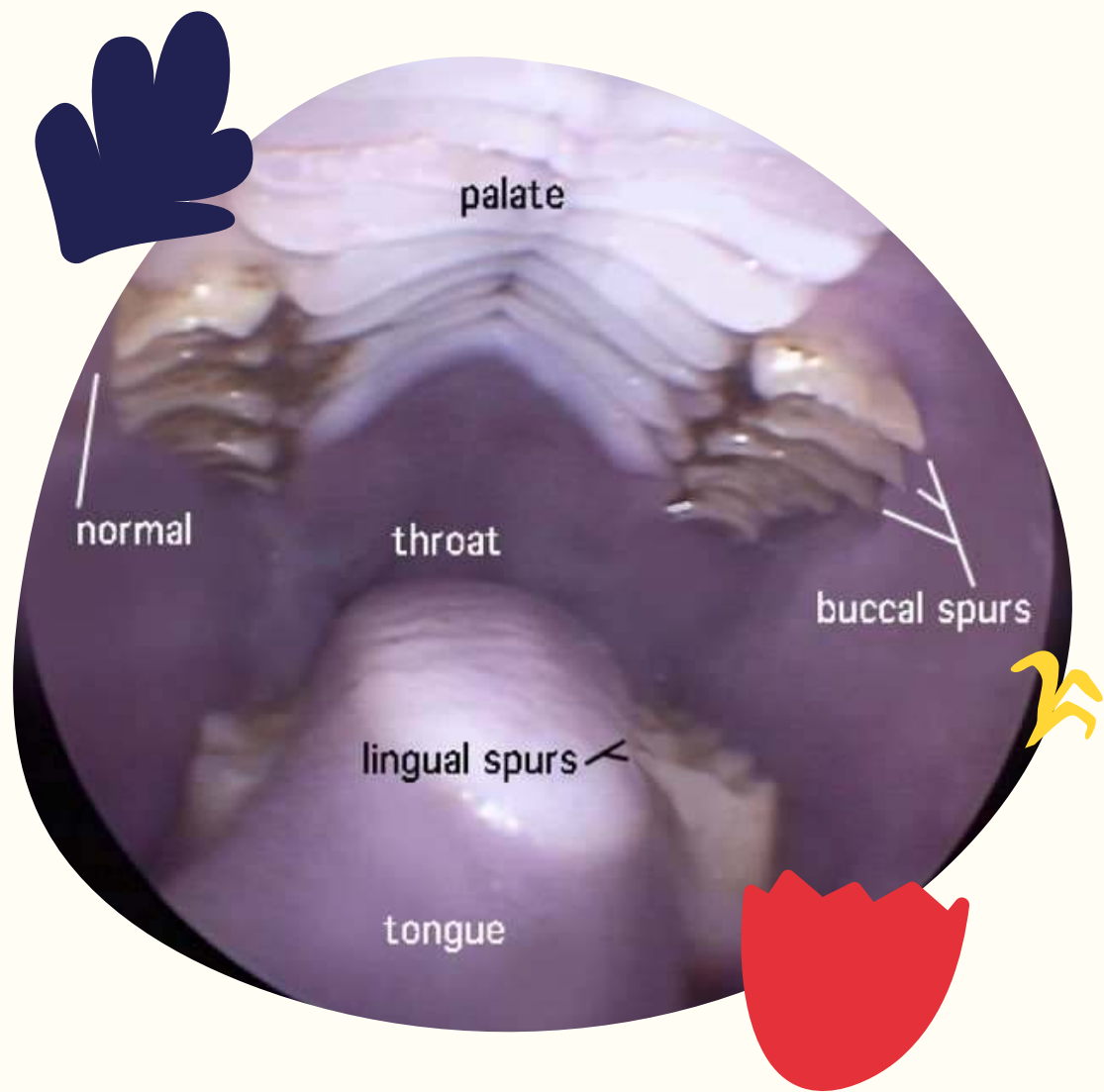
C = CLINDAMYCIN, CEPHALOSPORIN

E = ERYTHROMYCIN

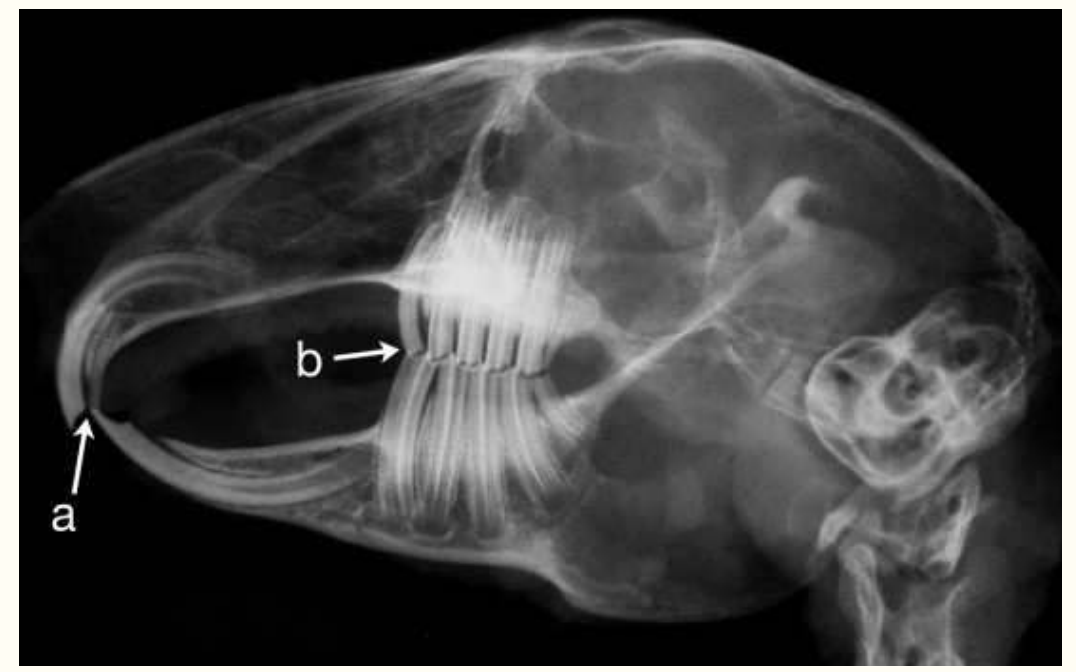


Ref: Chaowaphan

# RABBIT



- Incisor malocclusion
- ADD (Acquired dental dz)
- Toot root abscess  
Thick or caseous pus  
Sx: Marsupialization technique
- Dacryocystitis  
Nasolacrimal duct flushing



Hypsodont  
Diphyodont  
Aradicular (elodont) = open root  
Duplicidentata – Peg teeth  
Cheek teeth – Zig zag line

# DENTAL FORMULA

	INCISORS	CHEEK TEETH			Total
	Maxillary/Mandibular	Premolars Maxillary/Mandibular	Molars Maxillary/Mandibular	Total # of cheek teeth Maxillary/Mandibular	
<b>Lagomorphs</b> (e.g. rabbits, hares, pikas)	2/1	3/2	3/3	6/5 = 22	28
	Aradicular hypsodont	Aradicular hypsodont	Aradicular hypsodont	Aradicular hypsodont	
<b>Porcupine-like Rodents</b> (e.g. guinea pig, chinchilla, degus)	1/1	1/1	3/3	4/4 = 16	20
	Aradicular hypsodont	Aradicular hypsodont	Aradicular hypsodont	Aradicular hypsodont	
<b>Rat-like Rodents</b> (e.g. rat, mouse, hamster, gerbil)	1/1	0/0	3/3	3/3	16
	Aradicular hypsodont		Anelodont brachyodont	Anelodont brachyodont	
<b>Squirrel-like Rodents</b>	1/1	1-2/1	3/3	4-5/4 = 16-18	20-22
	Aradicular hypsodont	Anelodont brachyodont	Anelodont brachyodont	Anelodont brachyodont	

# RABBIT

- **Pododermatitis**

Pressure sore  
Grade/Stage 1-5  
Rex breed

- **Traumatic vertebral fracture**

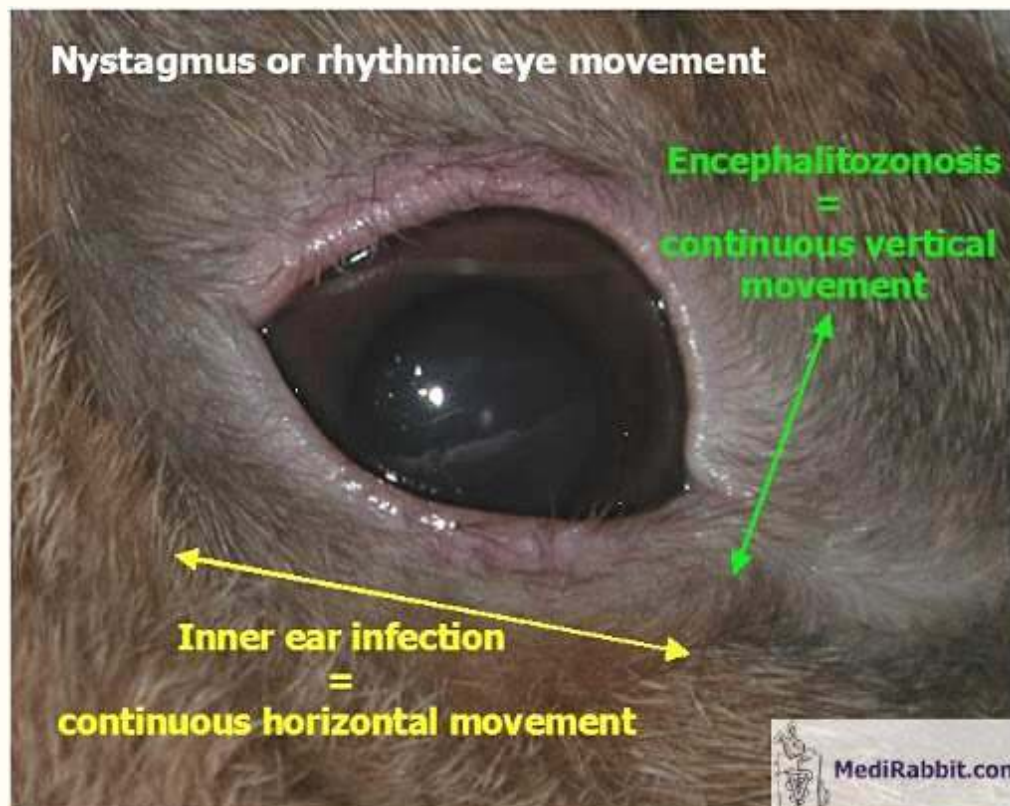
Paralysis of hindquarters  
The most common site = L7  
Cause: improper restraint

- **Encephalitozoonosis**

Microsporidian parasite (Encephalitozoon cuniculi)  
Transmission: shed in the urine, ingestion of spores  
Clinical sign: neurologic signs (torticollis, head tilt, circling, nystagmus)  
Treatment: fenbendazole

**DDx: Otitis!**

**Tympanic bullae**



# RABBIT

- **Fipronil toxicity**

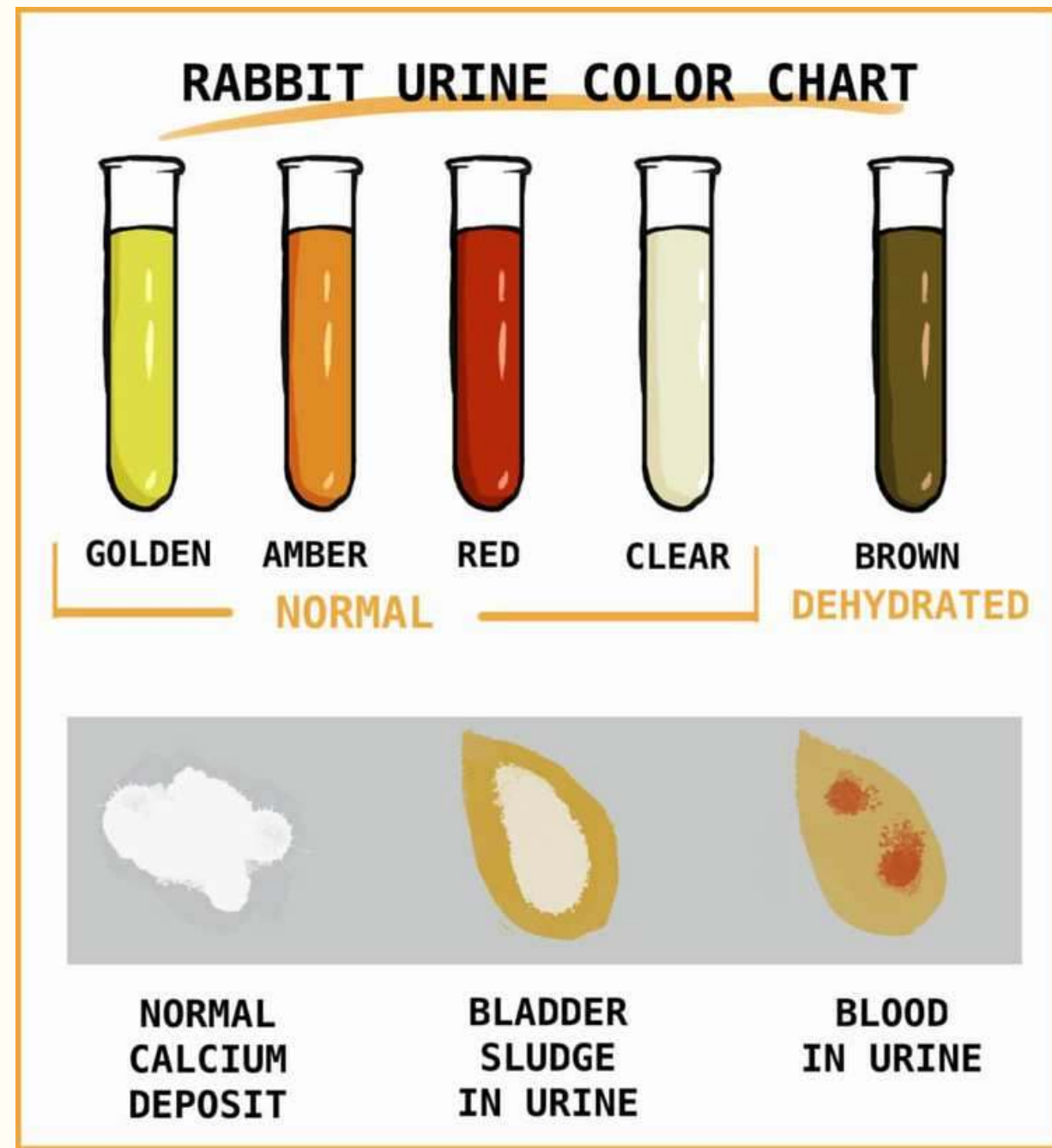
Clinical sign: neurological sign

- **Uterine adenocarcinoma**

Unspayed female rabbits, >4yr old age

Clinical sign: hematuria, bloody vaginal dc

Treatment: OVH



Ref: bunnylady.com

- **Heat stroke**

Form of non-pyrogenic hyperthermia

Cause: body overheating

Thermoregulation: ears, nasal sinuses

**Body temp >40.5°C** (Anna L. Meredith, 2010)



**Predisposing factors:**

Dense fur

Do not sweat

Can't panting



# RABBIT

- Scabies



Sarcoptes scabiei

Clinical sign: alopecia/white scale/crust at ear pinna/nose/mouth

Treatment: selamectin



Pinocchio-like



- Syphilis

Treponema cuniculi

**Not zoonotic dz!**

Clinical sign: erythema/edema/crusty ulcer at lips/eyelid/nostril/vulva/prepuce/perineum

Treatment: penicillin-G

# GUINEA PIG

- Order - Rodentia
- Crepuscular feeder
- Highly social, vocal animals
- Strict herbivores
- Vitamin C - Very important!

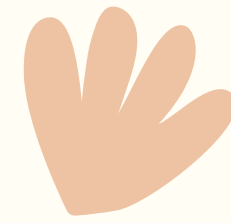


## VITAL STATISTICS

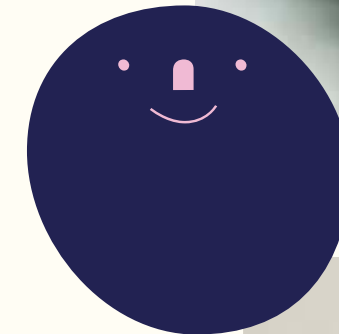
Life span	4-8 years (avg 5 years in home)	Respiratory rate	42-104 breaths per minute
Adult size (body length)	12 inches (310 mm)	Heart rate	230-380 beats per minute
Adult body weight - male	900-1200 g	Blood pressure	80-94/55-58 mmHg
- female	750-900 g	Dental formula	I 1/1 C 0/0 P 1/1 M 3/3 (all teeth open-rooted)
Body temperature	37.2-39.5°C (101.5-103°F) (rectal)		

Ref: The exotic guidebook exotic companion animal procedures

# GUINEA PIG



- Restraint: Burrito technique!  
Two-handed technique
- Blood collection: Cranial vena cava  
Lateral saphenous vein



Ref: semanticscholar.org



Ref: ahwla.org.uk

# GUINEA PIG 🌸

- **Respiratory infection**

Cause: Bordetella sp. and Streptococcus sp.

"Pneumonia is one of the most significant diseases of pet guinea pigs."

**Not recommend! keeping rabbits and guinea pigs together**

- **Diarrhea**

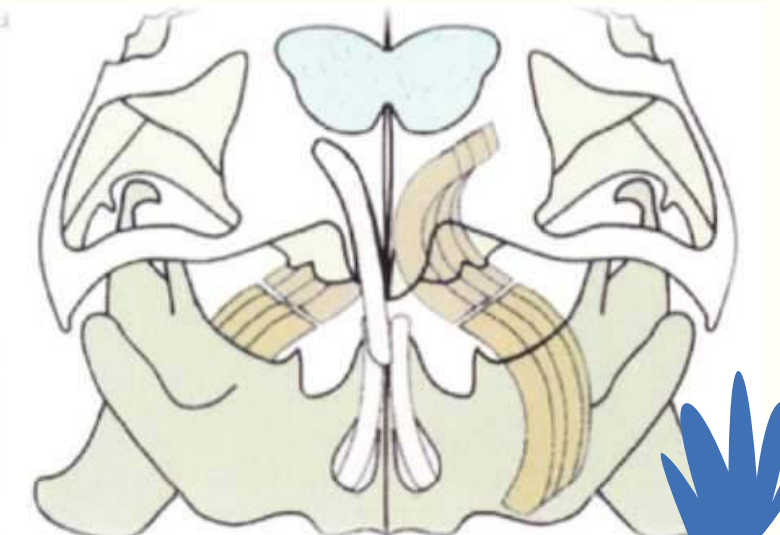
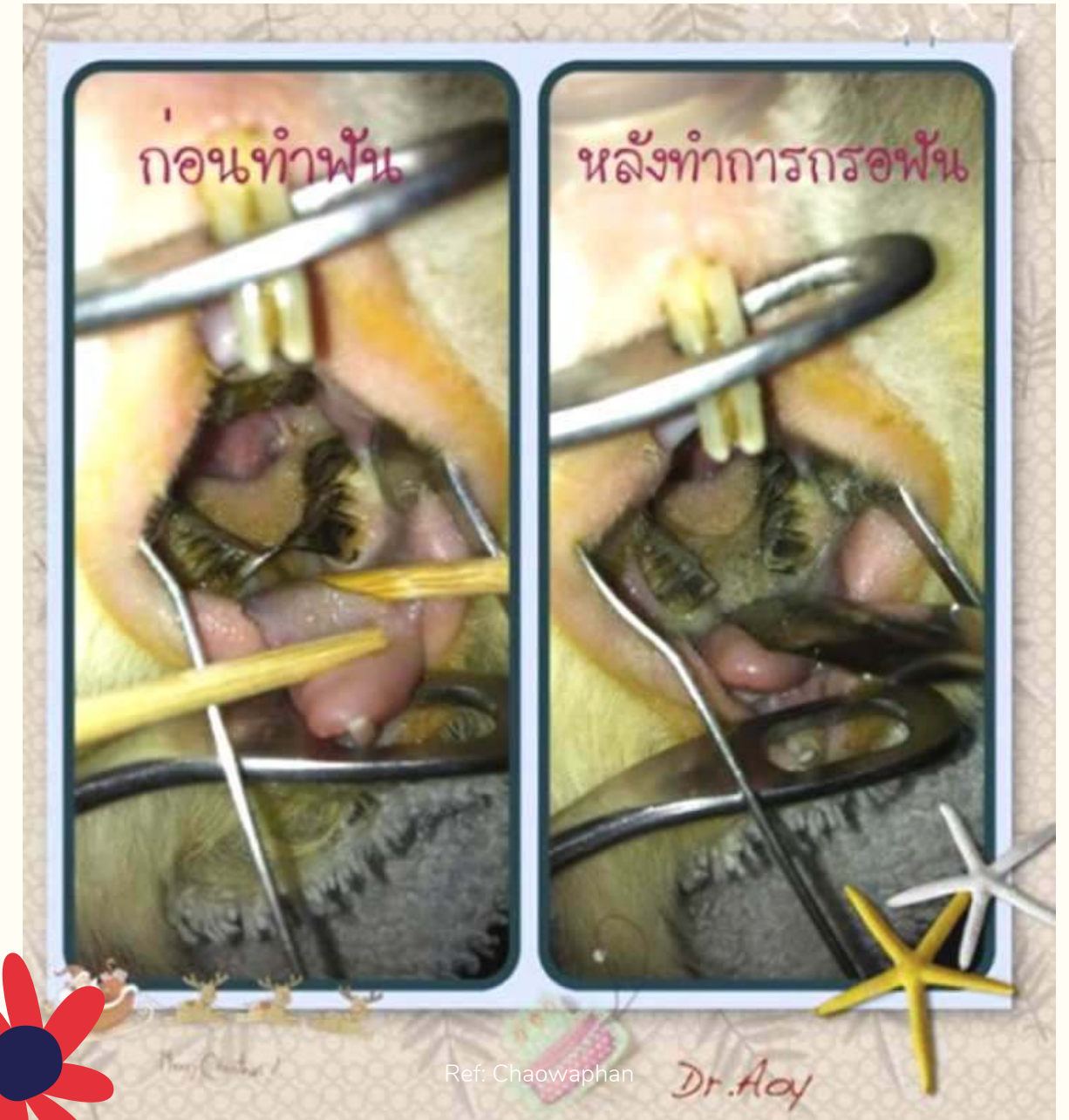
- **Incisor malocclusion**

- **ADD (Acquired dental dz)**

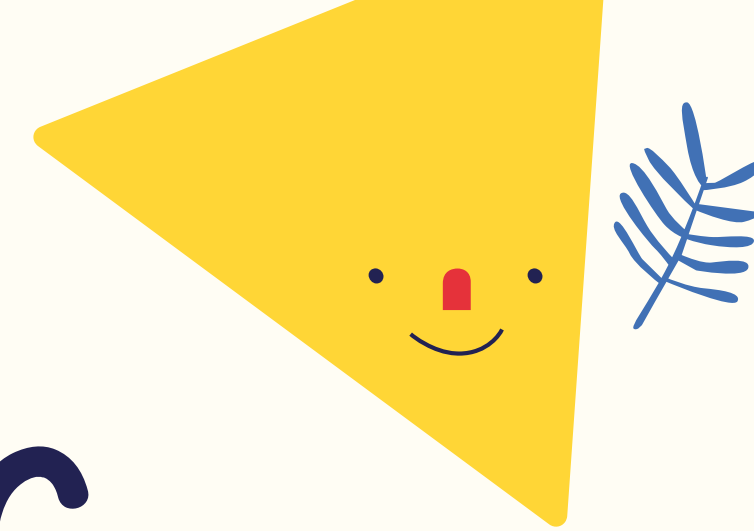
'S' curve

The elongation of their cheek teeth

'Entrap' the tongue



# GUINEA PIG



- **Scurvy/Vitamin C deficiency**

Guinea pig are unable to synthesize or store vitamin C  
Dental problems, growth problems, and a poor immune system  
ex. Lameness; stiff **“bunny-hop”** gait!

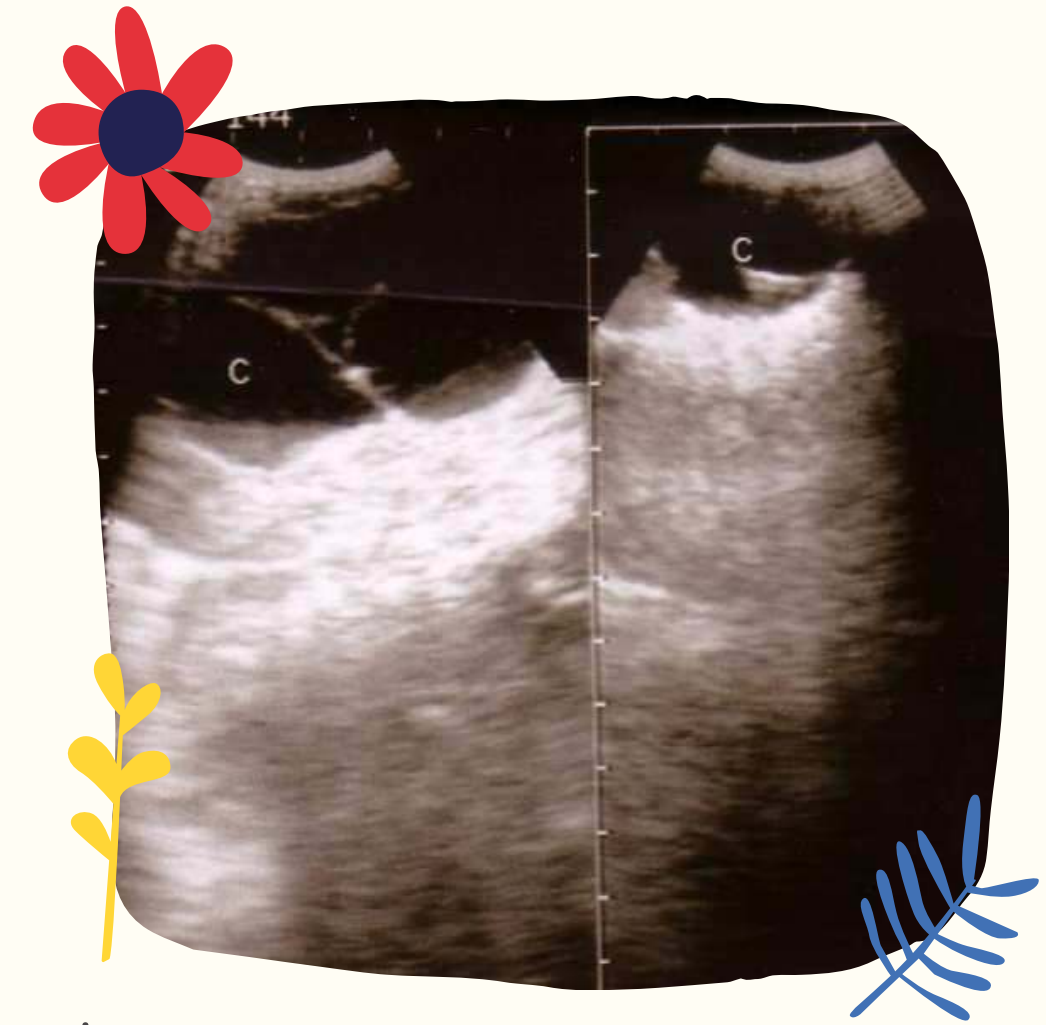
Daily requirements for adult guinea pigs = 10 mg per day  
for sick, pregnant or growing guinea pigs = 30 mg per day

- **Bladder Stones**

Calcium oxalate

Predisposing factor: their urine naturally contains calcium, pH 8-9(alkaline)

# GUINEA PIG



- **Ovarian cysts**

Clinical sign: enlargement of the external genitalia  
bilateral&symmetrical non-pruritic alopecia in the flank region

Treatment: hormone(GnRH/hCG), surgery

- **Dystocia**

Normally deliver pups quickly (every 3-7 min) with completion of delivery within 30 min

Cause: the fusion of the pelvic symphysis(age 6 mths), abnormally big or malformed fetuses

Treatment: surgery



- **Mite and flea infestation**

- **Dermatophytosis**



# CHINCHILLA

- Nocturnal animal
- A well-socialized they likes to be cuddled
- Ultra-soft dense fur, dust bath
- From Andes mountains in South America
- Herbivore

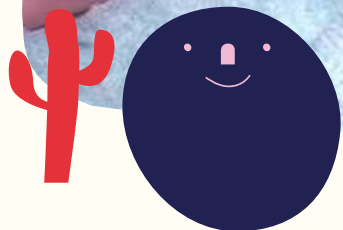


## VITAL STATISTICS

Life span	9-17+ years	Sexual maturity	7-10 months
Body weight		Estrus cycle	30-50 days, seasonally polyestrous (Nov to May); postpartum estrus fertile; spontaneous ovulation
adult female	450-700 g		
adult male	400-500 g		
Body temp	100.5-102.2°F (38-39°C)		
Rectal temp	102-103°F (38.9-39.4°C)	Gestation	105-115 days
Respiratory rate	45-80 bpm	Birth weight	30-60 g
Heart rate	200-350 bpm	Litter	2 avg (up to 5)
Dental	Teeth are open-rooted and grow continuously throughout life. Incisors are yellow, grow 5.5-6.5 cm (2.5-3") annually.	Newborns	precocious, fully furred
		Weaning	3-6 weeks
Dental formula	I 1/1 C 0/0 P 1/1 M 3/3	Feces	slender, brown pellets 2-3 mm diameter, 5-12 mm long

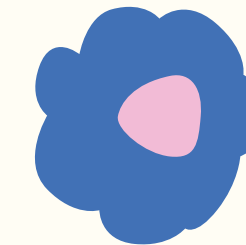
# CHINCHILLA

- **Restraint: Hold at base of tail!**  
**Avoid! 'Fur slip'**
- **Blood collection:** Cranial vena cava  
Jugular vein  
Lateral saphenous vein





# CHINCHILLA



- **Dermatophytosis**

High humidity environment

Clinical sign: alopecia, painful rashes at the ears/face/legs

- **Heat stroke**

High temperature environment

Organ failure, brain injury, and even death

Clinical sign: hypersalivation, weak, collapse



Ref: [vettimes.co.uk](http://vettimes.co.uk)



# CHINCHILLA

- **Diarrhea**

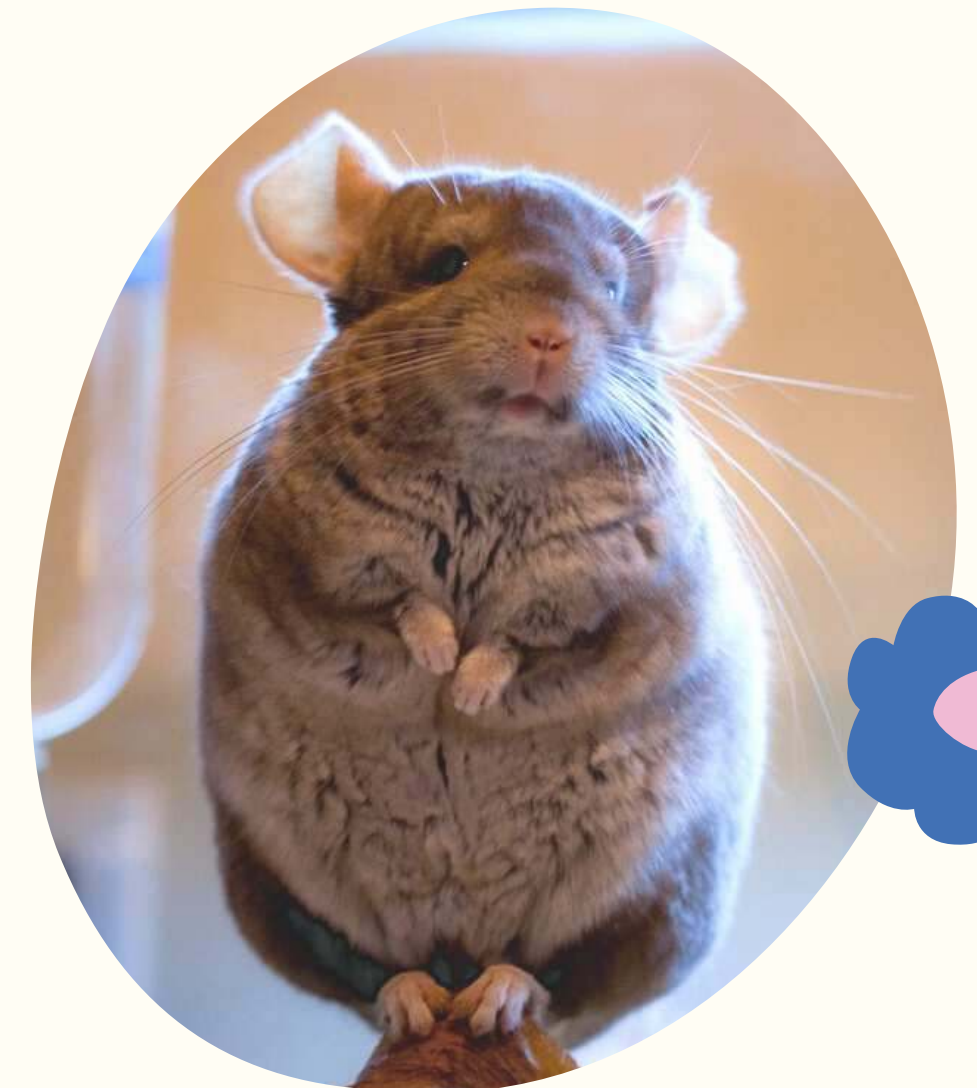
Cause: poor diet, stress, internal parasites - **Giadiasis**

- **Rectal prolapse**

**Intestinal intussusception**

Secondary to dysbacteriosis, enteritis, constipation, or diarrhea

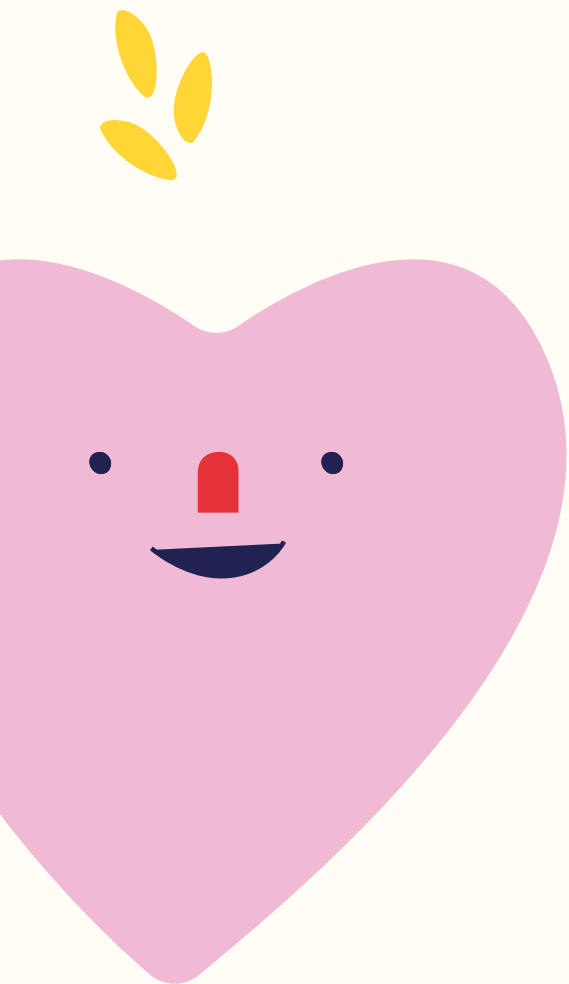
Treatment: ER Surgery



Ref: veteriankey.com



Ref: veteriankey.com





# CHINCHILLA

- **Penile hair ring/Paraphimosis**

Painful, engorged penis, may cause urethral constriction

- **Dystocia**

Single oversized fetus or malpresentation of fetus

Treatment: surgery (in labor for longer than 4 hrs)

- **Incisor malocclusion/ADD**

- **Otitis**

Chinchilla used as animal models for human otologic disease research



# PRAIRIE DOG

- Black-tailed breed
- From the grasslands of North America
- Herbivorous burrowing rodents
- Very active and playful!
- Highly social, vocal animals
- Live in colonies or "towns" (5-50 family members)
- Trilobate perianal scent gland

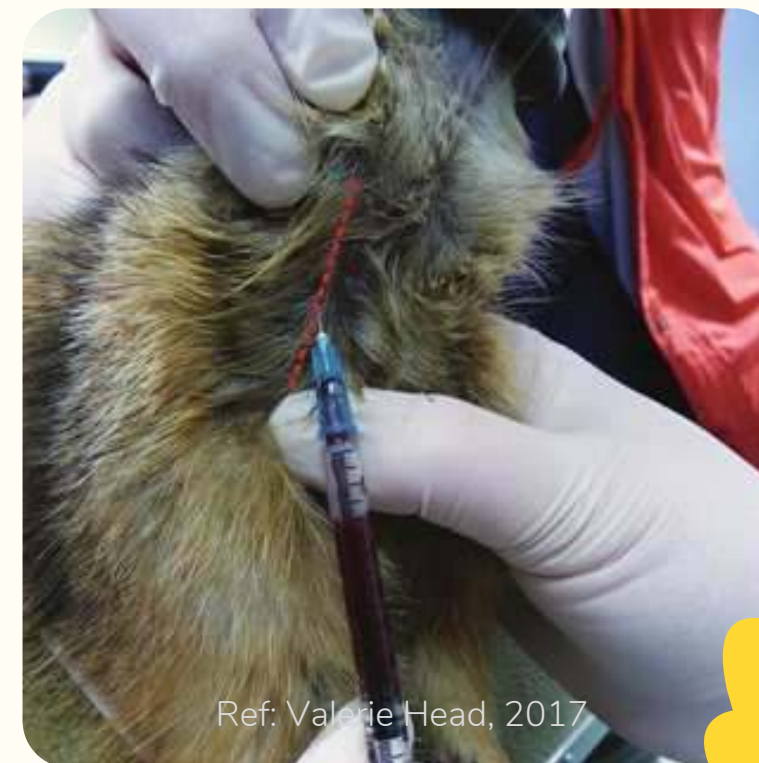


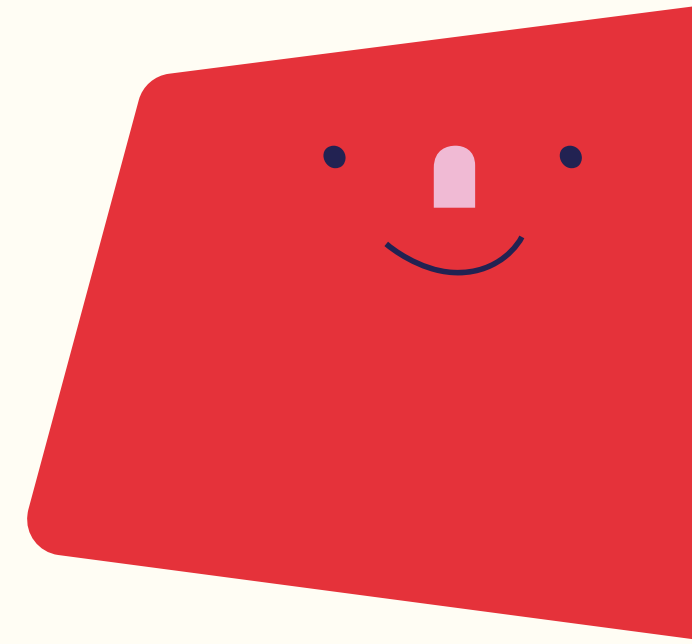
## VITAL STATISTICS

Lifespan	8 years	Age of sexual maturity	21 months
Body weight	Adult male 1-2 kg Adult female 0.5-1.5 kg	Estrus cycle	breeding season Jan-April estrus several hr, return to estrus 13 day
Body temperature	95.7-102.3 °F (35.4-39.1 °C)	Gestation	30-38 days
Respiratory rate	40-60 bpm	Litter size	1-10
Heart rate	250 bpm	Weaning	6-7 weeks
Dental formula	I 1/1, C 0/0, P 2/1, M 3/3		

# PRAIRIE DOG

- Restraint: Two-handed technique (Towel!)  
Chemical restraints!
- Blood collection:
  - Femoral artery
  - Cranial vena cava
  - Jugular vein
  - Lateral saphenous vein
  - Cephalic vein





# PRAIRIE DOG



- **Traumatic injury/Accident**

Electric shock, falling from high level, bite wound, ingest toxicity agent

- **Diarrhea**

Cause: intestinal parasites (worms and protozoa ex. coccidia.)

- **Obesity**

May suffer from secondary heart, liver dz  
Cause: feeding the improper diet, lack of exercise



# PRAIRIE DOG



- **Incisor malocclusion**

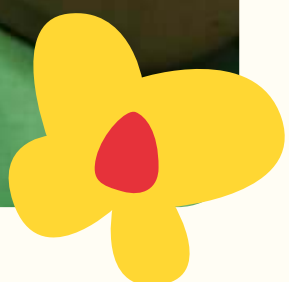
Cause: trauma, chewing on the cage, or feeding the improper diet

- **Dermatophytosis**

Clinical sign: alopecia

- **Neoplasia**

Lymphoma(common)

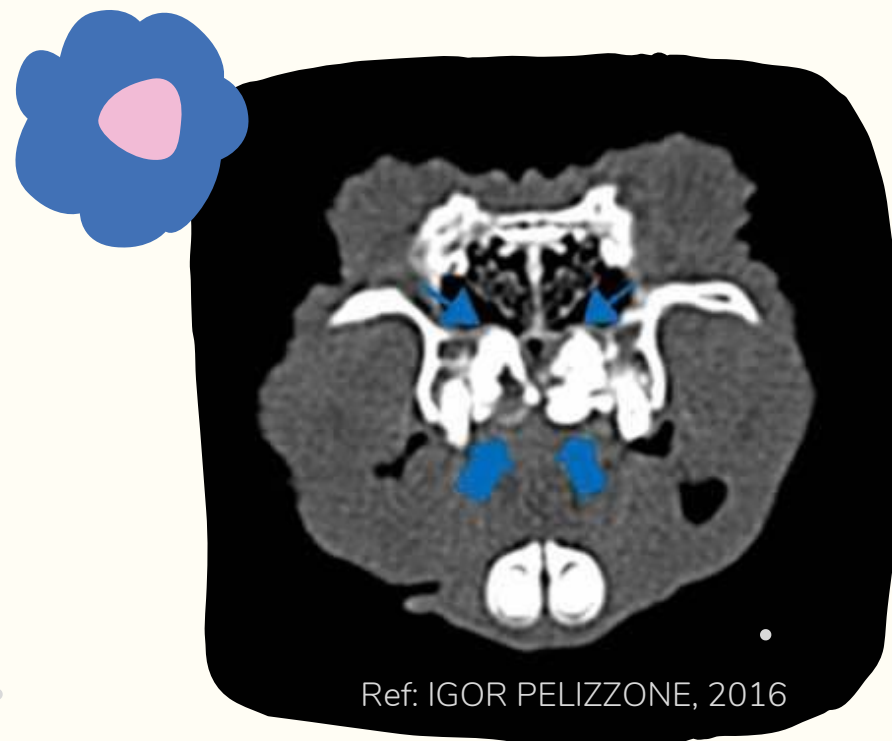
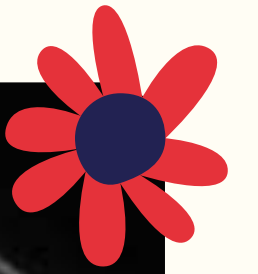


# PRAIRIE DOG

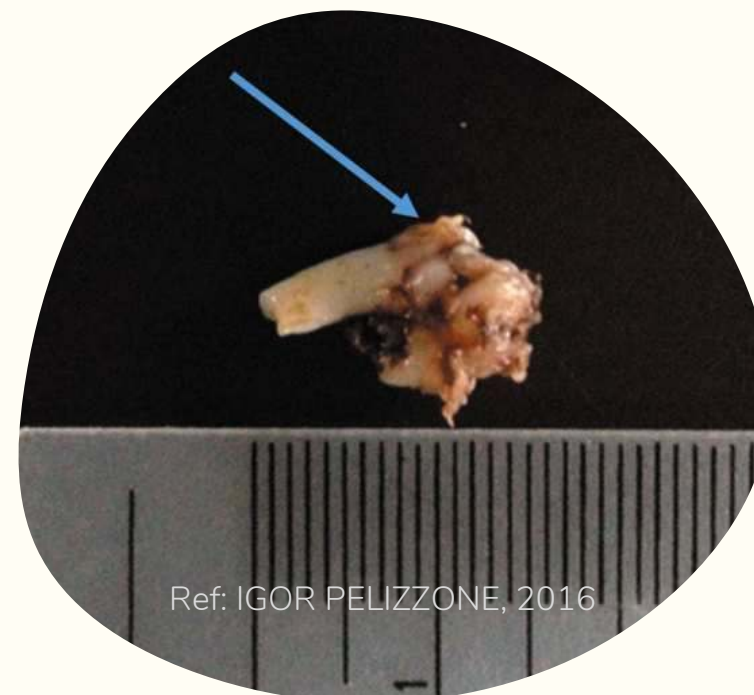
- **Pseudo-odontoma**

Severe damage of odontogenic germ  
=> continuous development of dental tissue  
=> the formation of tumorous mass

Cause: trauma, inflammation, aging  
Clinical sign: upper respiratory signs  
Diagnosis: radiography (increased opacity of the nasal cavity with the lost of conchal detail)  
Treatment: surgery (**Rhinotomy!**), supportive tx



Ref: IGOR PELIZZONE, 2016



Ref: IGOR PELIZZONE, 2016

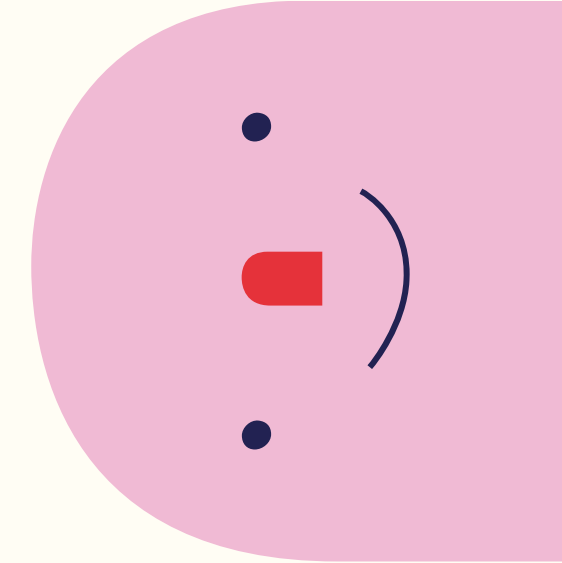


Ref: Chr, 2013stophe Bulliot



# SQUIRREL

- Diurnal animal
- The forest canopy
- Predominantly herbivorous
- Diet - seeds, fruit, insects, bird eggs



## VITAL STATISTICS

Lifespan	10-20 years	Age of sexual maturity	12 months
Body weight	Adult 310-460 g	Estrus cycle	once or twice a year
Body temperature	98-102 °F (36.7-38.9 °C)	Gestation	47-49 days
Respiratory rate	65-125 bpm	Litter size	2-3
Heart rate	110-420 bpm	Weaning	8-10 weeks
Dental formula	I 1/1, C 0/0, P 1/1, M 3/3	Developing hair 3 wk, Ear open 4 wk, Eye open 5 wk	

# SQUIRREL

- **Restraint: Chemical restraints!**  
Very stressful animal!

**Two-handed technique**



Ref: ahwla.org.uk



Ref: timescall.com  
Ref: Vetfolio.com



# SQUIRREL



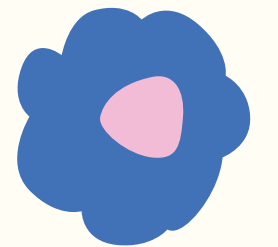
- **Traumatic injury/Accident**

Electric shock, falling from high level, bite wound

- **Diarrhea**

Baby!(common)

Cause: intestinal parasites, improper milk



- **Obesity**

May suffer from secondary liver dz

Cause: feeding the improper diet, lack of exercise

# SQUIRREL

- **Aspiration pneumonia**

**Baby!(common)**

Cause: improper fore feed milk



- **Slip tail**

Cause: improper restraint!



- **Dermatophytosis**

Clinical sign: alopecia

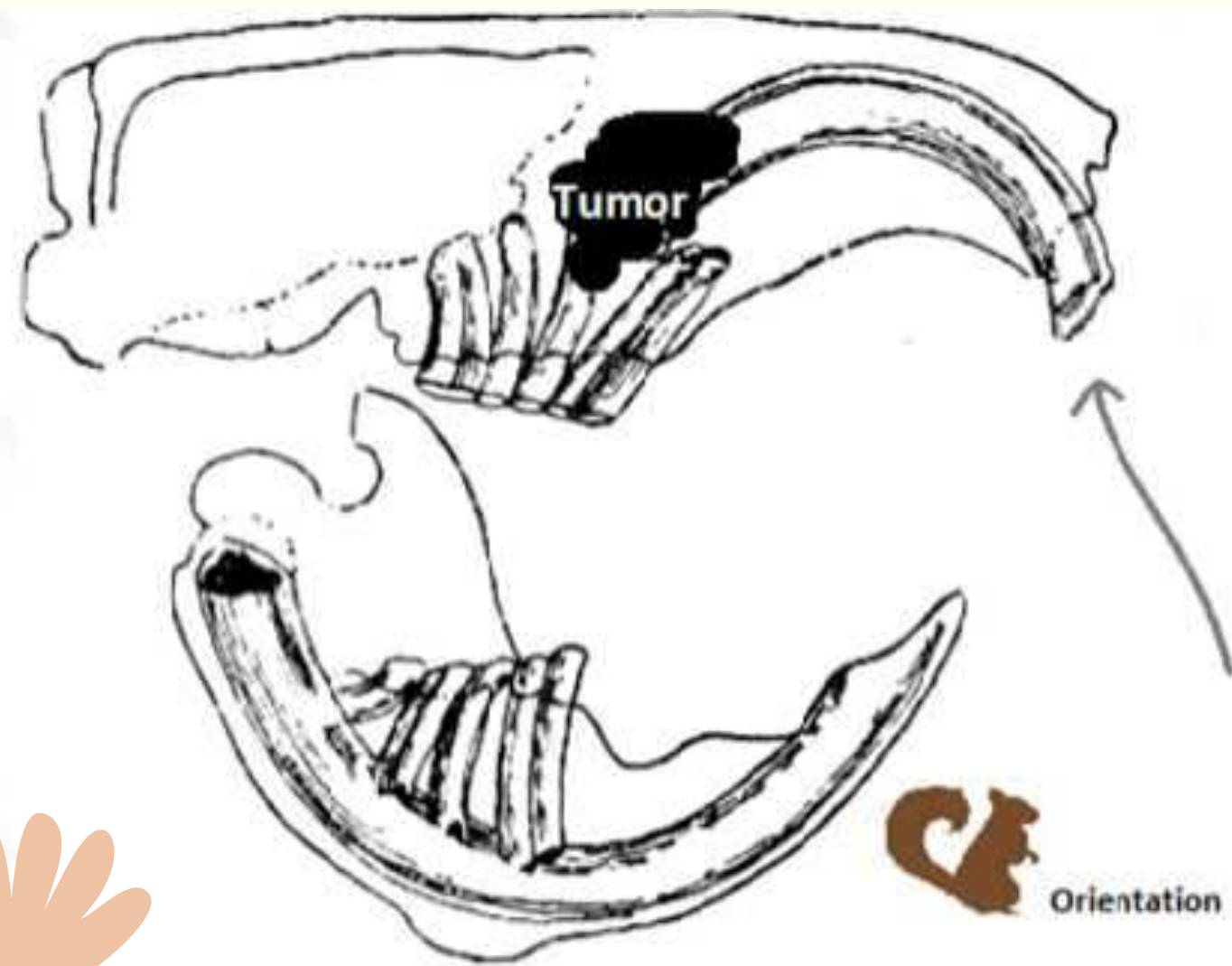


- **Incisor malocclusion**

Cause: trauma, chewing on the cage, or feeding the improper diet

# SQUIRREL

- Pseudo-odontoma



# HAMSTER

- Nocturnal animal
- Solitary animal
- Omnivore
- Fatty seed diet - obesity



## VITAL STATISTICS

Life span	maximum	3-5 years	Estrus cycle length	4 days
	in captivity (avg)	1.5-2 years	Gestation period	15-18 days
Adult male body weight		80-130 g	Litter size	5-9
Adult female body weight		95-150 g	Birth weight	2 g
Rectal body temperature		101-103°F (38-39.5°C)	Weaning age	20-25 days
Respiratory rate		35-135 bpm	Age of sexual maturity	
Heart rate		250-500 bpm	Puberty - male	45-75 days
Blood volume		78 ml/kg	Breeding onset - male	10-14 weeks
Dental formula		I 1/1 C 0/0 M 3/3	Breeding onset - female	6-10 weeks

Ref: The exotic guidebook exotic companion animal procedures

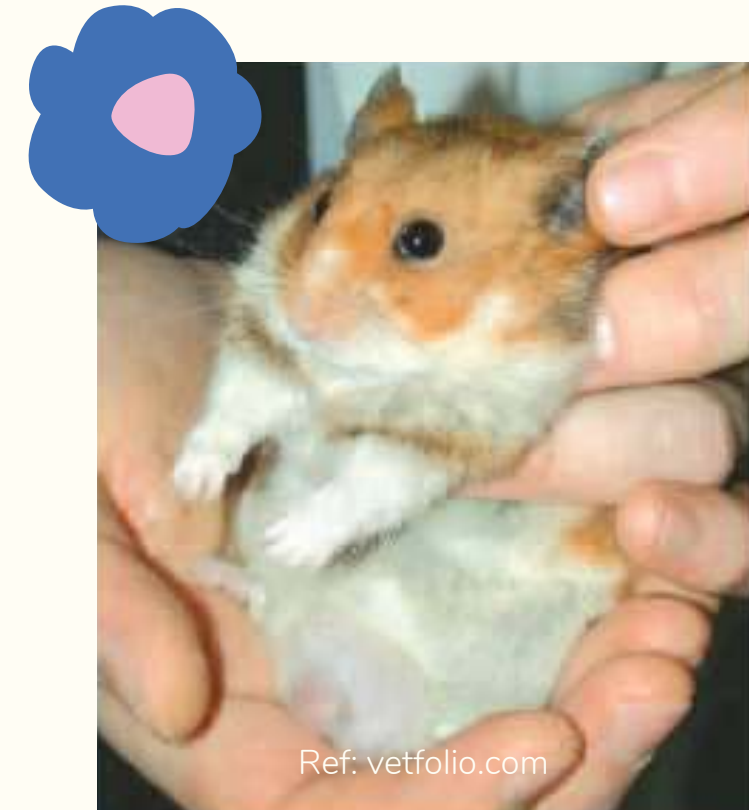
# HAMSTER

- **Restraint: Scruff of the neck**

Doing so too tightly can result in protrude eyes

**Two-handed technique**

**Use small towel**



# HAMSTER

- **Demodicosis/Demodectic mange**

Immunosuppress

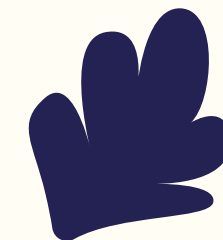
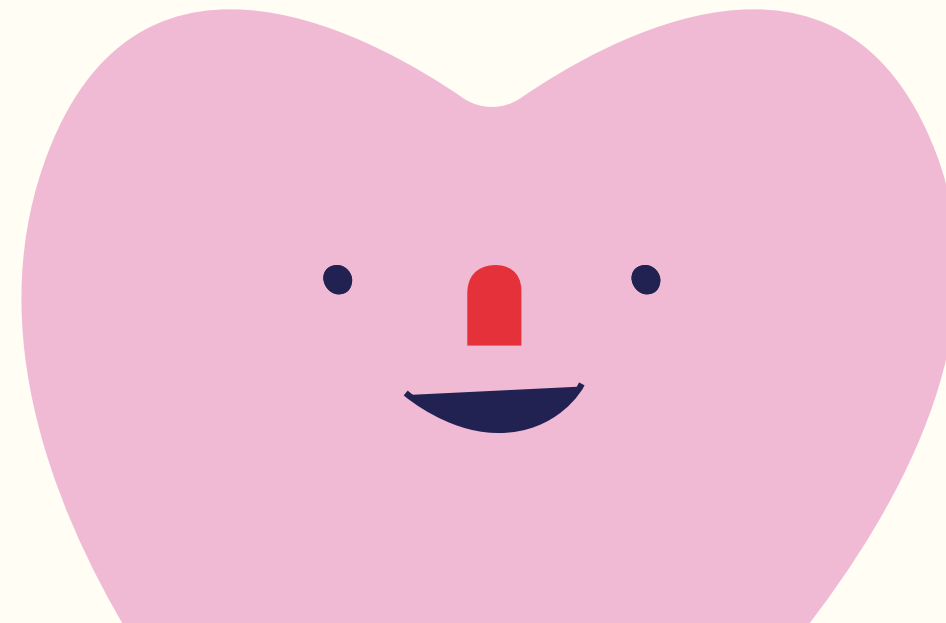
Alopecia at back and rump

Pruritus(+/-)

Tx: Immidocloprid+moxidectin, ivermectin

- **Cheek pouch impaction**

- **Neoplassia**





# FERRET

- Joyful, interactive
- Musky odor - anal gland, sebaceous gland
- Hobs = Male, Jills = Female
- Induced ovulation



## VITAL STATISTICS

Lifespan	5-8 years	Age of sexual maturity	6-12 months
Body weight	Adult male 0.8-3.0 kg Adult female 0.7-1.2 kg	Estrus cycle	Polyestrous, prolonged, induced ovulators
Body temperature	100-104°F (37.7-40.0°C)	Gestation	42 days
Respiratory rate	33-36 bpm	Litter size	7-14
Heart rate	200-255 bpm	Weaning	6-8 weeks
Dental formula	I 3/3, C 1/1, P 4/3, M 1/2	Food consumption	20-40 g/adult/day (dry matter)

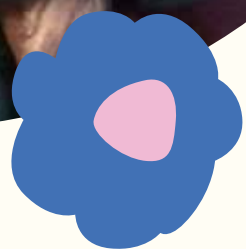
Ref: The exotic guidebook exotic companion animal procedures



# FERRET



Ref: reddit.com



- Carnivore



FB: Petco



- Diet: protein 30-35%, fat 15-20%, low fiber  
Limit amounts of grains and sugars
- Short intestinal tract, short GI transit time 3hrs
- Lacks a cecum
- GI obstruct by FB or inappropriate food item



# FERRET

- **Restraint: Scruff of the neck!**  
**Two-handed technique**  
**High-fat treats**

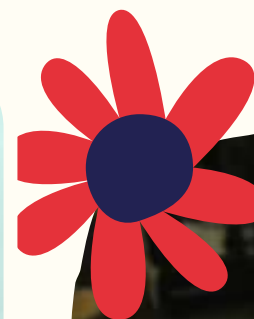
Use distraction during restraint



Ref: pbuy2021

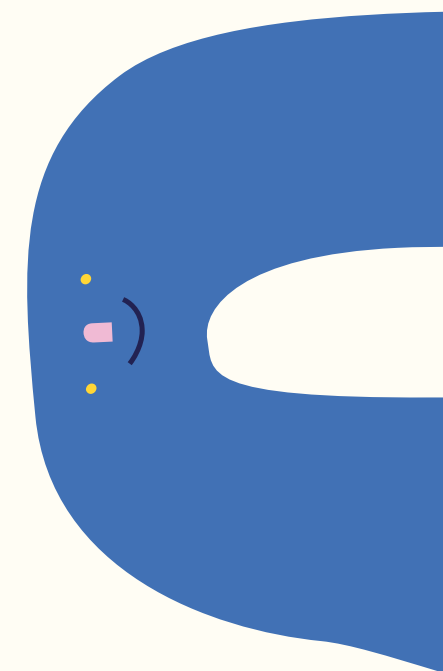
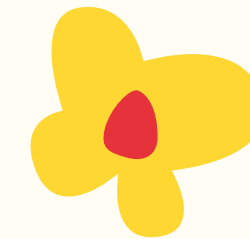


Ref: Midwest Bird, 2004



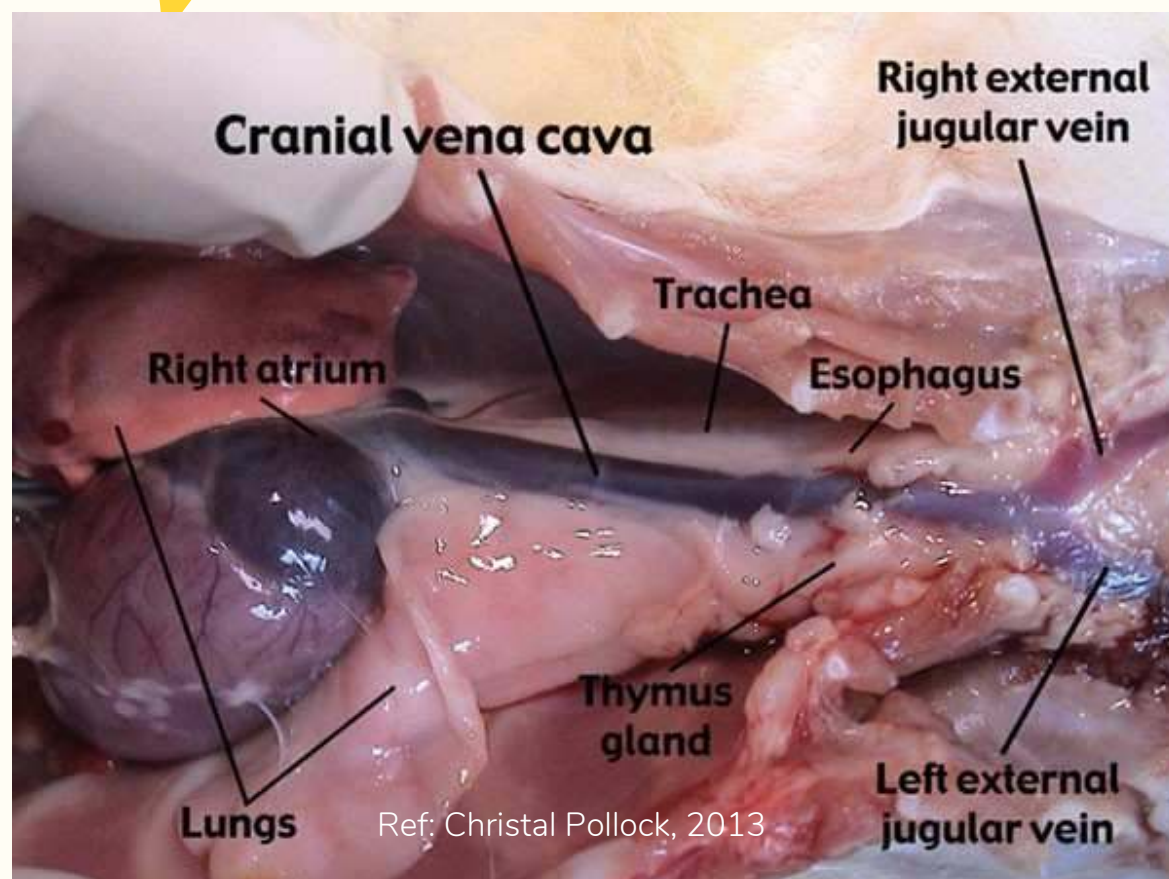
Ref: europepmc.org



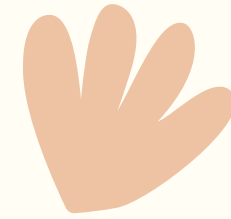


# FERRET

- **Blood collection:** Cranial vena cava  
Jugular vein  
Lateral saphenous vein



# FERRET



- **Distemper**

**100% motility rate**

**Should be vaccinated!**

Clinical sign: ocular and nasal discharges, fever, central nervous system signs (including muscle tremors, convulsions, coma and death)

- **Influenza**

**Zoonosis!**

- **Dilated Cardiomyopathy**

Clinical sign: weakness, lethargy, coughing, increased RR

# FERRET 🐾

- **Insulinoma**

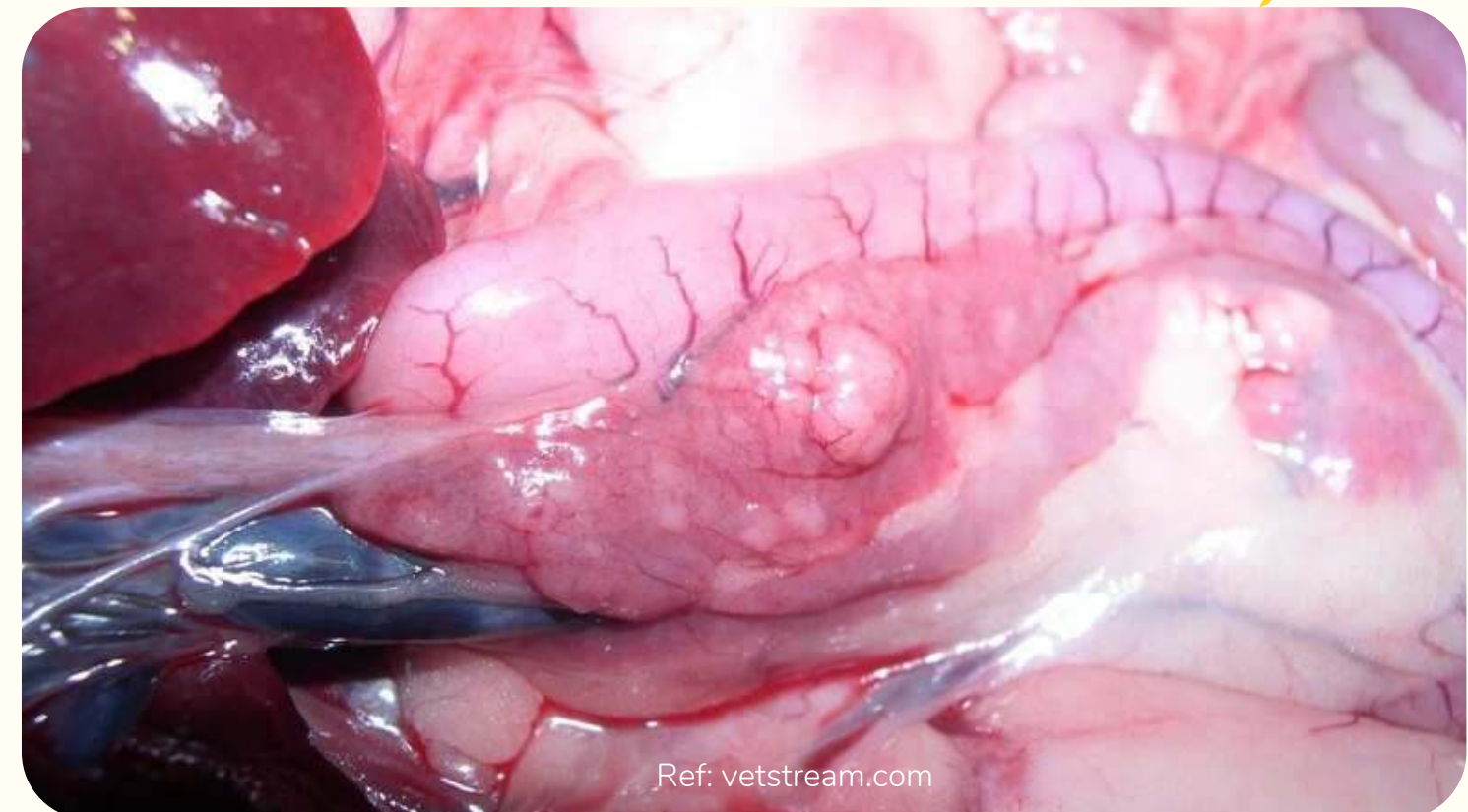
Most commonly in 3-4 yr old

Results to excessive insulin and subsequent **hypoglycemia**

Clinical sign: excessive sleeping, lethargy, weakness, seizure  
BG <80mg/dl

Diagnosis: BG level test, insulin level test, US

Treatment: steroid medicine, surgery, diet management



# FERRET

- **Lymphoma**

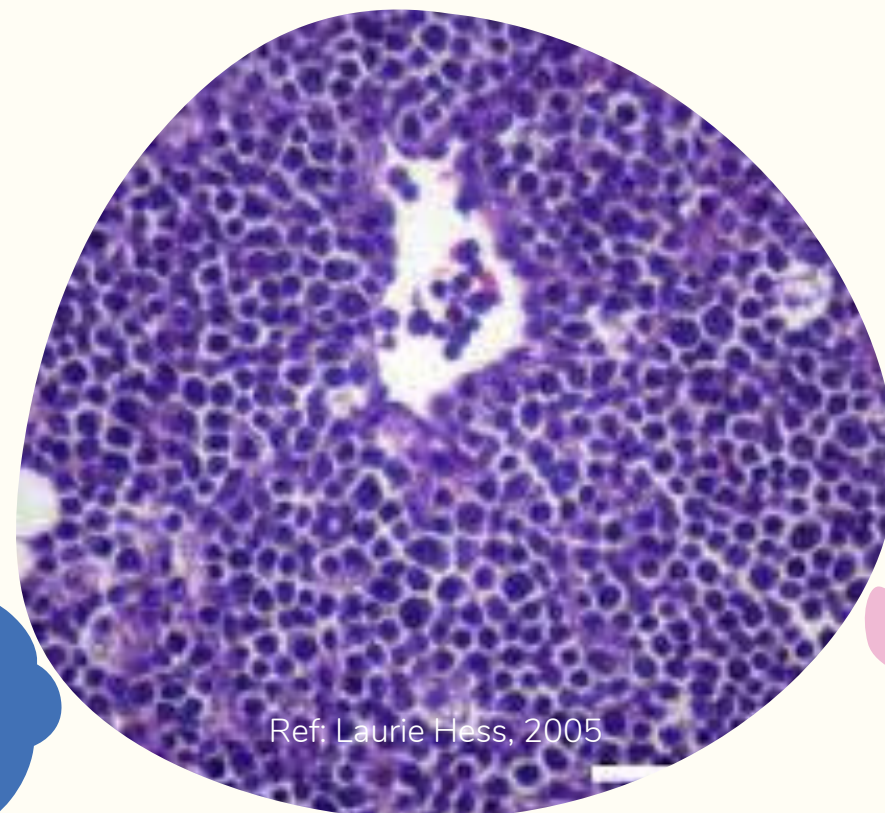
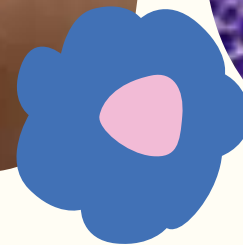
Most commonly in 2-5 yr old

Location: mediastinum, lymph nodes

Clinical sign: depend on which body system is affected

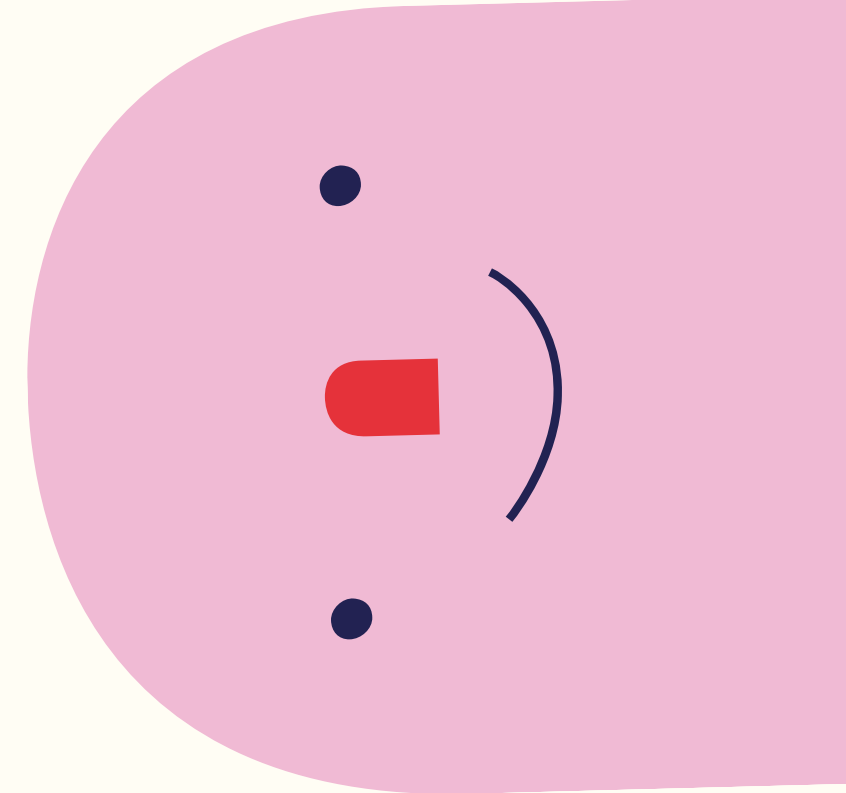
Diagnosis: cytology

Treatment: chemotherapy, radiation therapy, surgery





# FERRET



- Adrenal gland disease

Most commonly in 3-4 yr old

Results to excessive sex hormone, cortisol, aldosterone

Clinical sign: **bilaterally alopecia esp. tail and rump**,  
females: vulva swelling,  
males: enlarged prostate, difficulty urinating  
aggressive

Diagnosis: **US!**, blood sampling of hormone level

Treatment: hormone ex.GnRH analog, surgery(Rt. is hard!)



Ref: cliniciansbrief.com



# SUGAR GLIDER

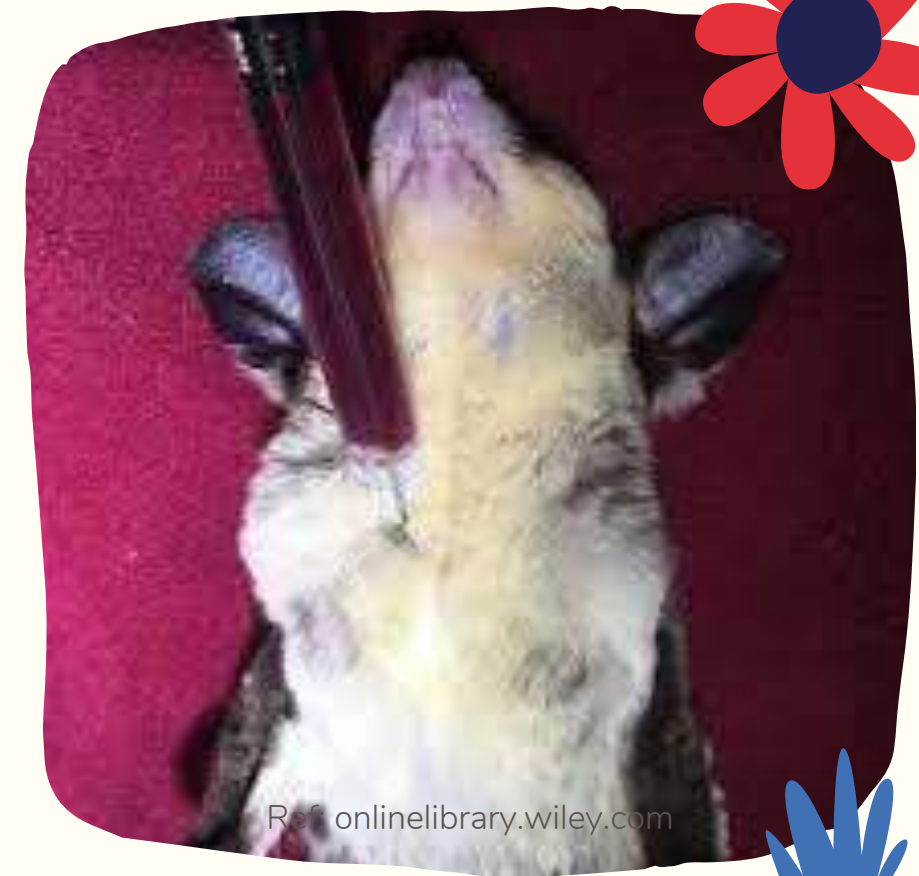
- Nocturnal marsupials, social animal
- From Australia, Indonesia, New Guinea
- Omnivorous hindgut fermenters
- Diet - plants, fruit, sap, insect
- "Grooming comb"  
= the 2nd&3rd toes(hindfeet) fused  
= clean their fur

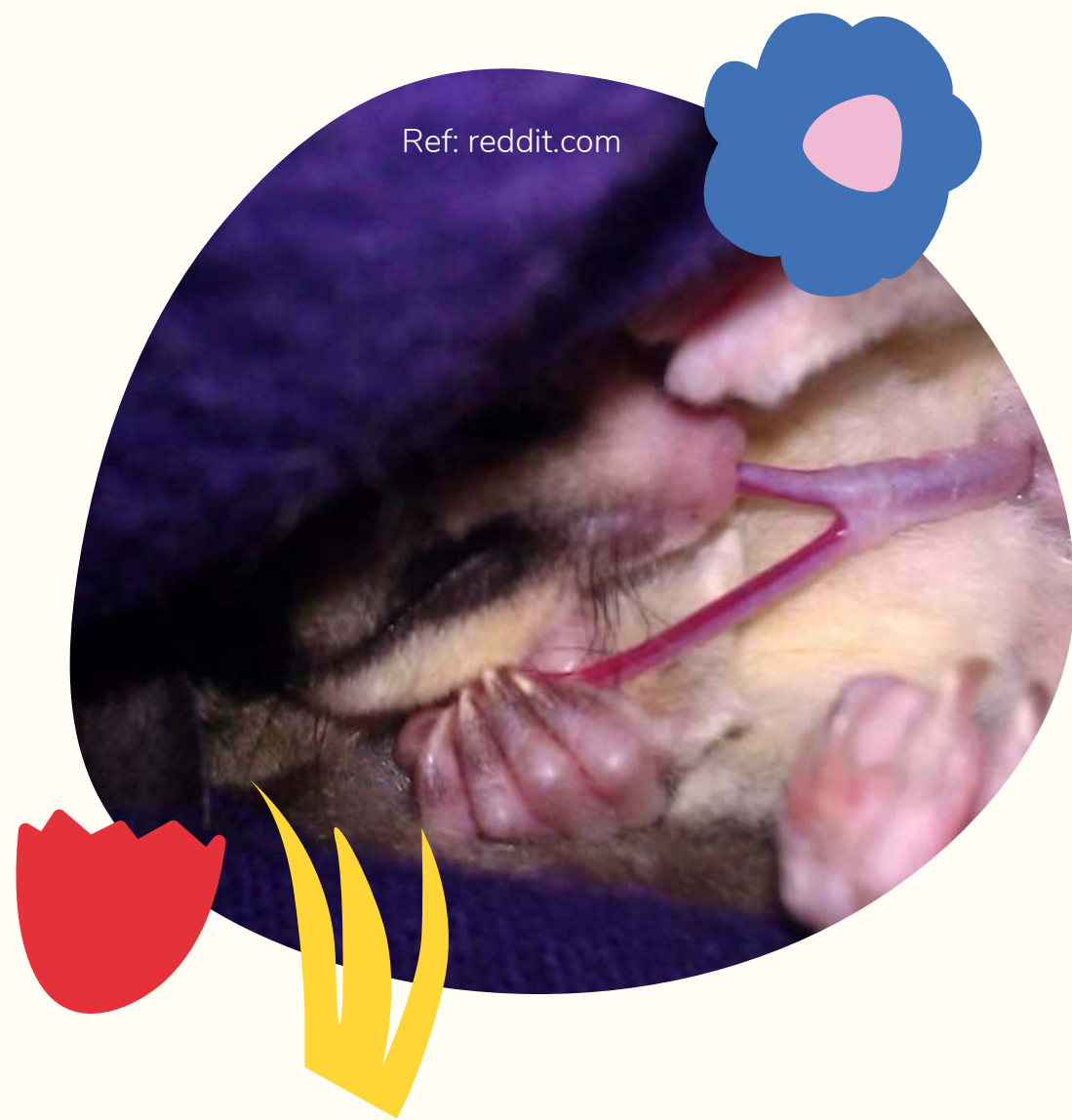


VITAL STATISTICS			
Lifespan	9 - 15 years	Age of sexual maturity	3-4 months
Body weight	Adult male 80 - 160 g	Estrus cycle	every 29 days
Body temperature	96.4 - 97.8°F (35.8 - 36.6°C)	Gestation	15-17 days (in pouch until 70 days)
Respiratory rate	16 - 40 bpm	Litter size	The young = joeys 1-2
Heart rate	200 - 300 bpm	Weaning	12 weeks
Dental formula	I 3/2, C 1/0, P 3/3, M 4/4	Food consumption	15 - 20% BW/day

# SUGAR GLIDER

- Restraint: Use small towel!  
Two-handed technique
- Blood collection: Cranial vena cava  
Jugular vein  
Medial tibial artery  
Tail vein  
Femoral vein





# SUGAR GLIDER

- **Behaviour problem; stress-related**

Cause: housed alone, with incompatible mates, or inappropriate cages

**Self-mutilation of the penis and scrotum**

Develops to **paraphimosis**

Sexually mature male sugar gliders without access to females



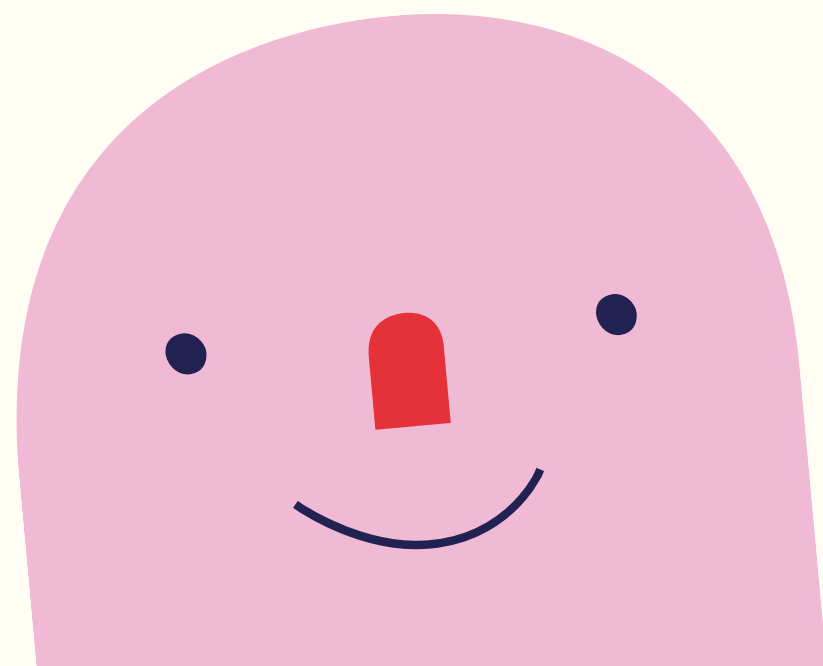
- **Nutritional secondary hyperparathyroidism**

**Metabolic bone disease**

Cause: low Ca, inadequate Vit D

Clinical sign: pain, lameness, paresis, pathologic fractures

Diagnosis: XR





# SUGAR GLIDER

- **Diarrhea**

Cause: flagellate protozoa parasites, bacteria  
Risk to rectal and cloacal prolapse



- **Dental disease**

**Gingivitis, dental tartar, osteomyelitis of the mandible or maxilla, and occasional extension of the abscess into the retrobulbar**

Clinical sign: anorexia, hypersalivation, face swelling

Treatment: tooth extracted, tooth root abscesses must be debrided and cultured

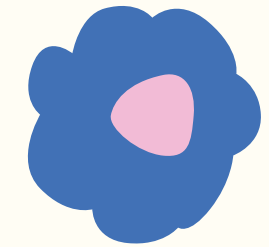


Ref: [sugarglider.com.com](http://sugarglider.com.com)





# SUGAR GLIDER



- **Pouch infection, mastitis**

Cause: bacteria, yeast  
Clinical sign: excessive grooming, may be prolapse  
Treatment: cleaned gently with chlorhexidine solution diluted



- **Paracloacal Gland Impaction**

Similar to anal glands in mammals, produce a thick, mucoid discharge  
Cause: bacteria, yeast  
Clinical sign: gland swelling, over grooming, constipation or diarrhea  
Treatment: medication, surgery

- **Obesity**

**Result in liver dz**

Cause: improper diet



# HEDGEHOG

- African pygmy hedgehog
- Nocturnal and solitary animal
- From the savannah of Central Africa
- Omnivores
- Diet - small mammals, insects, some fruits  
(protein 30%-50%, fat 10%-20%)



## VITAL STATISTICS

Lifespan	5-6 years	Age of sexual maturity	8-11 months
Body weight	Adult male 400-600 g Adult female 250-400 g	Estrus cycle	spontaneous ovulators polyestrus
Body temperature	95.7 - 98.6 °F (35.4-37.0°C)	Gestation	35-37 days
Respiratory rate	20-50 bpm	Litter size	4-9
Heart rate	180-260 bpm	Weaning	4-6 weeks
Dental formula	I 3/2, C 1/1, P 3/2, M 3/3	Eye open	15-18 days

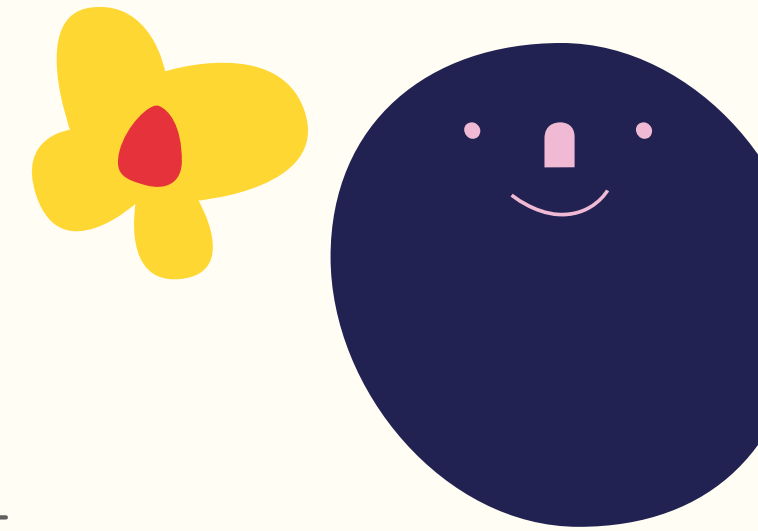
# HEDGEHOG

- Restraint: Gentle scruffing!  
Chemical restraint!  
Roll into a ball!

- Blood collection: Cranial vena cava  
Cephalic vein  
Lateral saphenous  
Femoral vein



# HEDGEHOG



- **Diarrhea**

**Zoonosis!**

Cause: bacteria(Salmonella sp.), yeast

- **Mange**

Clinical sign: itching, scratching, alopecia, white scale

Treatment: selamectin topical

- **Dermatophytosis**

Cause: T. erinacei, T. mentagrophytes, Microsporum spp

Clinical sign: itching, scratching, alopecia

Treatment: topical, medical tx

- **Dilated cardiomyopathy**

38% in captive African hedgehogs,  $\geq 3$  yr old

Cause: unknown

Clinical sign: dyspnea, decreased activity, weight loss, an auscultable murmur, ascites, acute death



# HEDGEHOG

- **Wobbly hedgehog syndrome**

10% of pet hedgehogs

Onset can occur at any age but is more common in <2 yr old

Cause: **unknown**

Clinical sign: intermittent ataxia, tremors, exophthalmos, scoliosis, seizures, muscle atrophy, paralysis  
complete paralysis within 9–15 mth after the onset of signs  
death occurs within 18–25 mth

Diagnosis: necropsy(histopathology)

Treatment: **supportive tx**, euthanasia

- **Respiratory disease**

Cause: suboptimal environmental temperature, bacteria



# HEDGEHOG

- **Neoplasia**

Very common in both sexes  
Integumentary, alimentary, reproductive sys  
esp. oral cavity, reproductive tract  
> 80% malignant

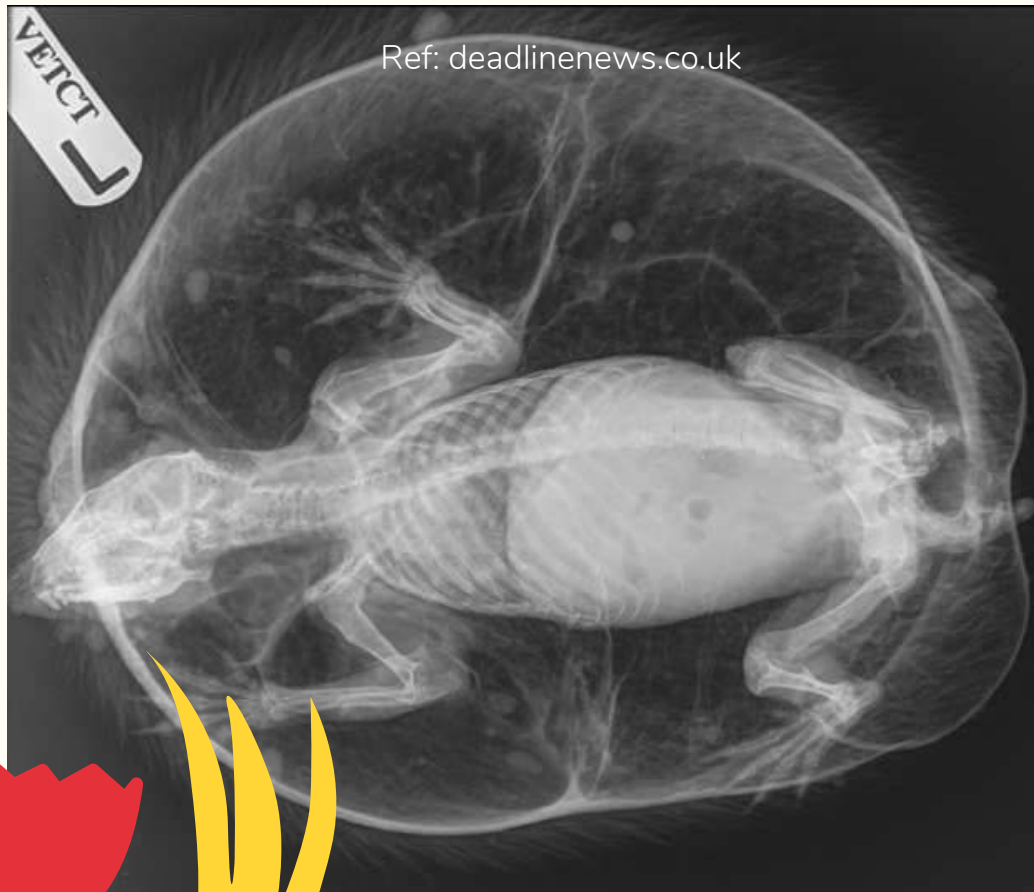
- **Obesity**

Result in hepatic lipidosis  
Healthy hedgehog should be able to roll up completely, without any fat deposits protruding





Ref: heavenlyhedgies.com



Ref: deadlinenews.co.uk



# HEDGEHOG

- **Leg and foot injury**

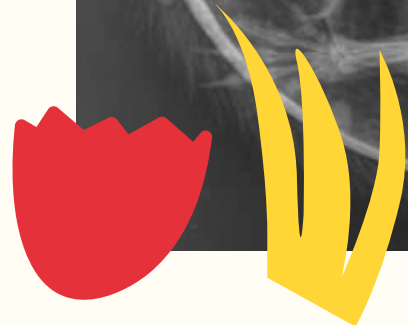
Esp. wire cages and running wheels

- **Urolithiasis (bladder stones)**

Cause: urinary tract infection, cystitis, improper diet  
Clinical sign: stranguria, pollakiuria, hematuria  
Diagnosis: XR, US, urinalysis

- **Balloon syndrome**

Cause: possibly due to damage to respiratory tract  
Clinical sign: skin grossly inflated, stretched taut, legs can't reach the ground  
Treatment: air aspiration, supportive tx



# COMMON MARMOSET



- Non-human primate
- Live in small family groups of 3-15 individuals
- From the Atlantic forest of north eastern Brazil
- Omnivores
- Diet - fruits, flowers, nectar, small animal prey
- Scent glands (mark territory and communicate)

IG: williamthemarmoset

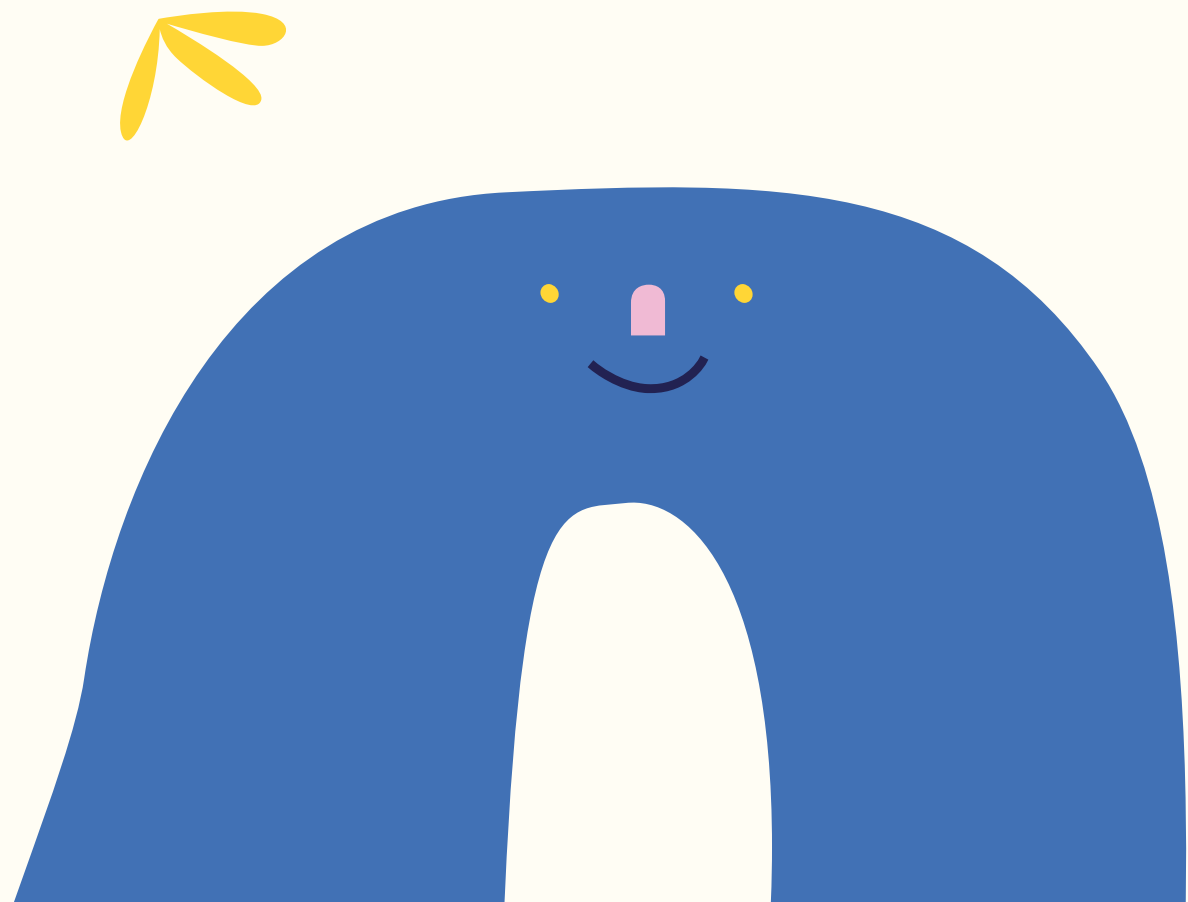


## VITAL STATISTICS

Lifespan	12-15 years	Age of sexual maturity	18 months
Body weight	Adult 250-500 g	Estrus cycle	continuous throughout year 24-30 day
Body temperature	95.7 - 103.4 °F (35.4-39.7 °C)	Gestation	140-148 days
Respiratory rate	19-25 bpm	Litter size	1-3
Heart rate	210-240 bpm	Weaning	12 weeks
Dental formula	I 2/2, C 1/1, P 3/3, M 2/2		

# COMMON MARMOSET

- Restraint: Two-handed technique!  
Chemical restraint!
- Blood collection: Femoral vein  
Saphenous vein  
Cephalic vein  
Brachial vein



# COMMON MARMOSET

- **Diarrhea**

Baby!(common)

Cause: intestinal parasites, Salmonialla sp., improper milk

- **Tuberculosis(TB)**

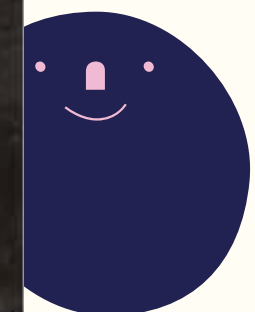
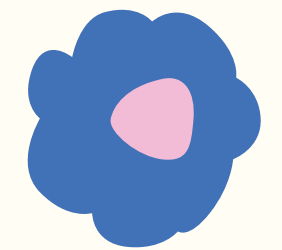
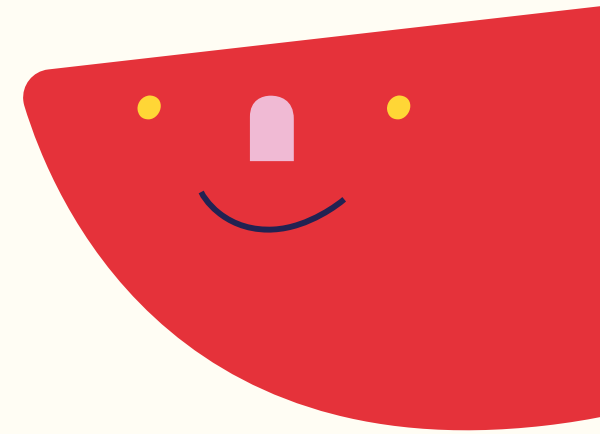
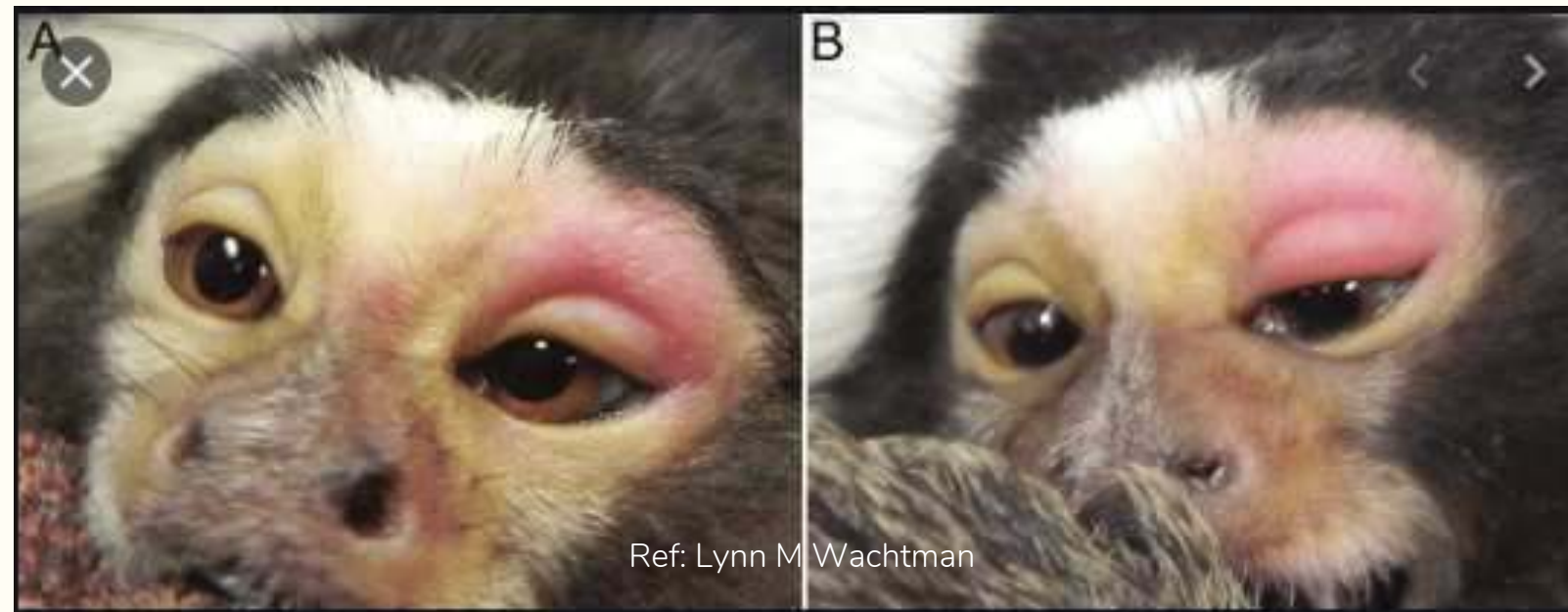
**Zoonosis!**

Mycobacterium tuberculosis

Clinical sign: itching, scratching, alopecia, white scale

Transmission: bodies fluid, air borne; may be transmitted from humans to marmosets

Treatment: euthanasia



# COMMON MARMOSET

- Tetanus

**Zoonosis!**

Cause: bacteria Clostridium tetani, occurs through wound contamination

Clinical sign: lockjaw, difficulty swallowing, muscle stiffness, spasms, subsequent infection, fever

Treatment: anti-infective drug(metronidazole), anti-toxin agent

- Measles

**Zoonosis!**

Cause: Morbillivirus

Transmission: aerosolization; may be transmitted from humans to marmosets

Clinical sign: nasal discharge, conjunctivitis, facial edema, blepharitis, papular skin rashes and pneumonia

Treatment: no tx

Prevention: vaccination





# COMMON MARMOSET

- Herpes B (Monkey B Virus)

**Zoonosis!**

Transmission: through the saliva, feces, urine

Clinical sign: skin lesions, swelling, pain, encephalitis, death

Treatment: no treatment, euthanasia;  
**highly fatal to both humans and primates**



- Herpes Simplex Virus Type 1

**Zoonosis!**

Transmission: skin to skin or fluid to skin contact with host humans

Clinical sign: dermatitis, pruritis, depression, ulcerations in oral cavity, gastrointestinal tract, death

Treatment: no treatment, euthanasia

Prevention: **don't kiss your marmoset!**



# COMMON MARMOSET

- **Vitamin C deficiency**

Clinical sign: scurvy

- **Vitamin D deficiency**

Cause: lack of exposure to sunlight and consumption of vit D-rich foods (mainly eggs)

Clinical sign: impaired bone mineralization, bone softening diseases, dental problems.

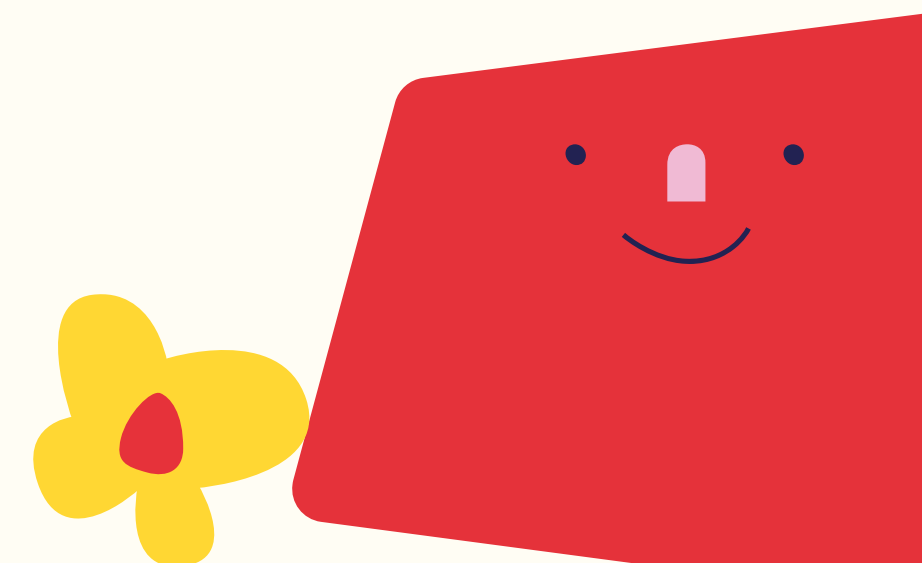
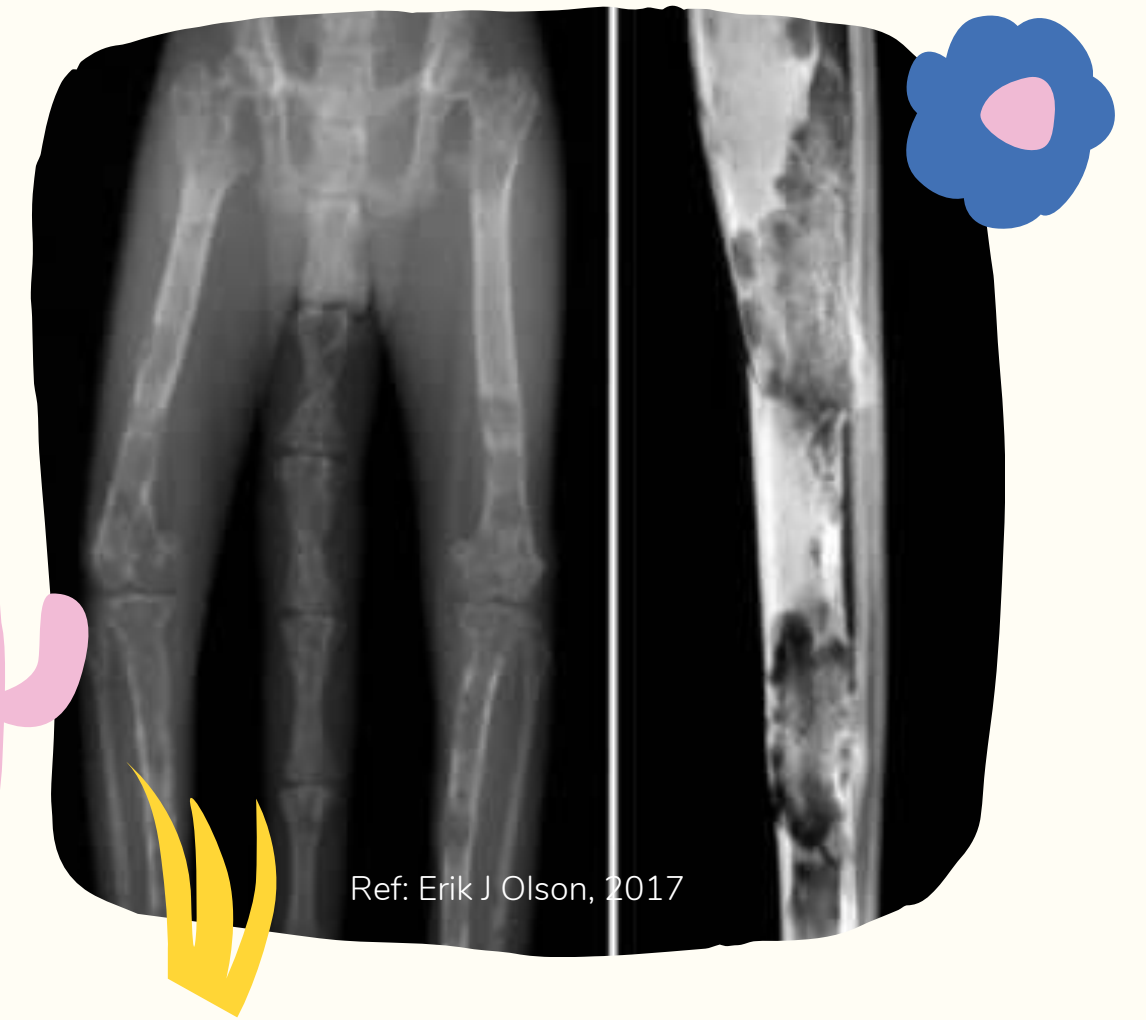
Prevention: the enclosure should be designed to allow adequate levels of direct sunlight

- **Hypoglycemia**

Cause: high metabolisms and a lack of high-sugar foods

Clinical sign: shakiness, anxiety, weakness, ataxia and hypothermia

Prevention: the feeding out of lots of fresh fruit



# COMMON MARMOSET

- **Dystocia**

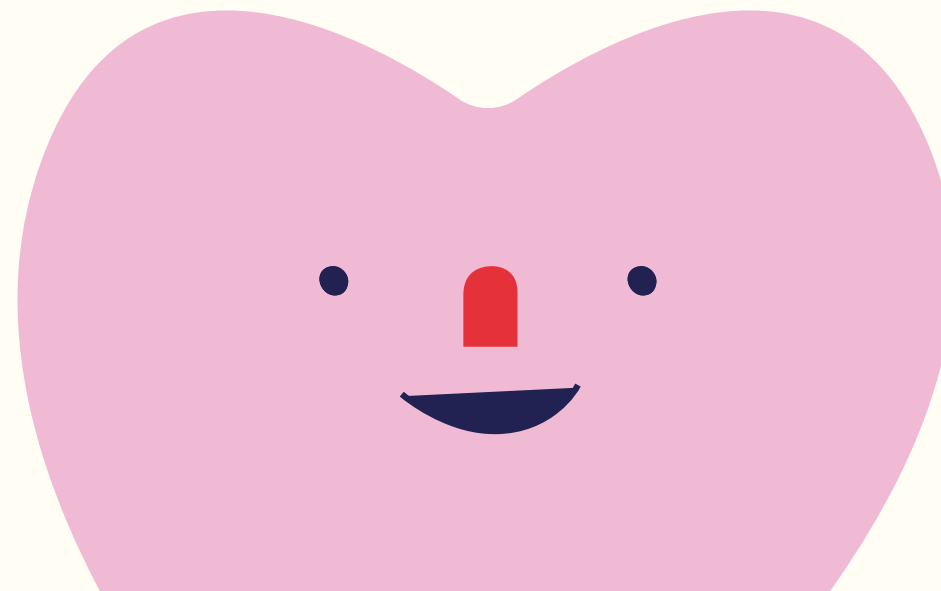
Cause: abnormal or difficult childbirth, size, presentation, position, maternal pelvic abnormalities

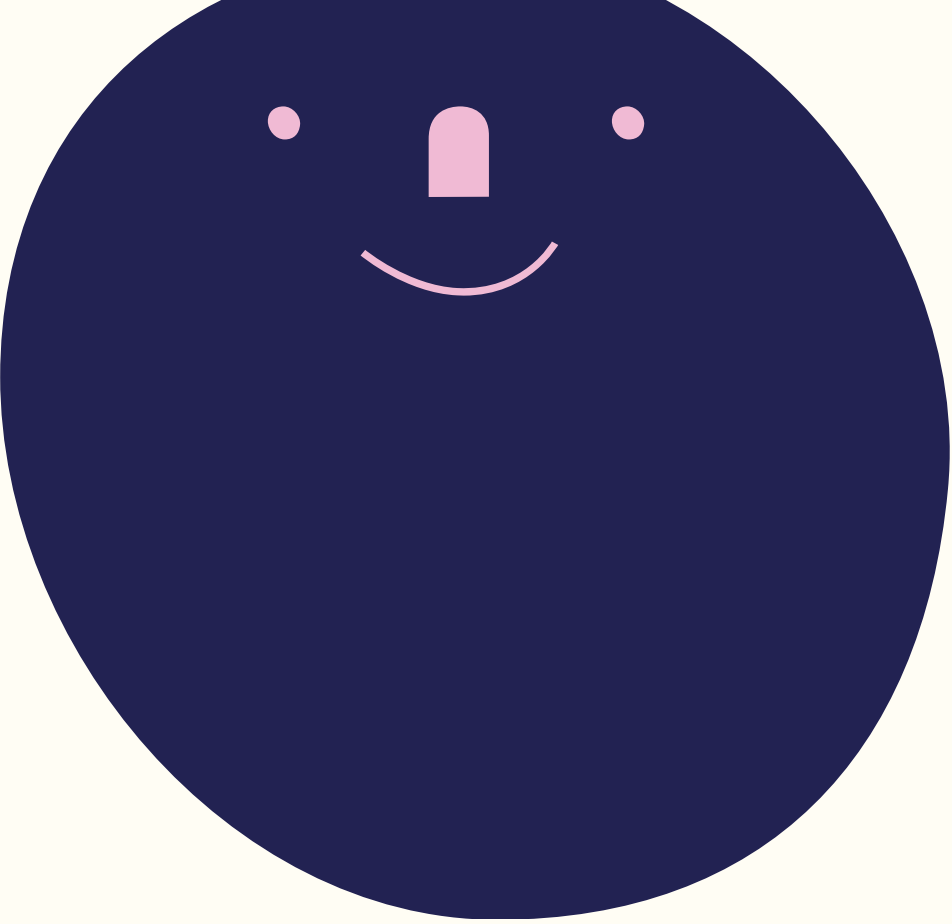
Clinical sign: typically lasts between one and four hours  
lying down, weak

Treatment: surgery



Ref: Chaowaphan



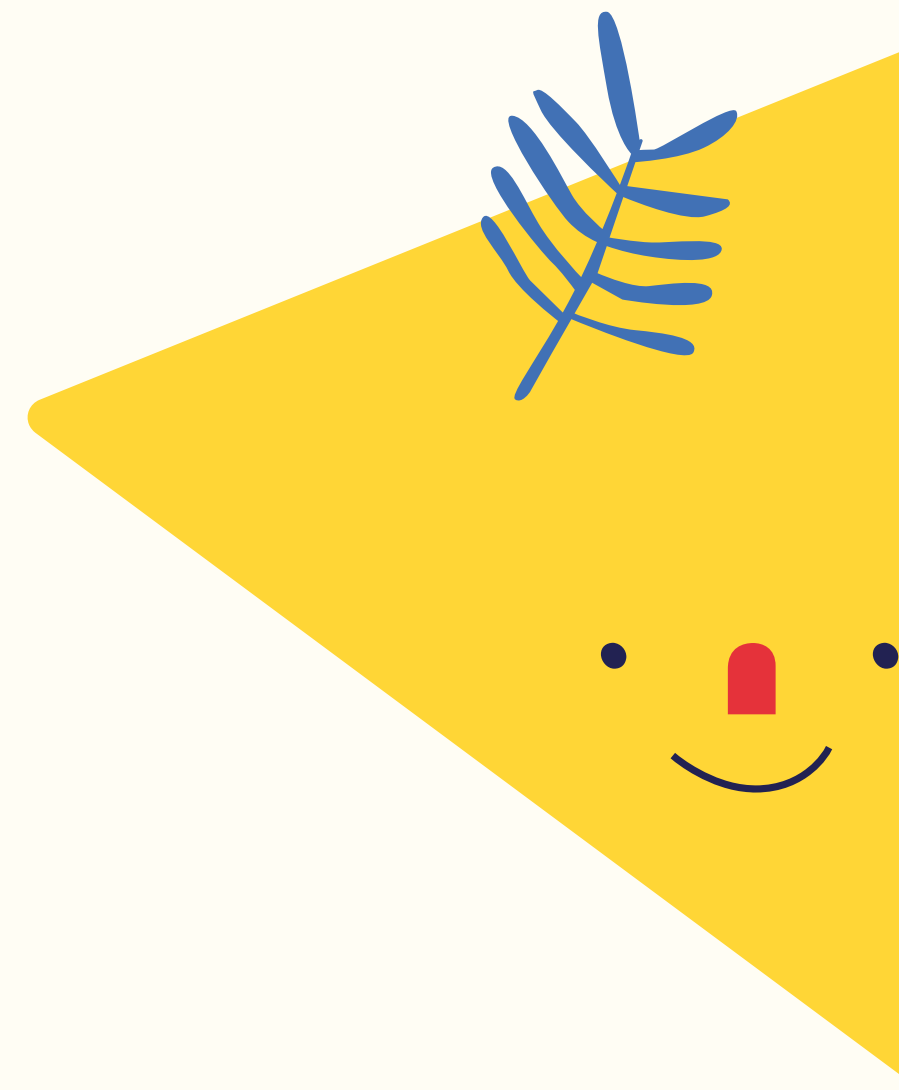


THANK YOU!

Any question?



P'LUKKET



KEEP CALM

AND

ROCK THIS EXAM!

