CATS and DOG NUTRITION

Prof. Dr. Pinar SAÇAKLI

psacakli@ankara.edu.tr

LIFE CYCLE

Flow: Birth → Growth → Adult → Senior

Each life stage has different nutritional needs.

1. BIRTH
(0 – 2 MONTHS)

NUTRITION GOAL

Support immunity and healthy start.

KEY NUTRITION FEATURES

- High energy and protein
- Mother's milk is best.
- If weaned, use high-quality puppy milk replacer.
- Small and frequent meals

WHY IT MATTERS

Builds the foundation for growth, organ development and strong immunity.

2. GROWTH
(2 – 12/18 MONTHS)

NUTRITION GOAL

Support rapid and healthy growth of muscles and bones.

KEY NUTRITION FEATURES

- High-quality protein
- Balanced fat and energy
- Calcium and phosphorus balance for proper bone development
- Vitamins and minerals support

WHY IT MATTERS

Ensures proper body development and helps prevent future health problems.

3. ADULT
(12/18 MONTHS – 7 YEARS)

NUTRITION GOAL

Maintain ideal body weight, health and performance.

KEY NUTRITION FEATURES

- Balanced protein, fat and carbohydrate
- Adequate fiber for digestive health
- Vitamin and mineral balance for daily needs
- Calcium matched to activity level

WHY IT MATTERS

Supports long-term health, vitality and disease prevention.

4. SENIOR
(7 YEARS AND OLDER)

NUTRITION GOAL

Support age-related changes and improve quality of life.

KEY NUTRITION FEATURES

- Lower calories, high-quality protein
- Omega-3 fatty acids for joint and brain health
- Antioxidants and immune support
- Easy-to-digest, high fiber

WHY IT MATTERS

Helps maintain healthy weight, joint function and cognitive health.

Every life stage is different; nutrition at birth supports growth, nutrition at every stage supports a better life.

PUPPY AND KITTEN NUTRITION

COLOSTRUM & MILK

What is Colostrum?

Female dogs and cats produce a special type of milk called **colostrum** during the first few days following parturition.

Transition to Mature Milk

The composition of milk changes rapidly to become normal or **"mature"** milk between 24 hours postpartum and the end of the first week of lactation.

COLOSTRUM vs. MATURE MILK

Component	Colostrum	Mature Milk
Protein	High	Lower
Immunoglobulin	Rich in IgG	Rich in IgA
Lactose	Very low (1.0%)	Higher (3.4%)
Dry Matter	High (sticky, viscous)	Lower

KEY POINTS

Puppies and kittens receive only **5–10%** of IgG from transplacental transfer.
They depend primarily on immunity derived from the intake of colostrum.

Colostrum has a very different composition than mature milk.

- Colostrum contains about twice as much protein as mature milk.
- Colostrum is rich in **IgG**,
  Mature milk is rich in **IgA**.

The lactose concentration of colostrum is very low compared with that of mature milk (i.e., **1.0%** vs. **3.4%**).

Due to its high dry matter content, colostrum is sticky and viscous, which makes nursing more difficult, especially for weaker puppies and kittens.

EARLY FEEDING & CARE

- **First Week:** puppies and kittens should nurse at a minimum of 4 to 6 times per day.
- The frequent intake of small amounts of milk is necessary because of the small size of the neonate's stomach.
- The eyes of puppies and kittens open between 10 and 16 days after birth and their ears begin to function between 15 and 17 days after birth.
- Newborns should be weighed daily during the first 2 weeks and then every 3 to 4 days until weaning.

WEIGHT GAIN

- Puppies reach 2 x bird weigh until 10–12 days of age.

Average daily weight gain of puppies

Week	% of current body weight
1	8 (5–10)
2	6
3	4
4	3.5

NORMAL BIRTH WEIGHT

- Toy breeds: 100 g
- Medium breeds: 200–300 g
- Large breeds: 400–500 g
- Giant breeds: 700 + g

OTHER IMPORTANT POINTS

- **Cow's milk should not be used** because it is higher in **lactose** than bitch's and queen's milk and may cause diarrhea.
- **At 5 weeks of age**: semisolid food consume.
- The deciduous teeth erupt between 21 and 35 days after birth.
- **By 5 to 6 weeks of age**: chew and consume dry food.

EARLY GROWTH AND MILK DEPENDENCY

In healthy puppies and kittens:

- Milk supports normal growth until 3–4 weeks of age.
- Supplemental feeding is usually not necessary, except in large litters.

After 4 weeks:

- Milk alone is not sufficient for energy and nutrient needs.

INTRODUCTION OF SOLID FOOD (WEANING)

- Start supplemental feeding at 3–4 weeks of age
- Use commercial weaning diets (puppy/kitten specific)

FEEDING PROGRESSION:

1. **WEEK 1:** Nursing at least 4–6 times/day Small frequent meals → due to small stomach capacity
2. **5 WEEKS:** Semi-solid food introduced
3. **5–6 WEEKS:** Can consume dry food
4. **WEANING COMPLETED: 6–8 WEEKS**

ORPHAN PUPPIES AND KITTENS

Puppies and kittens are considered orphaned if they lack sufficient maternal care for survival from birth to weaning.

PHYSIOLOGIC NEEDS

- Heat
- Humidity
- Nutrition
- Immunity
- Elimination
- Sanitation
- Security & Social Stimulation

A foster bitch or the caregiver must meet these needs for orphaned puppies.

Most orphans can be raised successfully with proper care and nutrition.

PRACTICAL FEEDING TIPS: ORPHAN PUPPIES AND KITTENS

MILK REPLACERS

- Composition similar to that of bitch's or queen's milk
- Meet nutrient requirements of puppies or kittens

HOMEMADE OPTIONS (IF NEEDED)

- Cow milk
- Goat milk
- Egg

↑ Increase protein

↓ Dilute lactose concentration

FEEDING MANAGEMENT

- Divide the formula into **four to five equal feedings per day.**

- Feed small, frequent meals.

MONITORING

- Weigh orphans regularly: one time per day for the first week.
- Then one to two times per week thereafter.

WEANING

3–4 WEEKS
Introduce semisolid food.

→

5–6 WEEKS
Puppies and kittens start chewing and can consume dry food.

→

6–8 WEEKS
Wean to dry pet food completely.

AVERAGE NUTRIENT COMPOSITION OF DOG AND CAT MILK

Nutrient	Dog Milk	Cat Milk
Protein (%)	8–10	7–8
Lactose (%)	3–4	3–4
Fat (%)	11–13	5–7
Calcium (mg/L)	1400–2200	700–1800
Magnesium (mg/L)	90–100	65–70
Iron (mg/L)	2–7	8–9
Zinc (mg/L)	4–6	6–7
Copper (mg/L)	1.0–1.4	1.0
Energy (kcal/L)	1500–1800	850–1600

MILK COMPOSITION IN SOME MAMMALS, %

Species	Water	Protein	Fat	Lactose	Ash	Ca	P	Kcal/100 g
Cat	82.2	7.0–9.1	3.3–5.0	5.0	0.51	0.035	0.070	101
Dog	75.4–80.0	7.5–11.2	8.5–9.6	3.1–3.5	0.73	0.230–0.325	0.160–0.222	164
Human	87.2	3.5	3.7	4.9	0.71	0.121	0.095	73
Sheep	80.1	5.8	8.2	4.8	0.92	0.250	0.166	127
Goat	86.5	3.6	4.0	5.1	0.80	0.131	0.104	79
Horse	42.8	12.2	42.3	1.3	1.42	0.300	0.193	465
Cow	87.5	1.0	4.4	7.0	0.21	0.035	0.013	65

Table 16-4. Key nutritional factors for foods for nursing puppies (the nutritional content of bitch's milk).*

Nutrient	Per 100 g milk, as fed	DM basis**
Moisture (g)	77.3	0
Dry matter (g)	22.7	100
Crude protein (g)	7.5	33
Arginine (mg)	420	1.85
Fat (g)	9.5	41.8
Linoleic acid (g)	1.11	4.9
Lactose (g)	3.3	14.5
Calcium (mg)	240	1.06
Phosphorus (mg)	180	0.79
Sodium (mg)	80	0.35
Potassium (mg)	120	0.53
Magnesium (mg)	11	0.05
Copper (mg)	0.33	0.0015
Iron (mg)	0.7	0.003
ME (kcal)	146 (610 kJ)	6.43 kcal/g (26.9 kJ/g)
Osmolarity (mOsm/kg)	569	Not applicable
DM digestibility	>95%	>95%

Table 16-9. Homemade milk replacers for puppies.

Recipe 1		Recipe 2		Recipe 1 (modified)	
Skim milk	43.8 g	Cow's milk**	800 ml	Skim milk	64 g
Low-fat curd*	40 g	Half cream***	200 ml	Low-fat curd*	15 g
Egg yolk (2/3)	10 g	Bone meal	6 g	One egg yolk	15 g
Vegetable oil	6 g	Citric acid	4 g	Vegetable oil	3 g
Vitamin-mineral mix	0.2 g	One egg yolk	15 g	Vitamin-mineral mix	2.5 g
-	-	Vitamin A	2,000 IU	$CaCO_3$	0.5

*Do not use cottage cheese because it may increase the risk of clotting in the neonate's stomach.

**3% fat.

***12% fat (i.e., half cream in the UK).

Table 16-10. Comparisons between bitch's milk and homemade milk replacers for puppies (See **Table 16-9**).

Nutrients*	Bitch's milk	Homemade milk replacers		
	-	Recipe 1**	Recipe 2**	Recipe 1 (modified)***
Moisture (g)	77.3	76.6	85.3	79.9
Dry matter (g)	22.7	23.4	14.7	20.1
Crude protein (g)	7.5	9.9	3.5	7.5
Fat (g)	9.5	9.5	5.5	8.1
NFE (g)	3.8	3.3	4.6	3.5
Ash (g)	1.2	0.8	0.7	1.3
Calcium (mg)	240	92.6	290	287
Phosphorus (mg)	180	177	200	186
Sodium (mg)	80	32	50	34
Potassium (mg)	127	96	150	110
Copper (mg)	0.33	0.03	na	0.05
Iron (mg)	0.7	0.68	na	0.95
Zinc (mg)	0.95	0.79	na	1.01
Energy				
ME (kcal)†	146	130	80	110
ME (kJ)†	610	544	335	460

Key: NFE = nitrogen-free extract, ME = metabolizable energy.

*g/100 ml or g/100 g = %.

**Calculated before addition of the vitamin-mineral mix.

***Calculated based on the addition of 2.5 g Pecutrin (Bayer).

†Calculated except for bitch's milk, for which the actual energy density was known from the literature.

- **Cat and Dog Nutrition during Gestation and Lactation**

NUTRITION OF DOGS AND CATS DURING PREGNANCY

PREGNANCY (GESTATION)

Average duration:

- Dogs: 58–63 days
- Cats: 63–65 days

0–5 WEEKS

Feed a high-quality, balanced diet appropriate for maintenance.

FROM 6TH WEEK ONWARDS

Increase energy intake by 25–50%.
The increase may vary depending on litter size.

HIGH QUALITY DIET

Provide highly digestible, balanced diet with adequate protein and energy.

BODY CONDITION

Maintain ideal body condition.
Avoid underweight or overweight.

FRESH WATER

Always provide clean and fresh water.

KEY NUTRITIONAL REQUIREMENTS

ENERGY

Energy needs increase in the last trimester.
Support fetal growth and development.

PROTEIN

High quality protein is essential for fetal growth, placental development and milk production.

FATS

Provide a concentrated source of energy and support fetal development.

MINERALS

Adequate calcium, phosphorus and trace minerals are important for fetal skeleton development.

VITAMINS

Ensure adequate intake of vitamins, especially A, D, E and B-complex.

GENERAL PRINCIPLES

- Feed a high-quality, complete and balanced diet.
- Monitor body weight and body condition regularly.
- Avoid excessive weight gain.
- Provide vitamin–mineral supplements if needed (as recommended by your veterinarian).
- Regular veterinary check-ups are essential.

Note: Special conditions (e.g., diabetes, eclampsia, obesity) require veterinary supervision. Always consult your veterinarian for personalized advice.

NUTRITION OF DOGS AND CATS DURING LACTATION

Lactation is the most nutritionally demanding period.
Adequate nutrition of the dam is essential for milk production, health of the mother and optimal growth of the puppies or kittens.

ENERGY REQUIREMENTS

High energy intake is essential to support milk production. Energy needs increase depending on litter size and stage of lactation.

Species	Increase in Energy Requirement
Dog	2–4 times the maintenance energy
Cat	2–4 times the maintenance energy

FEEDING FREQUENCY

- Offer food 3–4 times daily or free-choice (ad libitum).
- Ensure constant access to fresh, clean water.

KEY NUTRIENTS

PROTEIN
High quality, highly digestible protein is essential for milk production and body tissue maintenance.

FAT
Concentrated source of energy. Essential fatty acids support skin, coat and immune function.

MINERALS
Ca
Adequate calcium and phosphorus are necessary for milk production and to maintain bone health.

VITAMINS
VIT
Vitamins A, D, E and B-complex are important for milk quality, immunity and overall health.

WATER
High-quality diet and plenty of fresh water are critical for optimal milk production.

DIET CHARACTERISTICS

- Feed a high-quality, complete and balanced diet formulated for growth, reproduction or all life stages.
- Diet should be palatable, nutrient-dense and easily digestible.
- Adjust the amount based on body condition and litter size.

MONITORING

- Monitor body weight and body condition.
- Ensure steady weight maintenance or gradual weight gain.
- Watch for any signs of nutrient deficiencies or health problems.

ADDITIONAL TIPS

- Larger litters require higher nutrient intake. Adjust feeding accordingly.
- Avoid sudden diet changes; transition gradually.
- Maintain parasite control and regular veterinary care.
- Weaning starts around 3–4 weeks in puppies and 4–5 weeks in kittens.

Good nutrition during lactation ensures healthy, strong and fast-growing puppies and kittens.

- NUTRITIONAL DISEASES

FOOD ALLERGY

Immune reaction to specific food proteins (antigens, mostly glycoproteins).

KEY POINTS

- Non-seasonal pruritus is most common sign.
- Can appear months or years after eating.
- No breed, age or gender predisposition.

CLINICAL SIGNS

DERMATOLOGICAL

- Pruritus (itching)
- Urticaria
- Otitis externa

GASTROINTESTINAL

- Vomiting or diarrhea (blood or bloodless)
- Occasional eosinophilia

FOOD ALLERGY

in Dogs and Cats

ANIMAL PROTEIN

CLINICAL IMPORTANCE	ALLERGENS
★★★★★	Beef
★★★★	Dairy products
★★★★	Chicken
★★★★	Fish
★★★	Lamb
★★	Egg
★	Pork

PLANT PROTEIN

CLINICAL IMPORTANCE	ALLERGENS
★★★	Wheat
★★	Soy
★★	Corn
★	Rice

Any food can cause an allergy.

Ingredient contribute significantly to food allergy.
Most reactions are in the form of **intolerance** or **irritation.**

TREATMENT STRATEGY

1

ANTIGEN ELIMINATION

The most effective method

2

DIET MANAGEMENT

- Hydrolyzed diets
- Novel protein diets

3

ANTI-INFLAMMATORY SUPPORT

- Omega-3
- Antihistamines
- Corticosteroids (if necessary)

NUTRITIONAL SUPPORT

OMEGA-3

↓ inflammatory cytokines

PREBIOTICS

- FOS
- MOS

PROBIOTICS

- Lactobacillus
- Bifidobacterium

CHRONIC KIDNEY DISEASE

Clinical Importance and Signs

WHY IS IT IMPORTANT?

- ✔ The most commonly seen kidney disease
- ✔ Often progresses silently in early stages
- ✔ By the time of diagnosis, usually in advanced stages
- ✔ Affects quality of life and survival time

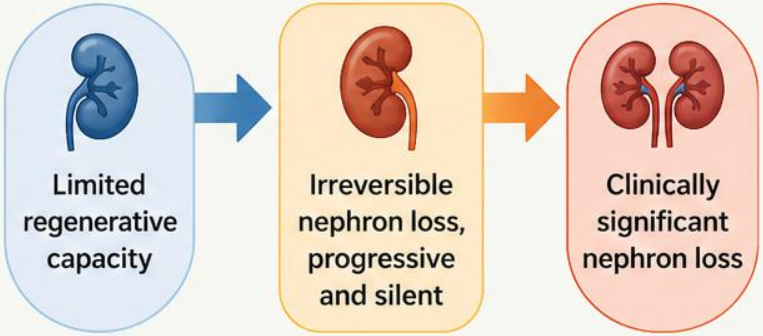
EARLY SIGNS

- Polyuria (increased urination)
- Polydipsia (increased thirst)
- Weight loss
- Decreased appetite

ADVANCED SIGNS

- Decreased appetite (Anorexia)
- Vomiting
- Diarrhea
- Muscle loss
- Dehydration
- Halitosis (bad breath)

PROGRESSION OF CHRONIC KIDNEY DISEASE



Chronic kidney insufficiency develops as a result of irreversible nephron loss.

CHRONIC KIDNEY DISEASE (CKD)

STAGES AND NUTRITION GUIDE

CKD is a progressive and irreversible loss of kidney function.

Early detection, appropriate management and proper nutrition can improve quality of life and slow disease progression.

MAIN GOALS OF NUTRITION

- Slow progression of kidney damage
- Support kidney function
- Prevent and manage complications
- Maintain body condition and quality of life

IRIS STAGE	STAGE 1 (Non-azotemic)	STAGE 2 (Mild)	STAGE 3 (Moderate)	STAGE 4 (Severe)	STAGE 5 (End-stage)
KIDNEY FUNCTION (CREATIVE)	< 1.4 mg/dL (dogs) < 1.6 mg/dL (cats)	1.4 – 2.0 mg/dL (dogs) 1.6 – 2.8 mg/dL (cats)	2.1 – 5.0 mg/dL (dogs) 2.9 – 5.0 mg/dL (cats)	5.1 – 10.0 mg/dL (dogs) 5.1 – 10.0 mg/dL (cats)	> 10.0 mg/dL (dogs) > 10.0 mg/dL (cats)
DESCRIPTION	Kidney damage present	Mild loss of kidney function	Moderate loss of kidney function	Severe loss of kidney function	Kidney failure
CLINICAL SIGNS	Usually none	Mild signs (inc. urine, thirst)	Decreased appetite, weight loss, vomiting	Severe signs, weight loss, dehydration	Uremic signs, very poor appetite, dehydration
NUTRITION RECOMMENDATIONS BY STAGE	• High quality protein • Normal phosphorus • Adequate calories • Omega-3 fatty acids • Encourage hydration	• Moderate protein (high biological value) • Phosphorus restriction • Omega-3 fatty acids • Antioxidants • Adequate calories	• Restricted protein • Low phosphorus • Omega-3 fatty acids • B vitamins • Appetite support • Adequate calories	• Very low protein • Very low phosphorus • Potassium control • B vitamins • Manage acidosis • High calorie intake	• Tailored protein • Strict phosphorus and potassium control • Appetite stimulants • Fluid therapy • Palliative care focus

ALWAYS
Ensure access to fresh water.

MONITOR REGULARLY
Body weight, hydration status, blood pressure and lab values.

WORK WITH YOUR VETERINARIAN
Regular check-ups and diet adjustments are essential for the best outcome.

KEDİ VE KÖPEKLERDE KRONİK BÖBREK HASTALIĞINDA EVRELERE GÖRE BESLEME STRATEJİLERİ

EVRE	HASTALIK DURUMU	AMAÇ	BESLEME STRATEJİLERİ	BESLENME ÖZELLİKLERİ
EVRE 1 (IRIS)	Böbrek hasarı var, ancak azotemi yok	Böbrek hasarının ilerlemesini geciktirmek	• Yüksek kaliteli protein • Fosfor ve sodyum alımını kontrol et • Bol taze su sağla • İdeal vücut ağırlığını koru	Fosfor: Normal–Orta düzey Protein: Yüksek kaliteli, yeterli miktarda Sodyum: Normal düzey
EVRE 2 (IRIS)	Hafif azotemi (SDMA taz artı	Azotemi ilerlemesini yavaşlatmak	• Protein miktarını kontrol et • Fosfor kısıtlaması yap • Omega-3 yağ asitleri kullan • İştahı koru, düzenli besle	Fosfor: Düşük Protein: Orta düzey, yüksek kaliteli Sodyum: Düşük–Orta düzey
EVRE 3 (IRIS)	Orta düzey azotemi (SDMA	Klinik bulguları azaltmak, yaşam kalitesini korumak	• Protein kısıtlaması (yüksek biyolojik değerde, düşük fosforlu) • Fosfor kısıtlaması • Potasyum ve sodyumu kontrol et • B vitaminleri ve antioksidanlar destekle • İştahta azalma varsa palatabiliteyi artır	Fosfor: Düşük Protein: Düşük–Orta, yüksek biyolojik değerli Sodyum: Düşük
EVRE 4 (IRIS)	İleri düzey azotemi, klinik bulgular belirgin	Yaşam kalitesini artırmak, üremik toksinleri azaltmak	• Düşük proteinli, yüksek kaliteli diyet • Fosfor kısıtlaması sıkı • Potasyum kısıtlaması gerekebilir • Sodyum kısıtlaması • Enerji yoğunluğu yüksek, iştah desteklenmeli • Gerekirse enteral beslenme	Fosfor: Çok düşük Protein: Çok düşük, yüksek kaliteli Sodyum: Çok düşük

GENEL İLKELER

- Her zaman bol taze su sağlayın
- İdeal vücut ağırlığını koruyun
- Düzenli öğünler, iştahı destekleyin
- Düzenli veteriner kontrollerini sürdürün

NUTRITION STRATEGIES FOR DOGS AND CATS WITH CHRONIC KIDNEY DISEASE (CKD)

STAGE	KIDNEY DISEASE STATUS	GOAL	NUTRITION STRATEGIES	NUTRITIONAL KEY POINTS
STAGE 1 (IRIS)	Kidney damage present, but no azotemia	Slow the progression of kidney damage	• High-quality protein • Control phosphorus and sodium intake • Provide plenty of fresh water • Maintain ideal body weight	Phosphorus: Normal–moderate Protein: High quality, adequate amount Sodium: Normal
STAGE 2 (IRIS)	Mild azotemia (SDMA increased)	Slow progression of azotemia	• Control protein amount • Restrict phosphorus • Use omega-3 fatty acids • Maintain hydration and balanced diet	Phosphorus: Low Protein: Moderate level, high quality Sodium: Low–moderate
STAGE 3 (IRIS)	Moderate azotemia	Reduce clinical signs and maintain quality of life	• Restrict protein (high biological value, low phosphorus) • Restrict phosphorus • Control potassium and sodium • Support with B vitamins and antioxidants • Reduce if azotemia worsens	Phosphorus: Low Protein: Low–moderate, high biological value Sodium: Low
STAGE 4 (IRIS)	Severe azotemia, clinical signs present	Maintain quality of life, manage uremic toxins, ensure adequate intake	• Low-protein, high-quality diet • Strict phosphorus restriction • Potassium restriction as needed • Sodium restriction • High energy density, palatable diet • Consider appetite stimulants • In severe cases, consider enteral *feeding*	Phosphorus: Very low Protein: Very low, high quality Sodium: Very low

GENERAL PRINCIPLES

- Always provide fresh water
- Maintain ideal body weight
- Offer small, frequent, appetite-friendly meals
- Regular veterinary check-ups
- Adjust diet based on stage and individual needs

PHOSPHATE BINDERS

1. CALCIUM-BASED

Calcium Carbonate

- Most commonly used
- Dose: 30–90 mg/kg/day (divided in 2–3 doses)
- Given with food

✓ **ADVANTAGE:** Effective, economical

⚠ **DISADVANTAGE:** Risk of hypercalcemia, Ca × P product may increase

2. CALCIUM-FREE

Sevelamer (carbonate / HCl)

- Modern and safe option
- Dose: 30–60 mg/kg/day (divided in 2–3 doses)
- Given with food

✓ **ADVANTAGE:** Does not cause hypercalcemia, preferred in advanced CKD

⚠ **DISADVANTAGE:** More expensive

3. ALUMINUM-BASED

Aluminum Hydroxide

- Still used but less preferred
- Dose: 30–100 mg/kg/day

✓ **ADVANTAGE:** Potent binder

⚠ **DISADVANTAGE:** Risk of aluminum toxicity with long-term use (neurotoxicity, anemia)

4. ALTERNATIVE

Iron-Based Binders (e.g., Ferric Citrate)

- Limited use in veterinary medicine
- Advantage: Phosphate binding + iron support

USAGE PRINCIPLES

1. ALWAYS WITH FOOD
More effective when given with meals.

2. DIET + BINDER
Diet alone is not enough. Use binders together with a kidney diet.

3. GOAL
Maintain serum phosphorus within the target range according to IRIS stage.

4. MONITORING
Check serum phosphorus every 2–4 weeks and adjust as needed.

OVERALL GOAL:
Control serum phosphorus levels and prevent complications of CKD–MBD.

Better phosphorus control = Better quality of life

DIABETES MELLITUS
IN DOGS AND CATS

DOGS

1. More commonly similar to **Type 1** DM
2. **Insulin** dependent
3. β-cell destruction (immune-mediated, pancreatic)

CATS

2. More commonly similar to **Type 2** DM
3. **Insulin resistance** + relative insulin deficiency
4. **Remission** is possible (with proper management)

Diabetes Mellitus is a **chronic metabolic disease** caused by insufficient or ineffective insulin, leading to abnormalities in **carbohydrate, lipid, and protein metabolism**.

High Blood Glucose → Altered Metabolism → Systemic Complications

NUTRITIONAL MANAGEMENT GOALS

- Achieve and maintain ideal body weight
- Stabilize blood glucose levels
- Preserve mass
- Prevent complications

KEY NUTRITIONAL RECOMMENDATIONS

- High protein, moderate fat, low to moderate carbohydrate
- High in fiber
- Feed consistent meals at regular times
- Avoid simple sugars and table scraps
- Monitor body weight and blood glucose regularly
- Ensure adequate hydration

IMPORTANT: Work closely with your veterinarian to develop a personalized diet and treatment plan.

- Consistent routine
- Combine diet with medication
- Regular rechecks and monitoring

NUTRITION FOR DIABETES MELLITUS

IN DOGS AND CATS

GOAL: Stabilize blood glucose, maintain ideal body weight and muscle mass.

HIGH PROTEIN

- Supports muscle mass and satiety
- Choose high-quality animal proteins

LOW TO MODERATE CARBOHYDRATE

- Prefer complex, low-glycemic carbs
- Avoid simple sugars

HIGH FIBER

- Helps regulate blood glucose
- Supports healthy digestion

MODERATE FAT

- Provides energy
- Help maintain ideal body weight

FEEDING MANAGEMENT

- Feed consistent meals at regular times
- Portion control to maintain ideal weight
- Do not give table scraps or high-sugar treats
- Monitor body weight and blood glucose regularly

ALWAYS WORK WITH YOUR VETERINARIAN
to create a personalized nutrition and treatment plan.

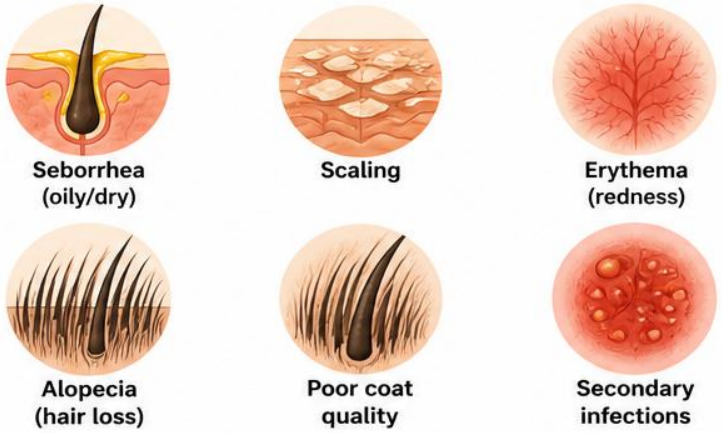
SKIN HEALTH, PROTEIN & FATTY ACIDS

SUMMARY FOR DOGS AND CATS

SKIN PROBLEMS IN DOGS & CATS

- **Allergy** (flea bites, atopic dermatitis)
- **Skin cancers**
- **Bacterial skin infections**
- **Seborrhea** (oily or dry, dandruff)
- **Parasites** (e.g., mites)
- **Food hypersensitivity/intolerance** (accounts for 1–6% of all skin diseases)
- **Immune-mediated skin diseases**
- **Hormonal skin diseases**

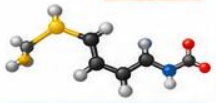
DERMATOLOGIC SIGNS RELATED TO NUTRITION



PROTEIN AND SKIN HEALTH

- About 65–95% of the hair structure is protein (keratin)

- Critical amino acids:
  - Methionine
  - Cysteine



- Deficiency may cause:
  - ✗ Depigmentation
  - ✗ Keratinization disorders
  - ✗ Increased susceptibility to infections

ADDITIONAL INFO:

- Tyrosine deficiency → black coat can turn brown/reddish

Cats have a higher protein requirement than dogs (obligate carnivores)

ESSENTIAL FATTY ACIDS (EFA)

OMEGA-6 (LINOLEIC ACID)

Maintains epidermal barrier function

OMEGA-3 (EPA + DHA)

Anti-inflammatory effects

RECOMMENDED DOSE:

EPA + DHA = 70 mg/kg

MECHANISM OF ACTION:

- ↓ Decreases prostaglandins
- ↓ Decreases leukotrienes

CLINICAL TIP: Effects may appear in 4–12 weeks. Consistency and patience are key.