# DISEASES OF Exotic Animals



## **Creation vs Evolution!**

FPW

Is this the matter of believe?!





## **Creation vs Evolution!**

Theories









## Wild or Domesticated! **FPWC**<sup>®</sup> Is this the matter of believe?!

## Wild or Domesticated!

Is this the matter of believe?!





Domesticated Animals







Domestication







## Tamed or domesticated?

# Why Can't ALL ANIMALS Be PETS?

Buddensteinen i Blahailte

To be pet or not to be pet

## **Exotic Pets**

MAMMALS: Rat, Mice, Rabbit, Hamster, Guinea pig, Squirrel, ferret, hedge hog, primate













**BIRDS:** Parrot, Budgerigar, Canary, Finch, Pigeon, Birds of Prey











**REPTILE & Amphibian:** Tortoise, Terrapin, Lizard, Snake, Frog













## **RABBIT** (Oryctolagus cuniculus)

#### Order: RODENTIA

Mice, Hamster, Guinea pig, Squirrel, Beaver, Porcupine, Capybara





#### Order: LAGOMORPHA

Family: 1- Ochtonidae 2- Leporidae :





Genus: 1- Lepus (Hare) 2- Sylvilagus (Cotton tail) 3- Oryctolagus (Rabbit)



**3- Ospenis** 

Present

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## **RABBIT BREEDS**

About 50 breeds of rabbit have been recognized

1- Small size (0.9-1.8 kg) : Dwarf lop, Dutch, Polish

2- Medium size (3-5 kg) : New Zealand White

**3- large size** (6.5-9 kg) : Flemish giant







## **USES OF RABBIT**

Research : Biological studies, Drug testing Immunological studies

Meat production

**Fur production** 

Pet Animals

HEAD

## Eyes :

↓ Well-developed third eyelids
 ↓ wide field of vision(190 °) that allows
 rabbit to watch for predators while it is grazing.
 ↓ The visual field does not include the area immediately under the nose
 ↓ wide pupillary dilation

## EARS :

- ↓ Big (12% body weight)
- **↓** Sound gathering,
- ↓ Highly vascularized (heat regulation)



## HEAD

#### Teeth :

2/1(1), 0/0 (C), 3/2 (P), 3/3 (M) All teeth are open root, Growth rate 12 – 20 cm/ year







#### **THORAX**

Relatively small compared with abdomen,
Heart is small
Right atrioventricular valve is bicuspid



#### **ABDOMEN**

Capacious, intestine about 10 times body length
glandular stomach, large cecum
lymphoid appendix and rotundus





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#### **GASTROINTESTINAL TRACT**

#### **Cecum:**

 Large (%60 of GIT volium)
 The sacculus rotundus is unique to the rabbit and has abundant aggregations of lymphoid tissue and macrophages in the lamina propria and submucosa



Vermiform caecal appendix

Sacculus rotundus

Ampulla caecalis coli





#### Urinary tract

#### **URINE** :

Turbid
PH approximately 8.2
Color light yellow to dark brown
Contains carbonate and phosphorus salts



#### HEAD: TEETH :

2/1(1), 0/0 (C), 3/2 (P), 3/3 (M) all teeth are open root growth rate 12 – 20 cm/ year

#### **THORAX:**

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## **Basic Biological Data For Rabbit**

Life span: Adult body weight: **Rectal tem. : Heart** rate • **Respiratory rate : Food consumption :** Water consumption : **Blood volume : Urine volume :** 

6 – 13 years 1-8 kg 38.5-40 °C 130 – 325 / Min 32 - 60 / Min5<sup>g</sup>/100<sup>gBW</sup>/day  $5 - 10 \text{ ml} / 100 \text{g}^{\text{BW}} / \text{day}$ 55 - 65 ml/ kg20 – 250 ml/kg/day( usually about 130 ml/kg/day) **Gastrointestinal transit time : 4–5h Intraocular pressure :** 5 – 23 mmHg **Optimum temperature : 15 – 20 °C** 

## HOUSING

#### **1 – Out door :**

Dry, cool, Well ventilated, Protected from wind and rain

#### 2 - In door

Floor area:  $0.3 \text{ m}^2$  single animal( 2 kg BW) Over 2 kg  $\rightarrow$  + 0.1 - 0.2 m<sup>2</sup>/kg Every extra animal  $\rightarrow$  + 0.2 m<sup>2</sup>

45 – 90 cn

60 cm

Male should be housed separately Male and female should be housed separately 50 cm

## **REPRODUCTION DATA**

Rabbits are induced ovulators without a defined oestrus cycle and females show a cyclic rhythm of sexual receptivity (12 - 14 d) and non receptivity (1 -2 d). Mating stimulate ovulation 10 hours post coitus.Factors influence cyclic rhythm : nutrition,light(14/10 h light/dark), temperature, sexual stimulation, individual variation

16 - 24 weeks **Puberty** : 10 - 12 weeks **Descent of testicle :** 30 - 32 days **Gestation**: 18 days **Pseudopregnancy : Pregnancy diagnosis :** palpation (10 – 12 days), Radiologically( after 11 days) **Nest building :** last week of pregnancy average 5-8 Litter size : 7 days **Eyes open :** Weaning : 4-6 weeks Milk composition : protein(13 - 15%), fat (10 - 12), carbohyd. (2%) 24



## SEX DETERMINATION



## NUTRITION

Good quality hay or grass should be available at all the time Feed a wide range of green foods,vegetables and fruits Feed small amount ( no more than 2-3% BW) of concentrated food( pellets) Introduce new foods gradually

#### **Suggested food analysis for adult rabbits**

Crude fiber : Indigestible fiber : Crude protein : Fat : Calcium : Phosphorus : Vit. A : Vit. D :

> 18%
> 12%
12- 16%
1 - 4%
0.6 - 1%
0.4 - 0.8%
10000 - 18000 IU/kg
800 - 1200 IU/kg





#### 1 – Teeth malocclusion & Root elongation

2 – Entropathy ( non specific )





**Predisposing factors :** 

**Genetic :** Dwarf breeds

Trauma : loss of opposite tooth

Metabolic bone disease : Rickets,osteoprosis,nutritional osteodystrophy, nutritional secondary hyperparathyroidism

Incorrect diet : Lack of an abrasive diet and dental wear







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#### TEETH MALOCCLUSION & ROOT ELONGATION Clinical signs :

**Ptyalism** (sometimes bloody due to tongue and mouth trauma) anorexia, swelling of the face, epiphora, chronic weight loss, starvation and eventually death







#### **Diagnosis :**

1- Observation of maloccluding teeth









#### **Diagnosis :**

**2- Palpation** 









#### **Diagnosis :**

#### **3- Radiography**







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# TEETH MALOCCLUSION & ROOT ELONGATION

**Treatment :** 

- 1- Teeth trimming **?!**
- 2- Diet correction ?!









#### TEETH MALOCCLUSION & ROOT ELONGATION

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Incisors, premolar & molar malocclusion





#### **GASTRIC HAIRBALL**

Previously hairball was believed to be the cause of disease in rabbit

**Recently hairballs have been recognized as the result of anorexia** 

 Predisposing factor:

 Stress
 Pain

 Pain
 Gastrointestinal hypo motility — Accumulation of hair in the stomach

#### **GASTRIC HAIRBALL**

#### **Clinical signs :**

Anorexia, reduced water intake, depression, weight loss and absence of fecal pellets

Diagnosis : Clinical history Radiography



Looking for underlying causes of anorexia (etc. dental problem)

#### **Treatment :**

Metaclopramid( 0.5 mg/kg sc,bid), Trimethoprim/Sulpha( 40 mg/kg po,bid) Dexamethasone(1-3 mg/kg IM,IV), Liquid paraffin(1-2 ml, bid), Fluid therapy (10 ml/kg, every 2-3 h), Ketoprofen(1 – 3 mg/kg,po,bid) 40

# ENTROPATHY( NON SPECIFIC)

#### **Etiology**:

Changes in the population of intestinal flora following ;

- Changes in the intestinal environment ( osmotic pressure, PH, salinity,nutritional substrate)
- Host immune defense
- Intestinal motility
- >Antimicrobial activity

The roles of specific agents ( salmonella, coccidia, clostridia, colibacillus, rotavirus, adenovirus and etc.) are incompeletly known.

They may have synergistic action.?



#### ENTROPATHY( NON SPECIFIC)

**Predisposing factors :** 



Age : usually 3 – 10 weeks olds

Diet : sudden changes, high starch, lack of food and water, dietary fiber < 6%

Stress : colony population, pregnancy, lactation, temperature

Concurrent infections



#### ENTROPATHY( NON SPECIFIC)

# **Clinical signs :**

Anorexia, lethargy, diarrhea, bloat, bubbling sound, tooth grinding

#### **Treatment :**

Symptomatic treatment Fluid therapy, corticostroides, pectin & kaolin, antibiotics

# COCCIDIOSIS

Coccidia are highly specific as the host and anatomic location **Etiology :** INTESTINE : Eimeria magna, E. intestinalis, E. irresidua, ... HEPATIC : E. stiedae

#### **Clinical signs :**

**INTESTINAL** : weight loss, diarrhea( with blood or mucus), dehydration, depression

**HEPATIC** : anorexia, weight loss, enlarged abdomen, Icterus

#### **Treatment :**

Trimethoprim/ sulfamethoxazole ( co-trimoxazole) (40 mg/kg, po, bid, for 7 days)





**DISEASES OF SKIN** 

- 1- Skin wounds and abscesses
- 2 Sore hocks( ulcerative pododermatitis)
- 3 Mites

# SKIN WOUND AND ABSCESSES

**Result from fights with cage mates and injuries cased by other animals.** 









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# SKIN WOUND AND ABSCESSES

**Common bacteria :** <u>Pasteurella multocida</u>, Fusobacterium, S. aureus Psedo. aeruginos, Streptococus sp., C. Pyogens

#### **Traetment :**

Surgical drainage of abscess, topical and Systemic antibiotics

- Rabbits do not have footpads and their skin is very thin
- weight is taken by the claws during locomotion
- At rest, weight is distributed between the hind claws and the plantar aspect of the metatarsus
- Tarsometatarsal skin normally protected by a thick fur
- When the rabbit hop, it is digitigrade





The type of substrate that a rabbit is housed on

Lawns or grass
Wire
Ceramic, concrete or vinyl
Carpet

The condition, is essentially a pressure sore

Is a secondary disease to some other physical, conformational or husbandry problem

Is a serious, painful condition that is progressive and difficult to cure once infection has set in



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Treatment : Surgical drainage Topical antimicrobial application Systemic antibiotics Correction of predisposing conditions

# DERMATOMYCOSIS

# Etiology :

T. mentagrophytes, M. canis, M. gypseum, M. Audouinii T. Verrucosum

## Clinical signs :

Patchy alopecia, broken hair, erythema, yellowish crusting

Treatment :

Griseofulvin (25 mg/kg, po, for 4 - 6 w)



# EAR MITE

# Etiology : Psoroptes cuniculi

Nonburrowing mite

Most common ectoparasite of the rabbit
All rabbits should be considered infected until proven otherwise.!
Starving mites survive up to 21 days off the host

#### Clinical signs : > Shake the head > Scratch at the head and ears > Alopecia > Excoriations



Secondary bacterial infection around the head and the neck

# EAR MITE

### **Diagnosis**:

Confirmed by finding the mites in ear swabs or skin scrapings

#### Treatment :

1-Removing the crusty materials and accumulates from the ear canal
2-Subcutaneous injection of ivermectin (0.4 mg/Kg)
3-Topical antiparasite application : Ectomin, cream Crotamiton
4-Topical antiinflamatory agants : Oint. Corticostroides
5-Topical antimicrobial application : Ear drop Gentamycin

The cage and environment should be sanitized, and reducing the relative humidity to less than 20 per cent while increasing the temperature to 40°C (104°F) is of benefit in this regard

# FUR MITE

**Etiology :** *Cheyletiella parasitovorax* Nonburrowing mite Most rabbits harbor the mites without overt signs of skin disease

# Clinical signs :

Scaling, crusting, and variable degrees of erythema, alopecia, and greasiness over the withers, the back and the ventral abdomen





# FUR MITE

## **Diagnosis**:

**Confirmed by finding C.** *parasitovorax* in skin scrapings or acetate tape preparations

#### Treatment :

The choice is ivermectin (0.4 mg/Kg, Sc) Anti- ectoparasite shampoos : Gamma benzene hexachloride (Lindane)

This mite can produce skin lesions in humans































































































