



Nutritional Requirements for Small Animals, Reptiles, and Horses

Understanding the nutritional needs of small animals, reptiles, and horses is crucial for maintaining their health, growth, and well-being. Each species has unique dietary requirements, and these needs can vary based on age, activity level, and health status. This handout provides an overview of the essential nutrients required by these animals, including proteins, fats, carbohydrates, minerals, vitamins, water, and fibre.

Small Animals



1. Proteins

- **Importance:** Proteins are essential for growth, tissue repair, and immune function. They provide amino acids that are necessary for various physiological processes.
- **Sources:** High-quality animal proteins (e.g., meat, fish, eggs) and some plant proteins (e.g., soy) for herbivorous pets like rabbits and guinea pigs.
- **Requirements:**
 - **Cats:** Obligate carnivores, require 30-45% protein on a dry matter basis.
 - **Dogs:** Omnivores, require 18-25% protein on a dry matter basis.
 - **Rabbits & Guinea Pigs:** Herbivores, require 12-16% protein from plant-based sources.

2. Fats

- **Importance:** Fats provide a concentrated energy source, essential fatty acids, and aid in the absorption of fat-soluble vitamins (A, D, E, and K).
- **Sources:** Animal fats, fish oils, and plant oils.
- **Requirements:**
 - **Cats:** Require 9-15% fat in their diet.
 - **Dogs:** Require 5-20% fat, depending on activity level.
 - **Rabbits & Guinea Pigs:** Require 2-5% fat, primarily from plant sources.

3. Carbohydrates

- **Importance:** Provide energy and are crucial for gut health in herbivores.



- **Sources:** Grains, vegetables, and fruits for dogs; hay, vegetables, and fruits for rabbits and guinea pigs.
- **Requirements:**
 - **Dogs:** Can utilise carbohydrates, but they are not strictly necessary if the diet is balanced with proteins and fats.
 - **Rabbits & Guinea Pigs:** Require fibrous carbohydrates for digestive health.

4. Minerals

- **Importance:** Essential for bone health, nerve function, and metabolic processes.
- **Key Minerals:** Calcium, phosphorus, potassium, sodium, and magnesium.
- **Requirements:**
 - **Calcium to Phosphorus Ratio:** 1.2:1 for dogs and cats; 2:1 for rabbits and guinea pigs.
 - **Trace Minerals:** Iron, zinc, copper, selenium, iodine, and manganese in balanced amounts.

5. Vitamins

- **Importance:** Vital for metabolic processes, immune function, and overall health.
- **Key Vitamins:** A, D, E, K, B-complex, and C (essential for guinea pigs).
- **Requirements:**
 - **Vitamin C:** Essential for guinea pigs (10-30 mg/day) due to their inability to synthesise it.
 - **Vitamin A:** Essential for vision and immune function in cats and dogs.

6. Water

- **Importance:** Critical for hydration, temperature regulation, and nutrient transport.
- **Requirements:** Fresh water should be available at all times. Water intake varies based on diet, temperature, and health status.

7. Fiber

- **Importance:** Essential for proper digestion and preventing gastrointestinal issues.
- **Sources:** Hay, vegetables, and high-fibre pellets.
- **Requirements:**
 - **Rabbits & Guinea Pigs:** Require high fibre (15-20% crude fibre) for optimal gut health.
 - **Dogs & Cats:** Require low to moderate fibre (2-8% crude fibre) for digestive health.



Reptiles

1. Proteins

- **Importance:** Essential for growth, repair, and maintenance of body tissues.
- **Sources:** Insects, rodents, fish, eggs, and plant-based proteins for herbivorous reptiles.
- **Requirements:**
 - **Carnivorous Reptiles (e.g., snakes):** High protein from animal sources.
 - **Herbivorous Reptiles (e.g., iguanas):** Moderate protein from plant sources.
 - **Omnivorous Reptiles (e.g., bearded dragons):** Balanced protein from both animal and plant sources.



2. Fats

- **Importance:** Provide energy and essential fatty acids.
- **Sources:** Whole prey items, insects, and seeds.
- **Requirements:**
 - **Carnivorous Reptiles:** Require higher fat content from their prey.
 - **Herbivorous Reptiles:** Require lower fat content, primarily from seeds and nuts.

3. Carbohydrates

- **Importance:** Provide energy and support gut health.
- **Sources:** Vegetables, fruits, and grains for omnivorous and herbivorous reptiles.
- **Requirements:**
 - **Herbivorous Reptiles:** Require fibrous carbohydrates for digestion.
 - **Carnivorous Reptiles:** Limited carbohydrate requirement, primarily for gut flora support.

4. Minerals

- **Importance:** Crucial for bone health and metabolic functions.
- **Key Minerals:** Calcium, phosphorus, magnesium, and trace elements.
- **Requirements:**
 - **Calcium to Phosphorus Ratio:** Ideally 2:1 for most reptiles to prevent metabolic bone disease.
 - **Calcium Supplementation:** Essential for herbivorous reptiles to meet dietary needs.



5. Vitamins

- **Importance:** Essential for various physiological functions and overall health.
- **Key Vitamins:** A, D3, E, K, and B-complex.
- **Requirements:**
 - **Vitamin D3:** Essential for calcium metabolism, especially in reptiles with limited UVB exposure.
 - **Vitamin A:** Important for vision and skin health.

6. Water

- **Importance:** Essential for hydration, digestion, and thermoregulation.
- **Requirements:** Fresh water should be available at all times. Humidity needs vary by species.

7. Fiber

- **Importance:** Aids digestion in herbivorous reptiles.
- **Sources:** Leafy greens, vegetables, and fibrous plant materials.
- **Requirements:**
 - **Herbivorous Reptiles:** High fibre intake necessary for digestive tract health.

Horses

1. Proteins

- **Importance:** Necessary for muscle development, repair, and overall growth.
- **Sources:** High-quality forage (hay, pasture), legumes, and commercial feeds.
- **Requirements:**
 - **Average Horse:** Requires about 8-12% protein in the diet.
 - **Growing and Lactating Horses:** Higher protein requirement (14-16%).



2. Fats

- **Importance:** Provide energy and essential fatty acids.
- **Sources:** Vegetable oils, rice bran, and commercial fat supplements.
- **Requirements:**
 - **Working Horses:** May benefit from higher fat diets (10-15% fat) for sustained energy.



3. Carbohydrates

- **Importance:** Primary energy source for horses.
- **Sources:** Forage, grains, and commercial feeds.
- **Requirements:**
 - **Structural Carbohydrates:** Fibre from hay and pasture for gut health.
 - **Non-Structural Carbohydrates:** Grains and sugars for quick energy, but should be limited to prevent metabolic disorders.

4. Minerals

- **Importance:** Essential for bone health, nerve function, and metabolic processes.
- **Key Minerals:** Calcium, phosphorus, magnesium, sodium, potassium, and trace elements.
- **Requirements:**
 - **Calcium to Phosphorus Ratio:** Ideally 1.5:1 to 2:1.
 - **Salt (Sodium Chloride):** Provided as free-choice salt licks or blocks.

5. Vitamins

- **Importance:** Vital for metabolic processes, immune function, and overall health.
- **Key Vitamins:** A, D, E, K, and B-complex.
- **Requirements:**
 - **Vitamin E and Selenium:** Important antioxidants, especially for horses on pasture.
 - **Vitamin A:** Necessary for vision and immune health.

6. Water

- **Importance:** Critical for hydration, digestion, and thermoregulation.
- **Requirements:** Horses require 5-10 gallons of fresh water daily, more in hot weather or with increased activity.

7. Fiber

- **Importance:** Essential for proper digestion and gut health.
- **Sources:** High-quality hay and pasture.
- **Requirements:**
 - **Minimum Fibre Intake:** Horses should consume at least 1.5% of their body weight in forage daily.

Summary

Ensuring the proper nutrition of small animals, reptiles, and horses involves a balanced diet that meets their specific needs for proteins, fats, carbohydrates, minerals, vitamins, water, and fibre. Proper nutrition supports their overall health, growth, and well-being