



BULLETIN OF THE PET PRACTITIONERS ASSOCIATION OF MUMBAI

(FOR CIRCULATION AMONGST PPAM MEMBERS)

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Shri Ratan Naval Tata, Chairman, Tata Trusts



Shri Anant Mukesh Ambani, Director Reliance Industries Ltd.



Tata Trusts Small Animal Hospital, Mumbai



Vantara Animal Rescue and Rehabilitation Centre, Jamnagar



Dr. S. V. Vishwasrao

Ph.D. (Surgery)
Editor, PPAM Bulletin
vishwasraodr@hotmail.com
Mobile : 9322242184

Editorial

Vantara the World's Largest Animal Rescue and Rehabilitation Centre, Jamnagar and Tata Trusts Small Animal Hospital, Mumbai. The Best Gift ever for Animals in India.

On behalf of veterinary profession, on behalf of all pet parents, all animals, all the animal care takers, a big THANK YOU from all of us to you both most respected Shri. Ratan Naval Tata and Shri. Anant Mukesh Ambani, from the very bottom of our heart. The newly announced Vantara the world's largest Animal Rescue and Rehabilitation centre, Jamnagar and Tata Trust Small Animal Hospital, Mumbai will surely turn out to be the best gift ever for Animals in India.

We all are aware of difficulties and hurdles you both must have faced to build up these world class health care centres for animals. We all salute your commitment, untiring efforts for betterment of health and welfare of animals. For generations to come veterinarians and all animal care takers will take inspiration from your determination, optimism and perseverance that was required in building these centres. You have set an example to all, that in spite of being an industrialist where monetary calculations are important, you chose to be different, a path where human touch and empathy

was the focus of your work. These qualities of yours we all will try to inculcate in us. A true animal lover understands how animals converse silently. Silence is the language of the universe when it speaks with the individual. You have started these centres as it was necessary and the team you have chosen will certainly do what is possible and in time to come these centres will equip and upskill to do procedures which as on today are considered difficult or impossible under Indian conditions.

What we have learnt from you both, that purpose of life is to be useful to others not only other living beings but all of the environment. By building this animal health care centres you have sown a seed that is bound to become a tree.

From now on it will be responsibility of each and every individual amongst all of us working with animals to make these animal hospital and animal care centres not only successful but take it to glorious heights where our four-legged friends from all over would find care and comfort. We are hopeful that this hospital at Jamnagar and Mumbai will care for animals' comfort always and in all ways.

As father of our nation Mahatma Gandhi said "we can't look after thousands of individual but if we can touch one individual's life and save that life that is a great change that we can affect".

Thanking you both Shri. Ratan Naval Tata and Shri. Anant Mukesh Ambani once again on behalf of all individuals working to make life better for these graceful creations of God.

Canine Pododermatitis – A Common Problem with Many Causes

Dr. Madhavi Awale



What is canine pododermatitis?

Canine pododermatitis is inflammatory skin disease that involves a paw or multiple paws. It is a common dermatologic problem associated with many underlying causes. It is important to understand that pododermatitis is not a disease but a clinical presentation which needs a logical and sequential diagnostic approach to identify the primary disease. The condition is complex, multifactorial and may be frustrating to diagnose and treat. The condition is more common in dogs than cats.

What are the causes?

Primary causes of pododermatitis are diseases that can directly target the feet, although many of them may also affect other body parts. It is therefore important to identify the distribution of lesions on clinical examination which will help in diagnosis based on differentials.



How to approach?

A thorough patient history and a detailed physical examination is the key to success.

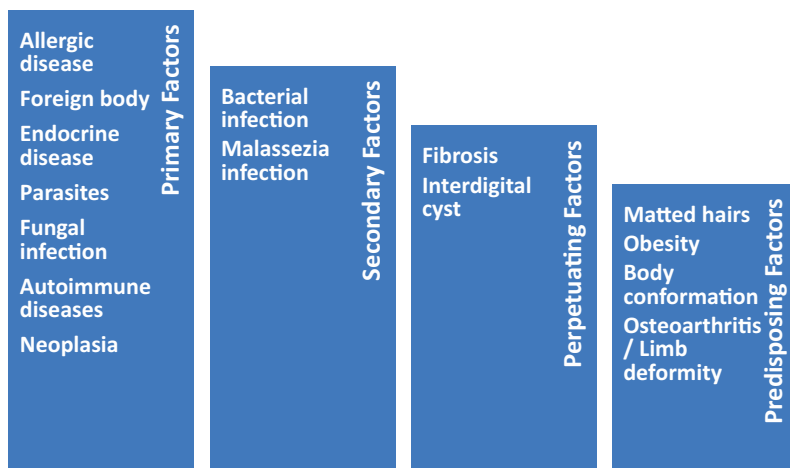
History

- Lesion location (footpad, haired portion, or both; interdigital or palmar/plantar aspects)
- Number of paws involved
- Seasonal versus non-seasonal
- Pruritic versus non-pruritic
- Age of onset
- Environment
- Diet

Physical examination

- **Salivary staining** on paws suggests pruritus
- **Interdigital erythema** limited to the plantar surfaces may indicate irritant or allergic contact reaction.
- **Nodular lesions, thickening, and scarring of interdigital skin** suggest previous deep pyoderma and furunculosis. This is common with foreign-body reactions to keratin and chronic pododemodosis
- **Interdigital furuncles** are common with atopy and in dogs with conformational triggers of pododermatitis
- **Nail bed debris or paronychia** may be associated with Malassezia overgrowth

Classification of causes and factors involved in canine pododermatitis



Salivary staining

- **Hair loss, scales, and abnormal nails** suggest dermatophytosis
- **Severe pododermatitis** can be associated with regional lymphadenopathy
- **Nodular lesions on the dorsum of the paw** indicate tumors, sterile granuloma syndrome, and nodular dermatofibrosis



Interdigital erythema



Paronychia



Excoriation



Furuncle



(1) Punched ulcer and
(2) onychomadesis in vasculitis



Inflammation, crusts and persistent interdigital cyst in canine atopy



Keratinization in zinc responsive dermatitis



Persistent interdigital cyst and sloughing in obese dog



Pustules and paronychia in pemphigus foliaceus

Clinical presentation to rule-in/rule-out

Interdigital skin	Pad	Interdigital skin + Pad	Claw
<ul style="list-style-type: none"> • Atopic dermatitis • Malassezia infection • Demodicosis • Dermatophytosis • Trauma • Furunculosis • Sterile pyogranuloma • Contact dermatitis • Neoplasia 	<ul style="list-style-type: none"> • Penetrating wounds • Vascular diseases • Neoplasia • Idiopathic digital hyperkeratosis • Sterile pedal panniculitis • Plasma cell pododermatitis (cats) 	<ul style="list-style-type: none"> • Pemphigus foliaceus • Drug eruptions • SLE • Zinc responsive dermatosis • Hookworm infestation 	<ul style="list-style-type: none"> • Malassezia infection • Vascular diseases

Don't ignore nails! Some causes of pododermatitis not only affect the haired skin but also the nails.

Diagnostic tests

- Skin scrapping
- Hair plucks
- Trichogram
- Cytology are indicated in most cases along with culture and sensitivity testing in cases of deep pyoderma
- Tooth pick method for exudate collection from base of the nail for Malassezia
- Wood's lamp examination for confirmation of *Microsporum canis* dermatophytosis
- Fungal culture
- Biopsy

Common forms of canine pododermatitis

Most common forms that are observed in day to day clinic practice include deep pyoderma, dermatophytosis, Malassezia dermatitis, demodicosis and canine atopy.

Deep pyoderma (Interdigital pyoderma)

Bacterial infection that involve the dermis, deep dermis and subcuticular tissue or cause furunculosis are referred to as deep pyoderma. It can be localized or generalized and primary cause needs to be ruled out.

Clinical signs include erythema, swelling, purulent exudate, interdigital furunculosis, acral lick granulomas and areas of pyotraumatic dermatitis are also clinical manifestations of deep pyoderma.



Furunculosis



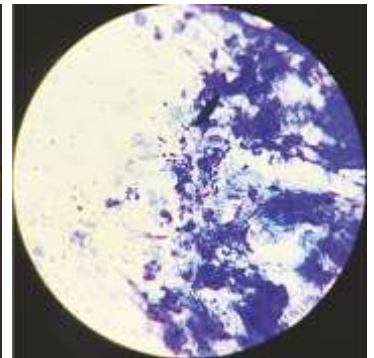
Normal hair shaft in richogram



Infected hair shaft in trichogram



Demodex canis in tape impression



Cocci and Malassezia



Inflammation, crusting and persistent interdigital cyst (deep pyoderma secondary to canine atopy)



(1)Paronychia and (2) ulcers and crusting in deep pyoderma

Treatment and management of deep pyoderma

includes systemic antibiotics upto 15-20 days beyond clinical improvement, recommended antibiotic culture sensitivity to rule out best working antibiotic, 4% chlorhexidine spray, benzoyl peroxide shampoo and washing of paws, use of soft bedding, avoid contact while walking outdoors.

Dermatophytosis

It is superficial infection of skin, hair and claws by fungus (*Microsporum* spp. and *Trichophyton* spp.). It is an important skin disease because of its zoonotic transmission.

Clinical signs include circular patch of alopecia, severe itching, scaling which spreads peripherally & heals centrally, face and limbs are affected but may extend to other parts of body if treatment is delayed.



Microsporum spp. under Wood's lamp examination

Treatment and management of dermatophytosis

include combination of topical and oral therapy is needed based on the severity. 2% miconazole + 2% chlorhexidine shampoo and spray as topical treatment; Ketoconazole @5-10 mg/kg sid or Itraconazole @5 mg/kg sid as oral treatment; and environmental decontamination is important for the management and control.



Erythema, circular alopecia, scabs, lichenification and hyperpigmentation in *Trichophyton* spp.

(1) Circular alopecia (2) *Microsporum* spp. under Wood's lamp examination

Malassezia dermatitis



Distribution of skin lesions and pruritus associated with *Malassezia dermatitis*. Lesions include erythema, yellowish or brownish greasy scale, hyperpigmentation

It is caused by the yeast *Malassezia pachydermatis*. It is present on the skin as natural microflora however when virulence is greater and / or hosts defense is compromised it acts as an opportunistic infection. It affects ear canal as well as other parts of the body.

Malassezia adheres to canine corneocytes by binding to proteins or glycoproteins. They produce enzyme that breakdown cells and trigger release of inflammatory mediators.



Erythema, hyperpigmentation, brownish discolouration and paronychia; *Malassezia* in cytology from paws – *Malassezia dermatitis*



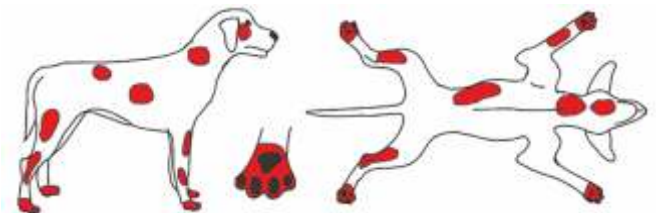
Greasy exudate and brownish discoloration

Clinical signs include pruritus, interdigital erythema, musty odour, scales and crusty, flaky skin, lichenification, hyperpigmentation, chronic or recurrent otitis externa with dark brown discharge.

Treatment for *Malassezia dermatitis* may be topical, oral, or a combination of both, and is based on the severity of the dog's condition. 2% miconazole + 2%

chlorhexidine shampoo and spray as topical treatment; and Ketoconazole @5-10 mg/kg sid or Itraconazole @5 mg/kg sid as oral treatment.

Demodicosis



Distribution of skin lesions and pruritus associated with demodicosis. Lesions include focal, multi-focal or generalised alopecia, scaling, erythema, follicular casts, comedones, Furunculosis

It is caused by *Demodex canis*, a parasitic mite that lives in the hair follicles of dogs believed to be associated with a genetic or immunologic disorder. This disease allows mites from the normal cutaneous biota to proliferate in the hair follicles and sebaceous glands.

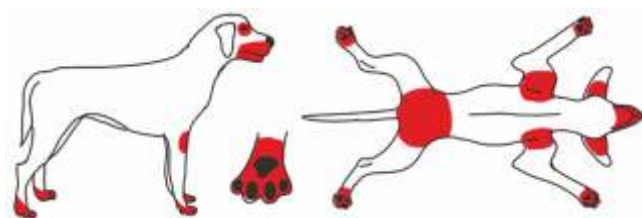
Clinical signs include alopecia, erythema, scaling, hair casting, and face, head and forelegs to the entire body of the dog may be affected.



Generalized alopecia, scaling, erythema and furuncles in generalized demodicosis

Treatment and management of demodicosis include Isoxazoline derivatives, topical antibacterial spray and shampoo, benzoyl peroxide shampoo and immunity booster.

Canine atopy



Common distribution of clinical lesions and pruritus associated with canine atopy and food allergy

It is a common, genetically predisposed, inflammatory and pruritic skin disease. The variation in clinical presentations is due to genetic factors, extent of the lesions, stage of the disease and secondary infections, as well as resemblance to other non-atopic related skin diseases, can complicate a diagnosis of canine atopy.

Clinical signs include:

- Seasonal, nonseasonal, or nonseasonal with seasonal flares
- Pruritus is the characteristic sign of AD
- 5 F's method by Dr. Olivry – face, feet, folds, friction sites, flexure points
- The feet, face, ears, flexural surfaces of the front legs, axillae, and abdomen are the most

frequently affected areas, but lesion distribution can vary with the breed

- Most lesions develop alopecia, erythema, scaling, hemorrhagic crusts, salivary staining, excoriations, lichenification and hyperpigmentation

Diagnosis includes:

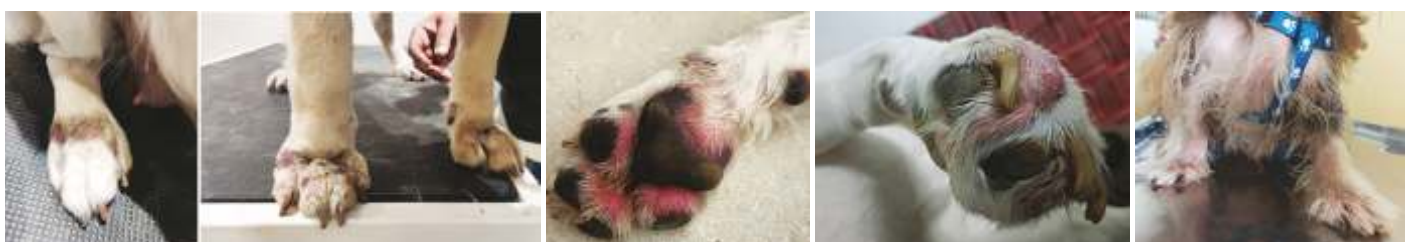
- History and physical examination
- Rule out differentials – Fleas, Mites, Pyoderma, Dermatophytosis, Malassezia and Food allergy
- **Favrot's criteria:** AD is very likely if ≥ 5 of the following criteria are present and other differentials have been ruled out:
 - Affected ear pinnae (but not pinnal margins)
 - Affected front feet
 - Age of onset < 3 years
 - Chronic or recurrent yeast infections
 - Corticosteroid-responsive pruritus
 - Mostly indoor lifestyle
 - Non-affected dorso-lumbar area
 - Pruritus without skin lesions at onset

Treatment and management of canine atopy:

- Avoidance of allergens
- Control of flare factors (fleas, food and environmental allergens)
- Control of secondary infections (*Malassezia* dermatitis and pyoderma)
- Immunosuppressant
- Medication and baths to relieve pruritus
- Topical moisturisers and EFAs
- Food trials to rule out AFR (adverse food reaction)

Concluding remarks of canine pododermatitis

- Careful clinical examination and distribution of lesions
- Support by cytology
- Culture of possible pathogens
- Biopsy at the right time
- Addressing the primary cause
- Consider conducting an elimination diet trial.



Inflammation, scale and crusts in canine atopy

Erythema and inflammation

Furunculosis and paronychia

Erythema, alopecia, dull haircoat, hypotrichosis and salivary staining in canine atopy

Responsible Antibiotic Use in Veterinary Practice: Strategies to Combat Antimicrobial Resistance.



Dr. Makarand Chavan
M.V.Sc (Gynecology)

Dr. Aziz Bate
M.V.Sc (Surgery)



Introduction:

Antimicrobial resistance (AMR) poses a significant threat to both animal and human health, necessitating a critical reassessment of antibiotic usage in veterinary medicine. This article explores the challenges posed by AMR, the factors contributing to its emergence, and the strategies that veterinarians can employ to mitigate its impact.

Understanding Antimicrobial Resistance:

Antimicrobial resistance is the ability of microorganisms to withstand the effects of antimicrobial drugs, rendering them ineffective. Factors contributing to AMR include the overuse and misuse of antibiotics, inadequate surveillance and data collection, and the evolution of resistant strains through genetic mutations. Case studies illustrating the consequences of AMR highlight its detrimental effects on animal welfare and public health.

Factors Contributing to Antimicrobial Resistance:

Injudicious antibiotic prescribing practices, fueled by factors such as diagnostic uncertainty and client demand, contribute to the proliferation of resistant bacteria. Intensive farming practices, including the routine use of antibiotics for growth promotion and disease prevention, also play a significant role in AMR. Disparities in antibiotic regulation and access exacerbate the problem, particularly in low - and middle-income countries.

Diagnostic Considerations and Treatment Principles:

Accurate diagnosis is essential for guiding antibiotic therapy in veterinary practice. Utilizing techniques such as culture and sensitivity testing allows veterinarians to identify the causative agent and tailor treatment accordingly. Principles of responsible antibiotic use include distinguishing between empiric and definitive therapy, opting for narrow-spectrum antibiotics whenever possible, and considering factors such as pharmacodynamics and host characteristics.

Importance of Antimicrobial Stewardship Programs:

Antimicrobial stewardship programs promote the

judicious use of antibiotics through education, surveillance, and enforcement of guidelines. These programs empower veterinarians to optimize antibiotic use, minimize the development of resistance, and preserve the efficacy of antibiotics for future generations. Collaboration between veterinary professionals, policymakers, and industry stakeholders is essential for the success of antimicrobial stewardship initiatives.

Challenges and Opportunities:

Overuse of antibiotics in low - and middle-income countries poses a significant challenge to global efforts to combat AMR. However, there are opportunities for international collaboration and knowledge sharing to address this issue. Emerging technologies, such as phage therapy and probiotics, hold promise as alternative approaches to combat AMR. Success stories from antimicrobial stewardship programs demonstrate the effectiveness of targeted interventions in reducing antibiotic use and mitigating resistance.

Case Studies and Best Practices:

Case studies highlighting successful antimicrobial stewardship initiatives in veterinary practice provide valuable insights into effective strategies for combating AMR. These include implementing antimicrobial guidelines, conducting antimicrobial audits, and providing ongoing education and training for veterinary professionals. By sharing best practices and lessons learned, veterinarians can collectively work towards reducing the burden of AMR.

Future Directions and Potential Solutions:

Future efforts to combat AMR in veterinary medicine should focus on enhancing surveillance systems,

promoting responsible antibiotic use through education and awareness campaigns, and developing innovative therapies and diagnostic tools. Multidisciplinary collaboration between veterinarians, human health professionals, policymakers, and researchers is essential for addressing the complex challenges posed by AMR and safeguarding the health of both animals and humans.

Conclusion and Call to Action:

In conclusion, responsible antibiotic use is paramount in addressing the global challenge of antimicrobial resistance. By adopting evidence-

based strategies, including accurate diagnosis, judicious antibiotic prescribing, and participation in antimicrobial stewardship programs, veterinarians can play a pivotal role in preserving the effectiveness of antibiotics and protecting animal and human health. A concerted effort is needed from all stakeholders to address the multifaceted nature of AMR and ensure a sustainable future for veterinary medicine.

Pet Practitioners are requested to study the toxicological safety data of the antimicrobial they want to use and prescribe. We should be extra careful and alert before using certain antimicrobials. Eg - Carbapenems (Imipenem, Meropenem etc.)

CE Program on Small Animal Alternative Medicine

CE program on Small Animal Alternative Medicine - How I treat, held on 25-02.2024.

Sr. No.	Name of Speaker	Topic
1.	Dr. Komal Keni	Ozone therapy
2.	Dr. Akshay Shah	Acupuncture
3.	Dr. Deep Vasudeo	Physiotherapy



Dr. Komal
Keni



Dr. Akshay
Shah



Dr. Deep
Vasudeo





The Tata Trusts Small Animal Hospital, Mumbai.

Dr. S. V. Vishwasrao



The Tata Trusts Small Animal Hospital, the 'pet' project of Shri Ratan Tata is all set to start functioning at Mahalaxmi in Mumbai.

Grounded in the Tata Trusts' values of compassion, courage, commitment, collaboration, and professionalism, an independent, ethical veterinary referral centre in Mumbai, Maharashtra will be of great advantage for pets in Mumbai. Spanning over 1,00,000 square feet, the Ground plus four storey facility has been designed in consultation with international veterinary hospital architects.

It will be one of the few hospitals for small animals that will be operational 24x7. The hospital has a capacity for 200 patients. It is led by British veterinarian Thomas Heathcote.

Spread across 2.2 acres and built at a cost of approximately Rs. 165 crores. The trust has a thirty-year lease of the land with Municipal Corporation of Mumbai. It is a ground plus four-storey hospital. The new hospital for animals has partnered with five UK veterinary schools including the Royal Veterinary College London for training. The hospital will offer surgical, diagnostic and pharmacy services along with multidisciplinary care.

The hospital has one surgery unit with four operation theatres offering soft tissues and orthopaedic procedures. In patient wards consisting of general ward, ICU and High Dependency Unit (HDU). Diagnostic services like Radiology, MRI, CT, USG and 2D Echo.

Speciality treatment units offering dental, ophthalmology, dermatology, endoscopy, internal medicine, oncology, cardiology and nephrology is also a part of the hospital.



Dr. Thomas Heathcote
Chief Veterinary Officer



Dr. Hamsini Yagneswar
Head - Emergency &
Critical Care



Dr. Jamshyd Cooper
Sr. Veterinary Surgeon



Dr. Hamid Shah
Sr. Veterinary Surgeon

Veterinarians and Their Impact on Animal Hospital Services: How to Make a Difference.

Dr. Madhura S. Vishwasrao
and Dr. Shriniwas. V. Vishwasrao



Patient referral is common and important in modern veterinary practice. It is expected that patient transitions **from primary or family veterinarian to the hospital are necessary, appropriate, timely, and well-communicated.** The coordination of effective communications between family or primary veterinarians, specialists, and pet parents is a significant challenge, particularly the referral process. **Despite the importance and frequency of patient referrals, in real-life situations, the process isn't always seamless.**

Learning how to refer a patient to another veterinarian is a crucial part of modern veterinary practice — it helps ensure your patients get the best possible care. Supportive communication positively influences teamwork between veterinarians, improves pet-parent satisfaction, and improves pets' treatment in terms of quality and safety.

Sometimes, a pet's condition is outside a doctor's area of expertise, and the doctor needs to refer the patient to a specialist who is more knowledgeable about or experienced in treating the condition or has the required facilities and infrastructure to deal with the pet's medical condition. **Every referral is meant to ensure the best outcome for the patient.** Well-written referral letters are important to help develop a good relationship with the hospital and animal care centre.

We must have an efficient referral system otherwise an inefficient referral process can be associated with over-testing and repetitive testing adding to unnecessary costs, delayed treatment, pet-parent confusion regarding navigation of pet's treatment pathways, ineffective use of available surgeons, physicians, and hospital services, and impaired patient outcomes. The referrals to hospitals should never be like passing the ball.

The veterinarian's primary responsibility is to be an active advocate for his patient's care and well-being. He/she is to always place the interest of his patients first. The veterinarian must accept ultimate responsibility for his medical decisions. It is natural to expect that the veterinarian should treat each patient with compassion, dignity, and respect, and he is not to exclude or discriminate against any patient for

whatsoever reason. He/she is also expected to be truthful and honest with everybody.

Veterinarians should be aware of the limitations of their expertise and seek consultation or assistance in clinical situations in which they are not experts. Veterinarians as stewards of veterinary medical knowledge, should share information with colleagues. This responsibility in seeking consultation rests solely on the primary veterinarian, who having realized that he needs the expertise that he does not have, then refers such a patient to a veterinarian who by training has the expertise and skills that are needed. **Ultimately, the patient's well-being is of greatest concern, and not our self-esteem of being seen as the "all-knowing veterinary Doctor".**

Veterinarians' primary responsibility is to promote the best interests of their patients. Pet parents and patients are dependent on a veterinarian's expertise, clinical knowledge, skills, and compassion. They must be confident that their veterinarian will make treatment recommendations in their best interest, based on objective clinical judgment and relevant guidelines. Therefore, a veterinarian makes a referral when he realizes that it will be beneficial for the patient to receive a second opinion or see someone else who has more insight in a given area.

The referring veterinarian must not disclose in advance to the pet parent what the hospital is going to do, and let the hospital doctor decide based on their clinical findings. Pet parents' health literacy, or pet parents' ability to obtain, process, communicate, and understand basic health information and services of their pet, is an essential component for a good referral.

We must understand it's not just the hospital and animal care centres that can make changes in how pet health care is delivered it is the collective responsibility of all veterinary doctors to make this hospital and mutual relations sustainable. When each member in the chain of pet health care takes a vow to behave responsibly, sustainability becomes a self-fulfilling prophecy and the hospital becomes a source of pride, engagement, and purpose for all those involved in animal health care.

Veterinary doctors similar to medical doctors need to be aware that the pet parents are individuals in need of guidance and we must give consideration to their social and economic limitations before referral. This skill cannot be taught by lectures or textbooks, but deliberately cultivated by a good veterinary doctor by living, acting, and practicing this in day-to-day practice.

A patient may be referred to the hospital at any time during veterinary care, before diagnosis, after diagnosis, before treatment, or after treatment. It is expected that a practicing veterinarian should know his limitations and therefore know when to seek assistance and refer it to a hospital.

In veterinary practice, there are two types of referrals, partial referral and complete referral. Partial occurs when a patient is sent for a specialist to examine or do a procedure and sent back to the referral veterinarian after completion of the procedure for example an endoscopy procedure. The hospital veterinarian reviews and gives suggestions on treatment and the patient goes back to his primary veterinarian who continues the management based on the advice given. Regular check-up is subsequently made by the hospital veterinarian and when required keep in contact with a primary veterinarian. A complete referral is when the patient is admitted to the hospital for a diagnosis, or a procedure and remains in the hospital for a prolonged period as the hospital recommends admission.

Scenarios when veterinary doctors consider a referral to a nearby animal hospital.

1. Examining veterinarian needs help making or confirming a diagnosis
2. The normal regular veterinarian may not have the necessary facilities for treatment.
3. Unable to attend to the pet due to inconvenient location or busy schedule or the vet is out of his office.

When the patient is referred to the hospital there has to be a joint patient triage and joint veterinary outpatient clinic, at the hospital to provide opportunities for inter-professional collaboration. This is necessary because; 1) Veterinarians refer patients many times based on their symptomatic picture rather than a confirmed diagnosis, and 2) a higher proportion of the referred patients from veterinarians are also scheduled to attend one of the other outpatient specialty clinics at the hospital.

How do we write a veterinary referral Letter?

A referral letter is sent from one veterinarian to another when referring a patient for care. Most often, the letter is sent from the patient's veterinarian to a specialist, with a request for diagnosis or to take over treatment of the patient altogether. Writing a referral letter is up to each doctor to determine. Some hospitals have prepared template that requires the doctor to fill in the patient's information and medical history. Most others do not have such templates and the referring veterinarian must then write a formal letter which may include all the details of the pet. The body of the letter must include the patient's information referring doctor contact information, the reasons for the referral, the patient's medical history, clinical findings, results of laboratory investigations, and previous treatments.

Also, referring should not be seen as an escape mechanism or route by a veterinarian who refers difficult cases away so as not to make any effort to alleviate the patient's problems. It should not be done to keep a clean slate of no/or low death rate records in your veterinary clinic.

Pet-parent and veterinarians and also veterinarian-to-veterinarian communications are considered core competencies in many education programs. **Communication competencies encompass knowledge, skills, and attitudes. It's important to note that the transformation of attitudes, in particular, takes time.**

Some guidelines and best practices to follow when making referrals.

1. **Informing the pet parent.** For each referral to the animal hospital, explain to the pet parent why it's necessary. Respond to any questions and address any concerns the pet parent may have. Ensure that the pet parent understands who will be responsible for the care of the pet after the referral and what communication channels are available to them.
2. **Sharing information with the receiving veterinarian.** One of the main issues with patient referrals is poor information sharing. For the best outcome during a referral, provide all relevant information to the veterinarian at the hospital. The exchange of patient care information between regular veterinarians and hospitals occurs during the referral process. The handover process is a crucial step. Veterinarians must have access to standardized communication tools to

ensure the effective transfer of patient information to the hospital surgeon or physicians. Poor communication, or miscommunication, between veterinarians inside the hospital and those outside, has been identified as a problem that can compromise patient care. At a minimum, provide the following information using the **standard SBAR (Situation-Background-Assessment-Recommendation) method**.

- **Situation:** Explain the pet's condition and symptoms. Include relevant administrative information — such as the pet's name, and referring veterinarian details.
- **Background:** Describe the pet's medical history. Include previous diagnoses, medication information, and treatment dates.
- **Assessment:** Provide details about what you found during your examination and investigation. This includes test results and a preliminary diagnosis.
- **Recommendation:** Clearly state the reason for the referral and what care you would like the receiving physician to provide. Specify time frames, if necessary.

Four types of error can occur during referrals to the hospital:

1. Unnecessary and inappropriate referrals are the product of false positives, which occur when the patient is inappropriately/unnecessarily identified as needing a referral to specialty care.
2. Delayed referrals are the product of false negatives, which occur when a referral to specialty care is necessary but is not made, resulting in patients not being referred until their condition reaches the late stages.
3. Triaging errors result when patients are improperly prioritized based on the severity of their condition.
4. Communication errors result when sufficient information and diagnostics are not provided.

The upcoming hospitals and animal care centres can do better by following simple steps.

1. The hospital should **designate one doctor who is the point of referral** to all the referring cases. He internally decides how to direct the case to which particular doctor or department and keeps a liaison with the referring veterinarian once it comes to the hospital or an animal care facility.

2. When the hospital grows in stature **share your knowledge and expertise with other veterinarians**. when hospitals bring others up in the profession by way of skill and knowledge the hospital will end up being a respected winner.
3. A significant portion of your hospital's success will be of your team veterinarians, and pet parents who support you, **Acknowledge and encourage** their role.
4. When the patient load increases there are going to be errors and mistakes in diagnosis and treatment. **Make fewer errors, and avoid taking disproportionate risks in clinical procedures**, the hospital will prosper. I am sure all doctors have experienced the sinking sensation in the pit of the stomach when something goes wrong in clinical procedures. **Failure is an integral component of science and we must accept it as a possibility**. Failure gives us new directions which gives us results.
5. We must **not allow pet parents to present a lopsided story without presenting the doctor's side** of the case in which desired or expected results have not been obtained. Otherwise, every hospital death is attributed to medical negligence.
6. **Violence against doctors must be strictly guarded**. No reaction but a calm and measured response by the hospital staff is an ideal remedy in a volatile situation.
7. In all circumstances the entire hospital and animal care staff **remain focused on the basic values of the hospital**.
8. The **head of the hospital veterinary team** may not necessarily be the best in all clinical departments, but **he has to be a motivator and can bring the best to his team. He must have the heart to take the blame and credit the team for success**.
9. We when treating pets need not only be **effective but also relevant with current times**. We all must track the progress of our efforts towards making this hospital the best, course correct as and when required, and celebrate the impact and milestones.
10. We all must ensure that **all our veterinarians are continuously growing by reskilling and upskilling**.
11. When these hospital and animal care centres start fully functioning, **we must see a change that is**

impactful and relevant to the current clinical scenario.

12. Hospitals that have a talent advantage, a brand advantage, and strategic clarity on what they are doing and why they are doing it, without any doubt would make a significant difference in the delivery of health care in the veterinary field.
13. **Doctors in the hospital must bear in mind that in this fast-paced world it's not so much where we are standing but in which direction we are moving.** The inclusion of technology in the treatment of animals is at such a fast pace we as veterinarians have two choices either buckle off and stay relevant in the journey or jump off.

Referring veterinarians must connect, communicate, and celebrate clinical success stories with hospital veterinarians. **We all must have a true culture of dialogue, idea exchange, and respect for disagreement.** Keeping an open dialogue with the pet parent and the hospital veterinarian you referred to will help enhance care outcomes and pet-parent satisfaction.

We as veterinarians must remember that having a trusted and experienced veterinarian by our side in times of complicated cases can be more effective than having all the theory knowledge in this world. Strategic thinking is often crucial in complicated cases.

Once in a while veterinarian **working in and those practicing out of the hospital must come together which will felicitate the exchange of ideas thus fuelling knowledge sharing and approach problem solving collectively.**

Most referring **veterinarians expect some kind of feedback from the hospital veterinarians.** This may help improve their diagnostic capabilities. The often-poor feedback from the hospital veterinarian to the referring doctor may be due to poor or low tracking of the referred patient by the referring doctors. It is also the duty of referring doctors to check more on the patients after referral.

Veterinarians working within the hospital and referring veterinarians must remember **trust begets trust. So, veterinarians let's work in such a way that trust builds amongst us and we all work together for the betterment of animals.**

Removal of Fishhook from Oral Cavity of Indian Flap Shell Turtle.

Dr. Rina Dev, Mumbai.



An Indian flap shell turtle was presented to our clinic with the history of protruding fish hook from its oral cavity. The hook seemed to be embedded inside the corner of the mouth with a small portion of it protruding. To determine the exact size and the location of the hook radiography was performed. A dorsoventral radiograph confirmed a fishing hook lodged inside the oral cavity with barb pointing orally. Injectable aesthetic combination of ketamine and midazolam was given. Depth of anaesthesia was

monitored by evaluating toe/tail pinch response. Artery forceps was guided inside the oral cavity to approximately determine the position of hook. After carefully manoeuvring the fishing hook was removed and pain killers were administered. Postoperatively the turtle was kept in a dark, quiet tank where it recovered well from anaesthesia. Antibiotics and painkiller were administered for 3 days and the turtle was successfully released back into the wild.



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SCAN TO KNOW MORE



A Comprehensive Guide to Meet Your Dog's Nutritional Needs

Dr. Pooja Chitteni
Veterinary Product Specialist

1. Introduction:

Ensuring proper nutrition is crucial for the health and well-being of our canine companions. Dogs are omnivores, which means that they are able to digest both animal and plant matter, but vets recommend that the highest percentage of your dog's diet should be meat. It's important that your dog gets a balanced diet which should include protein, fats, carbohydrates, vitamins and minerals - all washed down with a fresh supply of water. Factors like age, breed, and activity level influence their dietary requirements, making a balanced diet crucial. However, extra caution needs to be used when selecting the ingredients for this kind of formulation to ensure that the dogs can effectively absorb and use the nutrients. This review underscores the importance of providing a balanced diet rich in essential nutrients sourced from quality ingredients for dogs' vibrant and healthy lives. Drools VET-PRO, a leading brand in pet nutrition, offers meticulously formulated products tailored to meet dogs' specific nutritional needs across different life stages, ensuring optimal health and well-being throughout their lives.

Key words: *Nutrition, Dog, Ingredients, Balanced diet, Health*

2. Nutritional requirements of dog:

From puppies to old dogs, every life phase will bring with it different requirements of protein, fat, carbohydrates and other nutrients. The market potential for pet food customized to different age groups is rapidly expanding (Zicker, 2008). Regardless of the dog's age, it's crucial to select premium ingredients in dog food to provide the necessary nutrients required for all life stages. Dogs require a specific amount of energy for their daily activities, with needs increasing during growth, pregnancy, lactation, and exercise. Energy, measured in calories, is derived from carbohydrates, protein, and fats in their diet. The main thing to consider is ensuring your dog gets a complete and balanced diet that includes the following essential nutrients:

2.1 Water: Vital for Canine Health

Water is the cornerstone of canine nutrition, facilitating numerous physiological functions essential for health. Hydration is extremely important for active dogs, so you should make sure your pup has access to clean and fresh water at all times. Adequate hydration supports digestion, nutrient absorption, temperature regulation, and organ function.

2.2 Protein and Amino acids: Building Blocks of Health

Dogs cannot survive without protein in their diets. Dietary protein contains 10 specific amino acids that dogs cannot make on their own. Known as essential amino acids, necessary for tissue repair, muscle development, and overall growth (NRC, 2006). Among these, tryptophan, an essential amino acid abundant in protein sources, plays a pivotal role in regulating dogs' mood and behavior, underlining the significance of adequate protein intake throughout their lives (Bosch *et al.*, 2009). The protein requirement for dogs evolves across different life stages: from a higher range of 22%-32% during the tender phase of transitioning to solid food for very young puppies, gradually tapering to 18%-32% during their growth phase up to one year old, and finally settling at 18%-25% in adulthood (AAFCO, 2008). Drools VET PRO Starter, Puppy as well as Adult formulations meticulously align with these varying needs, ensuring tailored nutrition for dogs at every developmental stage.

When selecting protein sources for dogs, both animal-derived and plant-based options offer essential nutrients, each with its own merits and considerations (Case and Czarnecki-Maulden, 1990). Animal proteins such as chicken, fish, and eggs present complete proteins containing all essential amino acids, highly digestible and beneficial for overall canine health. Conversely, vegetable sources like peas, lentils, and soybeans contribute to protein intake but may lack certain amino acids and exhibit lower digestibility. Drools VET-PRO pet food

formulations integrate a balanced blend of animal and vegetable proteins, meticulously curated to meet the diverse needs of dogs across different life stages and activity levels, ensuring optimal health, vitality, and nutritional adequacy.

2.3 Carbohydrates: Energy for Playful Paws

Dogs gain energy from carbohydrates like sugars, starches, and dietary fibers, which are not essential but still beneficial. Carbohydrates provide glucose, a crucial energy source that spares protein for other vital bodily functions. Common carbohydrate sources in commercial dog foods are cereals, legumes, and other plant-based ingredients. These carbs can be absorbable (like glucose), digestible (like grain flours, brown rice, oats, sorghum, and potatoes), or fermentable (like starch, pectin and dietary fibres), with potential benefits for blood glucose control and immune function (Thompson, 2008). Non fermentable fibers, like cellulose and wheat bran, offer minimal nutrition and are used mainly for weight management in overweight dogs.

Sources of fiber such as wheat bran, rice bran, soybean hulls, beet pulp, powdered cellulose, corn, chicory root, inulin, and fructo-oligosaccharides are crucial for gut health and motility. Dietary fibers, which are commonly found in pet foods (De Godoy *et al.*, 2009), can modify the intestinal microflora by promoting commensal bacteria growth (Tungland, 2003), decrease in gastric emptying, blood cholesterol concentrations, gastric transit time, dilution in diet calorie density as well as increase in satiety glucose uptake rate and fecal excretion (Wenk, 2001) can also be ascribed to dietary fibers (Di Cerbo *et al.*, 2017). Drools VET-PRO opts for nutritious choices like long grain rice, Brewers dried yeast (Source of Mannan-oligosaccharides & beta-glucans), beet pulp, corn and Fructo-oligosaccharides to maintain balanced nutrition and consistent energy levels for your pet.

2.4 Fats and Fatty acids: Healthy Coats, Happy Canines

Dietary fats, sourced primarily from animal fats and various plant seed oils, represent the most concentrated form of energy in a dog's diet. These fats supply essential fatty acids vital for bodily functions and act as carriers for fat-soluble vitamins, contributing to overall palatability and texture of the food. Essential fatty acids such as omega-3 and omega-6 are crucial for maintaining your dog's skin

and coat health. Puppies on very low-fat diets can develop dry, coarse fur and skin issues, making them prone to infections. Lack of omega-3 fatty acids may lead to vision and learning difficulties. Omega-6 fatty acids also play significant roles in bodily functions.

Great sources of healthy fats include low-mercury fish and fish oil, olive oil, flaxseed oil, hemp seed oil, avocado (flesh, no skin or stone), borage and rosemary oil. Animal-derived oils like poultry oils and pork fat are highly digestible and palatable, providing essential fatty acids crucial for development. Vegetable oils such as sunflower and safflower oil offer linoleic acid (omega-6 fatty acid), while fish oil and flaxseed oil provide omega-3 fatty acids like EPA and DHA. Puppies on DHA-rich diets showed better light sensitivity and enhanced vision pathways, with potential benefits for memory and learning (Heinemann *et al.*, 2005). By incorporating these essential fatty acids from various sources, Drools VET-PRO diet supports optimal health and development in dogs.

2.5 Vitamins and Minerals: Fueling Health

Vitamins and minerals, although added in small amounts, are essential components of pet food, comprising nearly half of the ingredients. They promote nutrient absorption, cellular function, and immune system strength, aiding in disease prevention and supporting bone, joint, vision, skin, and reproductive health in dogs. These nutrients are abundant in meat, bone, shellfish, organ meats, vegetables, and fruits. Key vitamins for dogs include A, B, C, D, E, and K, while essential minerals like calcium, phosphorus, magnesium, potassium, sodium, selenium, copper, and molybdenum play vital roles in various bodily functions (Thompson, 2008).

2.6 Antioxidants, Prebiotics, and Probiotics: Supporting Canine Wellness

Antioxidants play a crucial role in maintaining dogs' health by counteracting harmful free radicals, thus safeguarding against cellular damage. Abundant in nutrient-rich foods like fruits, vegetables, proteins, and supplemented with essential vitamins C and E, selenium, and zinc, these antioxidants boost immune function and enhance overall well-being. Natural sources such as blueberries, spinach, carrots, along with herbs like rosemary, and fish oil provide potent antioxidants, nurturing healthy skin, fortifying immunity, and fostering the well-being of dogs.

(Hilton, 1989). Prebiotics, such as chicory root or beet pulp, Fructo-oligosaccharides (FOS) and Mannan-oligosaccharides (MOS) serve as food for beneficial gut bacteria, promoting digestive health and enhancing nutrient absorption. Probiotics, including strains like lactobacillus and bifidobacterium, contribute to a healthy gut microbiome, supporting digestion, immunity, and overall wellness. Drools prioritizes dogs' well-being by incorporating a balanced blend of natural antioxidants, prebiotics, and probiotics into their formulas, ensuring optimal health, immunity, and digestive function.

3. Conclusion:

Providing your dog with a nutritionally balanced diet is key to promoting their overall health and longevity. Throughout a dog's life, it is essential to ensure that their diet contains a balanced array of proteins, carbohydrates, fats, fibers, minerals, and vitamins, irrespective of their age. Therefore, it is always necessary to choose quality ingredients that are capable of providing nutrients of high digestibility and that fulfill their metabolic functions. Drools VET-PRO, a reputable pet nutrition brand, formulates its dog food with essential nutrients from high-quality ingredients to ensure dogs receive optimal nutrition for vibrant health at every life stage.

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Radioimmunoassay (RIA) and Canine Thyroid Dysfunction

Dr. Chandrakant Galdhar
(MVSC, Ph.D, DMRIT, RSO-NM)

Assistant Professor and Radiological Safety Officer, Department of Veterinary Clinical Medicine,
Veterinary Nuclear Medicine including Radio Isotope laboratory, Mumbai Veterinary College.



Introduction: Radioimmunoassay (RIA) is a widely used *in vitro* nuclear medicine technique, providing sensitive and specific diagnostic tests, where no radioactivity is administered to the patient. Its widespread use has led to a significant increase in understanding the pathophysiology of many diseases, resulting in a virtual information tool in the field of medicine. RIA is a microanalytical technique that employs radionuclides to detect the presence (e.g. bacterial and parasitic antigens and antibodies, hepatitis B markers) or measure the concentration (e.g. hormones, drugs, vitamins, enzymes) of substances of interest in biological fluids, most commonly blood serum or plasma and urine. The discovery of immunoassay as such may be traced back to the historical publications about 30 years ago from Soloman Berson and Rosalyn Yalow (USA). Ms. Yalow received the Nobel Prize in 1977 and developed an assay for insulin that employed antinsulin antibodies.

The increasing demand for radioactive isotope analysis (RIA) services in developing countries is due to the technology's technical and economic capabilities. RIA facilities can be extended to smaller district hospitals and peripheral areas, and blood samples can be sent to a central laboratory for a wide geographical area. The International Atomic Energy Agency (IAEA), Atomic Energy Regulatory Board (AERB), and World Health Organization (WHO) have played a crucial role in establishing substantial RIA services in developing countries for human endocrinology. Similarly, in Mumbai, at Mumbai Veterinary College, a dedicated Radio Isotope Laboratory is providing exclusive services for accessing endocrine profiles for veterinary use. The facility has been approved as a Level II research laboratory and has received an NOC from the Atomic Energy Regulatory Board (AERB) for the procurement and import of RIA kits. I-125 is a widely used radioisotope for RIA due to its long half-life. It has been used for investigating thyroid profiles in companion animals for the past two decades. RIA involves the competitive binding of a radiolabelled

antigen to a high-affinity antibody, usually labeled with a Gamma emitter (I-125). It has three principles: an immune reaction, a competitive binding or displacement reaction, and measurement of radio emission, making it more specific and sensitive than other immune assays. The RIA lab of Mumbai Veterinary College used human-based commercial RIA kits and established a thyroid profile reference range for canines.

Clinical Applications of RIA in Thyroid Dysfunction: Hypothyroidism is a common canine endocrine disorder, often caused by lymphocytic thyroiditis, idiopathic thyroid atrophy, or neoplastic or traumatic destruction. The gradual loss of thyroid parenchyma leads to reduced serum concentrations of thyroid hormones, which have various metabolic functions. Clinical signs are numerous, variable, and nonspecific. Canine thyroid function is evaluated using serum levels of total thyroxine (T4), triiodothyronine (T3), free thyroxine (FT4), endogenous thyroid-stimulating hormone, and anti-thyroglobulin and anti-T4 autoantibodies.

Thyroid hormone physiology: Thyrotropin-releasing hormone (TRH) stimulates the production and release of thyroid-stimulating hormone (TSH) from the pituitary gland, which binds to TSH receptors in the thyroid glands and stimulates the production and release of T4 and T3. T4 and T3 are primarily bound to proteins in dogs, transthyretin, and albumin, while in cats, binding proteins are not established. The biologically active TT4 is the combination of bound and free T4, which enters cells and is converted into T3.

Clinical Signs Associated with Hypothyroidism: Thyroid disease progresses slowly, with clinical signs only occurring if 75% of the thyroid is affected. Hormone deficiency can cause various physiological effects on organ systems, including decreased metabolic rate, lethargy, exercise intolerance, and weight gain. Common findings include dermatological abnormalities like seborrhea, hair thinning, and alopecia, while less common signs

include neuromuscular, gastrointestinal, cardiovascular, ocular, and reproductive abnormalities.

The reference range for thyroid hormones: The study involved 192 healthy dogs, ethically enrolled from Maharashtra examined thyroid hormone levels (T3, T4, and FT4). The established reference range is depicted following graph. The study reports RIA-enabled measurement of thyroid hormone levels in

192 healthy dogs in Maharashtra, India, providing valuable data for clinicians and researchers. The documented thyroid profile reference range could serve as a reference for thyroid health in the canine population in India and Central East Asia.

Acknowledgments: The authors are also thankful to the Associate Dean, Mumbai Veterinary College, Parel, Mumbai, India for providing the facility to undertake radiation work.

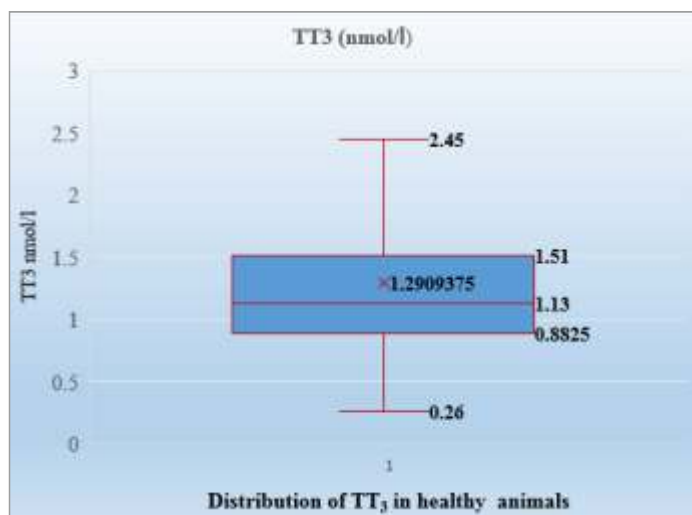


Figure - 1 : Box Plot of TT3 in healthy dogs(n=192)

The mean value of TT3 of healthy dogs was found to be 1.29 ± 0.04 nmol/l. Figure -1 depicts a box plot of TT3 concentration in healthy (n=192) dogs. For each box plot 'T bars' represent the data which is equal to the range (0.26 – 2.45 nmol/l). The box represents the middle half of the data (Interquartile range; 25th to 75th percentile, as 0.88 – 1.51 nmol/l), Horizontal bar in the box is the median of the data (1.13 nmol/l).

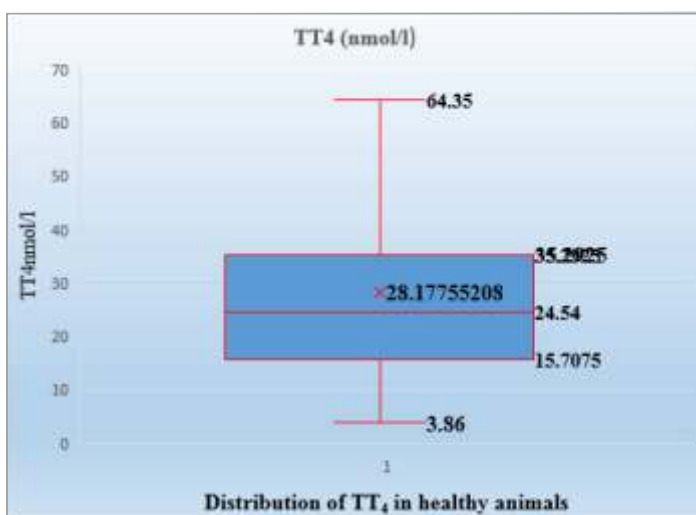


Figure - 2 : Box Plot of TT4 in healthy dogs(n=192)

The mean value of TT4 of healthy dogs was recorded as 28.17 ± 1.18 nmol/l. Figure -2 depicts a box plot of TT4 concentration in healthy dogs (n=192). For each box plot, 'T bars' represent the data which is equal to the range (3.86 – 64.35 nmol/l). The box represents the middle half of the data (Interquartile range; 25th to 75th percentile, as 15.70 – 35.29 nmol/l), Horizontal bar in the box is the median of the data (24.54 nmol/l).

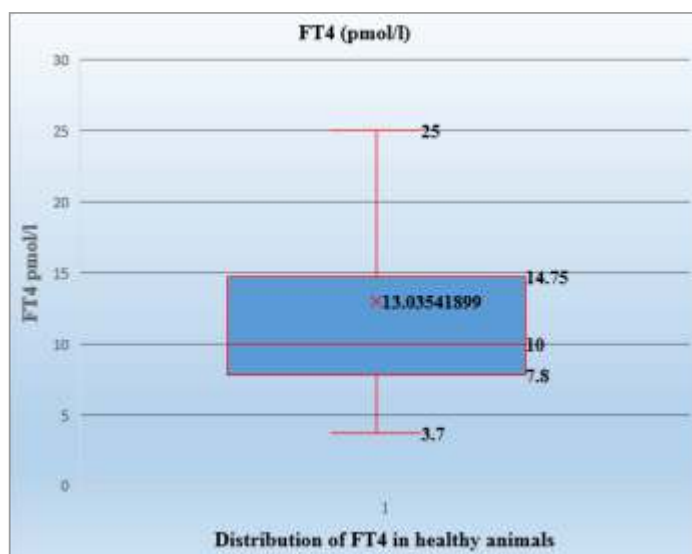


Figure - 3 : Box Plot of FT4 in healthy dogs(n=192)

The mean value of FT4 of healthy dogs was found to be 13.03 ± 0.68 pmol/l. Figure -3 depicts a box plot of FT4 concentration in healthy (n=192), dogs. For each box plot, 'T bars' represent the data which is equal to the range (3.7 – 25 pmol/l). The box represents the middle half of the data (Interquartile range; 25th to 75th percentile, as 7.80 – 14.75 pmol/l), Horizontal bar in the box is the median of the data (10.00 pmol/l).



Reference range of thyroid hormones

Reference	Method used for detection	No. of dogs	Particular	TT3 (nmol/l)	TT4 (nmol/l)	FT4 (pmol/l)
Present study recorded levels of TT3, TT4 and FT4 by RIA						
Galdhar <i>et al</i> , 2022	RIA	192	Mean ± SE	1.29 ± 0.04	28.17 ± 1.18	13.03 ± 0.68
			Interquartile range (25 th to 75 th percentile)	0.88 – 1.51	15.70 – 35.29	7.80 – 14.75
			Median	1.13	24.54	10
Reported values from other authors						
Reference	Method used for detection	No. of dogs	Particular	TT3 (nmol/l)	TT4 (nmol/l)	FT4 (pmol/l)
Dadke, 2018 and Dadke <i>et al.</i> , 2018	RIA	59	Mean± SE	1.03 ± 0.02	29.67±1.43	9.07 ± 0.52
			Range	0.68 – 1.40	11.71 – 9.26	4.06 – 18.72
Aicher <i>et al.</i> , (2019)	Equilibrium dialysis	NR	Reference Range	0.8 to 2.1	11-60	6-42
Hegstad-Davies <i>et al</i> (2015)	NR	692	Mean	NR	24.10	16.60
Higgs, <i>et al</i> (2014)	Fluorescent enzyme immunoassay	60	Range	NR	10.3 to 43.3	NR
Shadwick <i>et al</i> (2013)	NR	NR	Reference Interval	NR	12.9-51.6	08-40
Fialkovicova <i>et al</i> (2013)	RIA	310	Average in large, medium and small dog breeds	1.80, 1.77 and 1.81	29.11, 36.31, and 39.11	13.09, 14.32 and 15.26
Suarez and Ramirez (2012)	AIA-360 – Automated Immunoassay Analyser	122	Interquartile range	0.69-1.64	11.58-50.19	6.18-41.18
Peterson <i>et al</i> (1997)	RIA	150	Median	1.50	28 .00	22.00
Paradis <i>et al</i> (1996)	TT4 by RIA & FT4 bv CLIA	30	Median	NR	40	19.6

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Vantara a Great Initiative by Shri Anant Mukesh Ambani for Injured and Endangered Animals.

Dr. S. V. Vishwasrao

Shri Anant Mukesh Ambani, Director, Reliance Industries Ltd, has announced the launch of his ambitious wildlife preservation project, Vantara which is all set to become the world's largest rescue and rehabilitation centre.

Charles Darwin's theory of "Survival of fittest" overturned on its head, making it "Protection of Weakest" the new Mantra.

'Vantara,' meaning 'Star of The Forest,' this initiative spans 3,000 acres within Reliance's Jamnagar Refinery Complex. Supported by Reliance Industries and Reliance Foundation, aims to be a haven for abused, injured, and endangered animals. The project is a comprehensive rehabilitation centre, designed to recreate a natural and nurturing environment. The facility is poised to engage in partnerships with the International Union for Conservation of Nature (IUCN) and the World Wildlife Fund for Nature (WWF).

The centre includes state-of-the-art healthcare facilities, hospitals, research centres, and academic institutions.

Over the years, the initiative has rescued over 200 elephants, as well as numerous reptiles and birds, rhinos, leopards, and crocodiles. The Elephant Hospital is equipped

with advanced medical facilities, including portable X-ray and laser machines, a pathology lab. With a dedicated staff of 2,100, the centre has offered protection and care to over 2,000 animals, representing 43 diverse species. The facilities offer ICU, MRI, CT scan, X-ray, ultrasound, endoscopy, dental scalers, lithotripsy, dialysis, and cutting-edge technology for surgical procedures.

According to Shri Anant Mukesh Ambani, the project not only has a monumental conservation effort, but also as a hope for global biodiversity initiatives. Rooted in the philosophy of 'jeev seva' or caring for animals, inspired by Swami Vivekananda, the initiative reflects a mission to protect critically endangered species native to India, restore vital habitats, and contribute significantly to global conservation.



"Nurturing pets, advancing medicine"



WSAVA 2024
Kochi, Kerala

13th FSAPAI & 20th WSAVA INDIA CE, KOCHI, KERALA



APRIL 26 - APRIL 28, 2024

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Field Surgery by Senior Citizen and Veterinarian Dr. Gururaj Managoli.



Case 1.

Surgical Management of Deep transverse tongue laceration in Khillar Bullock.

Case no. - 89727 dt. 08/02/2024.

Accidentally tongue injury case in a robust Bullock was presented for treatment. After clinical examination and proper cleaning of the deep lacerated it was decided to suture the wound.

Anatomy of Cow Tongue can be divided into three parts the root, body, and apex. It has attachment with hyoid and mandible and has important muscles like Genioglossus, hyoglossus. It is innervated by four major cranial nerves and supplied by lingual artery and vein.



Initially Injection of Atropine was administered at a dose of 0.06mg/kg intramuscular to decrease bradycardia and hypersalivation. Anesthetic preferred was xylazine at 0.1mg/kg intramuscular. Local anesthetic lignocaine was also used and lacerated wound sutured with interrupted sutures. This surgery was carried out in Khanpur Karnataka. Surgery was carried out by Dr. Gururaj Managoli, with department Paravet Sanjay Hippargi. This treatment was carried out under Emergency Veterinary Services 1962. The notable point in this article is that Dr. Gururaj Managoli is a retired veterinarian and a senior citizen.

EVS (Emergency Veterinary services) GOK is implementing through Eduspark International Pvt Ltd.

This Services are at the door step of farmers & Free of cost. People of Karnataka are getting best benefits of EVS 1962. Ambulances.

Case 2.

Khillar bull 4 years aged was presented at Budarbhavi with a history of chronic orchitis caused due to local method of Castration 3 months back. Scrotal ablation was carried out under sedation with xylazine and local analgesia by lignocaine.



Back to Basics: Strengthening the Foundation of Veterinary Education...beyond academics.

Dr. Nishit. S. Gokarn, The Progressive Pet Clinic, Vasai West, Pin 401207



"Back to Basics" is a concept that as the name suggests gets back to the roots of the subject matter. The concept involves understanding the fundamentals of a particular branch of Veterinary Medicine from distinguished practitioners, academicians and fellow Veterinarians who have delved into the subject in detail. It is a short, informative, and insightful session that is tailored for Veterinary students, fresh graduates and seasoned Veterinarians who wish to brush up on the basics and stay in touch with the principles of the subject.

The recent event hosted in Vasai saw the presence of thirty-five participants some of whom came from as far as Bihar to seek some insights into the world of Veterinary Cardiology, Neurology and Ophthalmology. With half the strength of participants being students shows how eager one is to seek knowledge from reliable and genuine sources. For some participants the session was not merely an educational event but a transformative journey of discovery and growth, the lectures inspired a sense of intellectual curiosity, igniting a passion for lifelong learning and professional excellence.

The speakers, distinguished Veterinarians, with vast experience under their belts shared practical and invaluable insights to develop practical clinical acumen through their countless hours of clinical practice. This helped all participants gain a deeper but simple understanding of complex subjects in a fun way that the speakers put forth for them.

One of the guiding principles of the "Back to Basics" lecture series was the commitment to punctuality and the value of time. Recognizing that every individual's time is precious, the event was meticulously organized to ensure that sessions began promptly and ran efficiently. Participants were encouraged to arrive on time and respect the schedule, allowing for maximum engagement and learning opportunities.

Another principle that the team stuck to for imparting an unbiased and impartial flow of knowledge was to refrain from any form of sponsorship which ensured the integrity of the education imparted as well as fostering an environment of trust and transparency.

We are excited to announce future events that will continue to enrich and inspire participants on their journey in veterinary medicine. Covering basic topics that will help budding Veterinarians and fresh graduates and give them an insight that there are countless opportunities for growth and learning on the horizon. We invite all aspiring veterinarians and seasoned professionals alike to join us on this exciting journey of discovery, where every event promises to be an enriching experience. We are confident that the legacy of this series will continue to inspire and empower participants to reach new heights in their veterinary careers with the help of a strong and rigid foundation of knowledge. Let us embark on this journey together, where the pursuit of knowledge and the passion for veterinary medicine unite us in a shared mission of compassion and care for animals.



Proud Moment for Veterinary Profession and PPAM Members.

Dr. Anil Vade

Vet of The Year award received by Dr. Anil Vade at Delhi on 21 January 2024.



Dr. Harshita Raghav

Dr. Harshita Raghav first Lady Veterinarian to join the Remount Veterinary Corps of the Indian Army. The PPAM Family congratulates Dr. Harshita Raghav.

She is a wildlife veterinarian by profession. She completed her B.V.Sc & A.H from Mumbai Veterinary College. M.V.Sc in Wild life health from Nanaji Deshmukh Veterinary Science University Jabalpur.



Dr. Madhavi Awale

has been awarded scholarship for advanced dermatopathology at Boston.



Dr. Sangeeta Vengsarkar Shah

Dr. Sangeeta V. Shah CE in Goa on 14.02.2024. Pre anaesthetic ECG in clinical Practice.



Dr. C. N. Galdhar, lead paper



Dr. C. N. Galdhar, Assistant Professor and Radiological Safety Officer, Department of Veterinary Clinical Medicine, Veterinary Nuclear Medicine including Radio Isotope Laboratory of Mumbai Veterinary College presented lead paper on "Canine hypothyroidism-How to proceed for diagnosis?" in Indian Society of Veterinary Medicine conference held at College of Veterinary Science, Manuthy - Kerala on 22nd of February 2024.



Dr. Shriniwas V. Vishwasrao

CE lecture in Coimbatore and Nagpur

Dr. Shriniwas V. Vishwasrao delivered a talk on Osteoarthritis in **Coimbatore** on Sunday 21 January 2024. Fifty Eight Veterinarians attended the Talk and was sponsored by Hester Petcare.






We are thrilled to invite you to VetCrxn, an exceptional Veterinary Education Programme designed to elevate your knowledge and foster the spirit of compassionate care in the field of veterinary.

Topic:
Clinical Advancements for Diagnosis, Treatment and Management of Joint Ailments in Pets

Speaker:
Dr. Shriniwas Vishwasrao (Ph.D. Surgery)
- Ex. Faculty Bombay Veterinary College, Mumbai

We look forward to have honor of your graceful presence on

21st January, Sunday
5 PM onwards.

Venue:
Zone by The Park Hotel,
303, Avinashi Rd, Lavasa MIDC, Coimbatore, Tamil Nadu 641018



Nagpur lecture on 11.02.2024. PET PRACTITIONER ASSOCIATION OF VIDHARBA (PPAV).



Dr. Nikhil Hemant Jain

Dr. Nikhil Hemant Jain a young budding veterinarian from Nagpur has been awarded the Dr. Amanat Khokar Pet King Megataj Agrovvet award on 24.02.2024 at Nagpur. This award was bestowed by Senior Veterinary Foundation Nagpur.



He received the award at the hands of MAFSU, Vice Chancellor Hon. Dr Nitin Patil in the presence of Hon. Former VC Sanskrit Vidyapeeth Ramtek, Dr. Pankaj Chande and Dr. Deepak Kadu - Secretary SVF Nagpur.



Dr. Shashank Sinha

Veterinarian and CEO Drools Pet food has been featured on Business World magazine current issue cover page.



VPWA (Veterinary Practitioner Welfare Association) Kartruttva Gaurav Award 2024

Dr. Manohar Akole - VPWA Kartruttva Gaurav Lifetime Achievement Award 2024



Col Shejav Paramshiv Anantrao

VPWA Kartruttva Gaurav Excellence in
Defense Services Award 2024



Dr. Noopur Desai

VPWA Kartruttva Gaurav Excellence in
Specialized Practice Award 2024



Dr. Prashant Kamble

VPWA Kartruttva Gaurav Excellence in
Civil Services Award 2024



Dr. Anil Bhikane

VPWA Kartruttva Gaurav Excellence in
Large Animal Extension Award 2024



Dr. Rajendra Velhankar

VPWA Kartruttva Gaurav Excellence in
Veterinary Academics Award 2024



Dr. Hemant Kulkarni

VPWA Kartruttva Gaurav Excellence
in Large animal Practice 2024



Dr. Arunkumar Kholkute

VPWA Kartruttva Gaurav Excellence
in Wildlife Practice 2024



Dr. Mitali Deore

VPWA Kartruttva Gaurav Hirkani Award 2024



Dr. Makarand Chavan

VPWA Kartruttva Gaurav Excellence
in Small animal Practice 2024



Dr. Shyam Zawar

VPWA Kartruttva Gaurav Special Jury Award 2024



Dr. Mandar Gavkar

VPWA Young Achiever Award 2024



VPWA Hon. President **Dr. Rahul Mulekar**,
Large and small Animal Practitioner, Khalapur
addressing the audience.



PPAM Virbac Event held on 14.01.2024



Two Day FASAVA Pre-Congress Hands on Training Program on USG in Canines.

Two Day FASAVA Pre-Congress Hands on Training Program on USG in Canines was organised by Department of Surgery and Radiology Mumbai Veterinary College and PPAM on 25th and 26th October 2023 at Mumbai Veterinary College, Parel.

Both Small Animal Abdominal and Thoracic sonography were covered during the two-day training program. Course teacher was Dr. K. Jeyaraja, M.V.Sc, Ph.D. Professor of Veterinary Clinical Medicine Madras Veterinary College, Chennai. Course Director was Dr. G. S. Khandekar, M.V.Sc, Ph.D. Professor of Surgery, Mumbai Veterinary College.



One Day FASAVA Pre-Congress Small Animal Orthopaedic Master Class

One Day FASAVA Pre-Congress Small Animal Orthopaedic Master Class on Common Joint Disease of Dogs and Cats on 26.10.2023.

Speaker Dr. Frank Mathais from Germany.



The PPAM Managing Committee Visited NGO, Community for Protection and Care of Animals, Thane.



Inauguration of AVD Maharashtra Chapter 14.01.2023



Inauguration of Association of Veterinary Dermatologist of India Maharashtra Chapter on 14.01.2024.



Hands on Workshop on Feline Dentistry on 31.03.2024

Course Teacher – Dr. Kishor Mahind, MVSc (Surgery-MVC), MRCVS (UK)

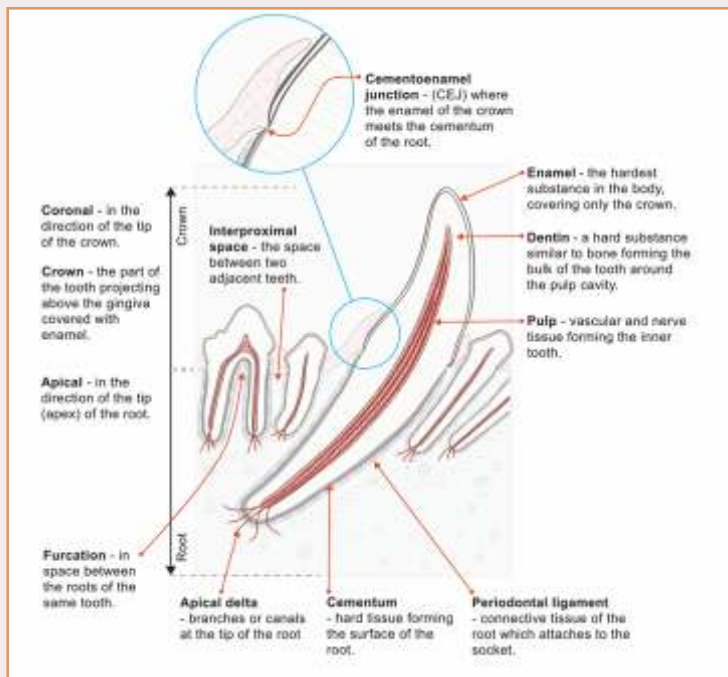


PPAM Hands on workshop on Feline Dentistry in collaboration with Dept. of Veterinary Surgery and Radiology, Mumbai Veterinary College, Parel, Mumbai (MAFSU).

Date : Sunday, 31st March 2024

Course Director :
Dr. G. S. Khandekar
MVSC, Ph.D (Surgery),
Professor and HOD,
Dept. Of Surgery and Radiology,
Mumbai Veterinary College, MAFSU.

Sr. No	Topics covered.
1	Dental Anatomy and Nomenclature.
2	Perform through conscious clinical examination.
3	Examination under General Anesthesia and charting.
4	Dental Radiology
5	Indications for Extractions
6	Understanding Nerve blocks.
7	Understanding principles of open and closed extractions including total mouth extraction in felines.
8	Understand how to avoid complications.



PPAM Outreach Event in collaboration with MVC , MAFSU at Goregaon Campus - Amphi Theatre on 01.04.2024.
 Speaker - Dr. Kishor Mahind. MVSc (Surgery) MRCVS, UK,
 spoke on Preparation for exam - MRCVS for practice registration in UK.

Feline Nutritional Essentials: Understanding Cats' Unique Dietary Needs

Dr. Jadhav Aditya Sudhir
Veterinary Product Executive

Introduction

Felids in general (except the lion), including the domestic cat, are solitary hunters, showing no omnivorous feeding behavior, whether feral or simply house cats allowed outside. Thus, felids are considered strict carnivores. It is interesting that house cats search out wild prey more often when meat is not in their diet (Robertson, 1998). Since a mouse or small bird provides about 30 kcal of metabolizable energy (ME), a cat must catch 8-12 of these animals every 24 hours to provide its energy needs. Kane et al. (1981) reported that, after adaptation to each diet for a week or more, adult cats ate the same amount (in kilocalories of ME) and number of meals, whether they were fed commercial dry or canned diets, or laboratory-prepared amino acid or protein-purified diets. In their studies, the mean meal size was about 15-30 kcal ME, with the cats eating about 12- 20 meals per day (means, 15.7-17.4).

The only member of the family Felidea whose nutritional requirements have been studied extensively is the domestic cat (*Felis catus*). Scientific research has shown that cats have obligatory requirements for nutrients that are not essential for many other mammals. Early studies of the cat's nutrient requirements showed that it has a protein requirement substantially higher than that of other mammals, including the dog. The cat's comparatively high dietary requirement for protein is the result of increased needs for the maintenance of whole-body protein turnover, rather than increased needs for growth. Approximately 60% of the growing kitten's protein requirement is used for the maintenance of body tissues; only 40% is used for growth.

There are five other nutrients, considered essential in feline diets, that are not recognized as essential in most other species due to the low activities of enzymes in their synthetic pathways. Two of these nutrients are the amino acids arginine and taurine. The low activities of ornithine aminotransferase and pyrroline-5 carboxylate result in the minimal production of citrulline in the gastrointestinal tract (Rogers and Phang 1985). As a result, the cat is

completely dependent upon dietary arginine to meet its needs for this amino acid. The endogenous synthesis of taurine is limited by the low activities of cysteine dioxygenase and cysteine sulfinic acid decarboxylase. The low activity of these enzymes in the synthetic pathway, coupled with the low affinity of N acyltransferase for glycine for bile acid synthesis, results in the depletion of body taurine stores. The remaining three nutrients are niacin, vitamin A, and vitamin D. The cat has a dietary requirement for niacin and vitamin D because of the high activity of the enzymes picolinic carboxylase (Sudadolnik *et al.* 1957; Ikeda *et al.* 1965) and 7-dehydrocholesterol- Δ^7 - reductase (Morris 1999), respectively, that result in the degradation of precursors for their synthesis. Vitamin A must be supplied preformed in the diet presumably because cats lack or have reduced activity of the enzyme β , β -carotene 15, 15'-dioxygenase, needed to cleave β -carotene (NRC 2006). Consistent with their classification as obligate carnivores, cats have a reduced number of carbohydrate metabolizing enzymes compared to omnivores. Cats lack glucokinase in their livers, However, in contrast to certain others carnivores, and not at all consistent with the cat being a strict carnivore, cats can efficiently digest cooked starch (Kienzle 1993).

Water

Water is a vital component of an animal's body, constituting a significant percentage from birth throughout adulthood. Essential for life, water is involved in all major physiological functions, serving as an ideal medium for transporting nutrients and waste, facilitating metabolic processes, regulating body temperature, and providing lubrication to vital structures like joints, eyes, and the inner ear. Despite their reputation for drinking little, cats require free access to water at all times to prevent dehydration and mitigate the risk of urinary tract issues associated with excessive urine concentration. While drinking is a primary source, water also comes from food and metabolic processes, highlighting its crucial role in maintaining overall health and well-being.

Cats can concentrate urine more than either dogs or humans and can rehydrate drinking seawater (Wolf, 1959). Cats are slower to initiate drinking or to drink enough for complete rehydration than dogs who, when dehydrated, will drink enough to replenish 6 percent of their body weight in an hour compared to the 24 hours that it takes for cats. This weak thirst drive of cats results in an intake of only about 2 mL of water for every gram of dry food ingested and an increased risk of urolith formation as compared to cats fed food containing more water, such as a canned food containing 78-82 percent water.

Proteins

Proteins, on the other hand, are fundamental building blocks of the body, comprising amino acids arranged in specific chains that dictate their functions. Derived from dietary sources, amino acids play diverse roles in synthesizing proteins necessary for organ and tissue repair, molecular transportation, inter-organ communication through hormones, and immune response via antibodies. Animal products like Real sardine, mackerel, chicken serve as rich sources of proteins. The demand for protein varies based on physiological conditions like growth, gestation, lactation, or physical activity, cats utilizes 30-35% of dietary protein specifically to maintain the health of their skin and coat.

The elevated protein requirement for maintenance results from the inability of the amino acid and amino acid nitrogen catabolic enzymes in the cat's liver to effectively down-regulate in response to reduced dietary protein intake. Conversely in other species, when low-protein diets are fed, the activity of these enzymes declines (i.e., is downregulated), which allows for the conservation of amino acids for whole-body protein synthesis and results in lower amounts of nitrogen to be produced via the urea cycle (Schimke *et al.*, 1962). This adaptive mechanism is a distinct advantage because it allows to conserve amino acids while consuming low-protein diets.

In addition to the inability of the cat's protein-catabolizing enzymes to down-regulate in response to reduced dietary protein, the enzymes involved in nitrogen catabolism function at relatively high rates of activity. This metabolic state causes the cat to catabolize a substantial amount of amino acids after each meal, regardless of its protein content. Thus the cat does not have the capability to conserve nitrogen from the body's general nitrogen pool and has a

higher urinary obligatory nitrogen loss when fed low-protein (or protein-free) diets (Szepesi *et al.*, 1967). The only alternative that ensures adequate conservation of body protein stores is the consistent consumption of a diet containing high levels of protein. Recent studies have shown that although cats do not adapt to low-protein diets, they do efficiently adapt to medium- and high-protein diets. This appears to occur via increased liver mass, increased delivery of substrate to urea cycle enzymes, and to allosteric regulation of rate-controlling enzyme activities. It can be theorized that because of the cat's strict adherence to a carnivorous diet, it experienced little selective pressure throughout its evolutionary history to develop metabolic adaptations to low-protein diets. Additionally, a high rate of gluconeogenesis from amino acid catabolism would provide endogenous glucose to an animal that evolved to ingest a low-carbohydrate diet, thus having selective advantage. Additional benefits of this ability are realized in times of starvation; carnivores are better able to immediately maintain blood glucose concentrations compared to omnivorous species (Morris 2002).

Fat

After proteins, animal fat is the cat's second most important source of energy and an important nutrient for the body. For example, salmon oil provides the cat essential Omega-3 and Omega-6 fatty acids, which affect the health of the cat's skin and fur, as well as the functioning of the kidneys.

Carbohydrate and fiber

A cat does not benefit much from carbohydrates in its diet, because its digestive system is based on processing food containing animal protein and fat. Instead, the cat needs some fibre for the normal functioning of its digestive system and to facilitate the passage of hairballs in the intestines. Among carbohydrates, especially sugar is not part of a cat's diet and can cause digestive problems and obesity. Especially fructooligosaccharides (FOS) and mannan-oligosaccharides (MOS) are cat-friendly fibers that act as natural prebiotics. Prebiotics help promote the balance and health of the cat's intestinal microbiota, as they are food for good intestinal bacteria. When added to cat food, FOS and MOS support the passage and digestion of food in the intestines and help strengthen the cat's immunity

Taurine

Cats are able to synthesize only small amounts of taurine and so require a dietary source of taurine to meet daily needs. This inability is partially the result of the cat's low activity of two enzymes that are essential for taurine synthesis: cysteine dioxygenase and cysteine sulfinic acid decarboxylase. In addition, the competing pathway of cysteine catabolism, which produces pyruvate and sulfite rather than taurine from methionine and cysteine, is very responsive to increased cysteine concentrations (Morris *et al.*, 1992). (see Figure - 1). Feeding cereal-based dog foods to cats can be harmful; such foods have lower protein and taurine levels and can cause protein and taurine deficiency.

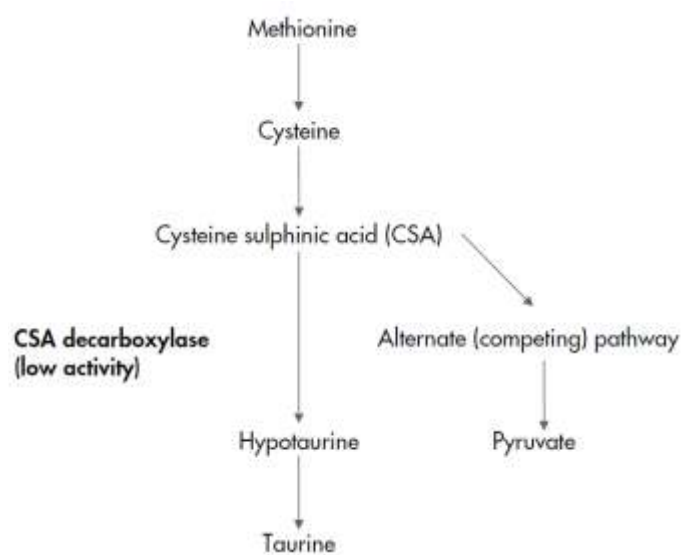


Fig.1 - Taurine synthesis and metabolism in cats

Cats' Inability to Convert Tryptophan to Niacin

The requirement for the B vitamin niacin is met in most animals through both the consumption of dietary nicotinamide and through the conversion of the essential amino acid tryptophan to nicotinic acid (Figure -2).

The efficiency of conversion of tryptophan to niacin varies among species but is generally quite low (3%). This is a result of the existence of more dominant competing pathways of tryptophan metabolism. A branch point in the pathway involved in tryptophan catabolism results in the synthesis of either quinolinic acid or picolinic acid. Quinolinic acid is further metabolized to form niacin; picolinic acid is converted to glutarate. Although most species have high levels of picolinate carboxylase activity that result in a higher production of picolinic acid, a substantial amount of niacin is still produced from the quinolinic acid branch. The activity of picolinate carboxylase in

cats is 30 to 50 times higher than its activity in rats, resulting in negligible niacin

synthesis from tryptophan in the cat (Ikeda *et al.*, 1965).

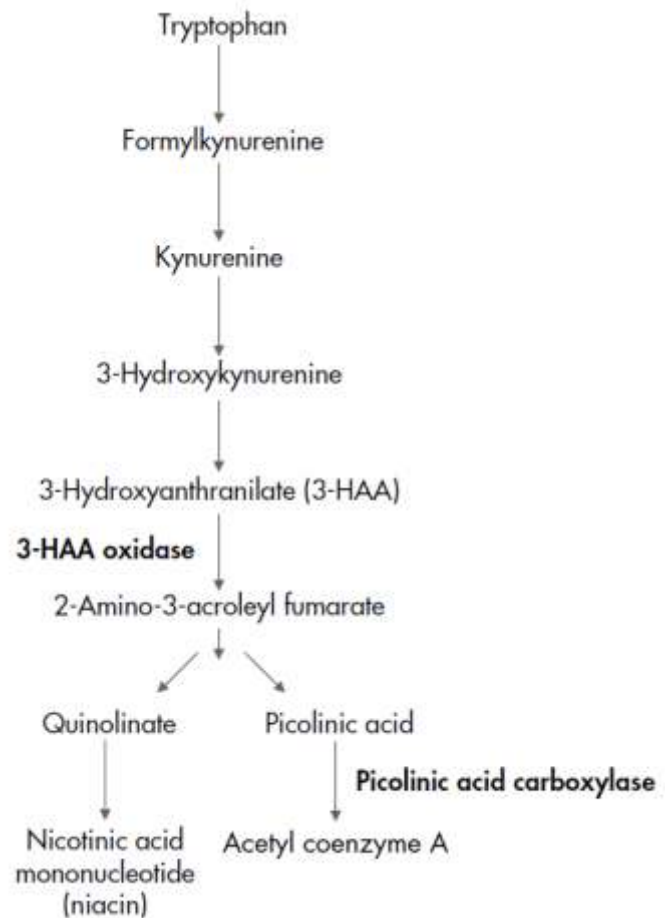


Fig.2 - Niacin synthesis

Vitamin A

All animals have a physiological requirement for the active vitamin A (retinol). However, most mammals, including the dog but with the exception of the cat, have the ability to convert vitamin A precursors to active vitamin A. Carotenoid pigments, of which betacarotene is the most important, are cleaved by a dioxygenase enzyme in the intestinal mucosa to yield vitamin A aldehyde (retinal). Retinal is then reduced by a second enzyme to form active vitamin A (retinol). Retinol is esterified to fatty acids and absorbed into the body along with dietary fat. The dioxygenase enzyme that is essential for the splitting of the beta-carotene molecule is either absent or grossly deficient in the domestic cat. Studies have shown that neither dietary nor intravenous beta-carotene can prevent the development of vitamin A deficiency in the domestic cat. As a result, the cat must have a source of preformed vitamin A present in the diet (Gershoff *et al.*, 1957)

Because cats cannot convert carotenoid pigments to active vitamin A, the requirement is expressed in units of retinol for cats. The NRC's recommendations for cats suggests an AI of 200 µg retinol/1000 kcal of food for growing kittens and adult maintenance, and 400 µg/ 1000 kcal during pregnancy and lactation. The recommended allowances are 250 µg and 500 µg, respectively.

Vitamin D

Cats have a limited ability to convert 7-dehydrocholesterol in the skin to vitamin D3 and therefore are dependent upon a dietary source of this essential vitamin. Studies with cats have found that this inability is caused by a high activity of the enzyme 7-dehydrocholesterol-delta-7-reductase, which catalyzes the conversion of 7-dehydrocholesterol to cholesterol. Because cats rapidly convert 7-dehydrocholesterol to cholesterol, they have

limited capacity for synthesizing cholecalciferol and, ultimately, active vitamin D (How *et al.*, 1994)

Vitamin E

A naturally occurring deficiency of vitamin E is not common in cats. However, the ingestion of poorly prepared or poorly stored foods or supplementation with large amounts of PUFAs can precipitate a relative deficiency of this vitamin A condition called *pansteatitis*, or “yellow fat disease,” occurs in cats that are fed diets containing marginal or low levels of vitamin E and high amounts of unsaturated fatty acids. Signs of *pansteatitis* include anorexia, depression, pyrexia (fever), hyperesthesia of the thorax and abdomen, a reluctance to move, and the presence

of “swollen fat.” A diet that contains high levels of fish oil may cause a threefold to fourfold increase in a cat's daily requirement for vitamin E (Gaskell *et al.*, 1975)

Essential nutrients of cats and their sources-

Nutrients	Name of nutrients	Sources of nutrients included in Drooms
Macronutrients	Protein, fat	Real sardines, Mackerel, chicken, Fish oil, soya oil.
Essential fatty acids (omega 6)	Linoleic acid, arachidonic acid	Fish oil, soya oil, fortified omega 3 and omega 6 fatty acids.
Essential fatty acids (omega 3)	Alpha-linolenic acid, eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA)	
Amino acids	Arginine, lysine, histidine, leucine, isoleucine, valine, threonine, tryptophan, methionine, phenylalanine, taurine	Real sardines, Mackerel, chicken.
Minerals	Macrominerals: calcium, phosphorus, magnesium, sodium, potassium, chloride; and trace elements: copper, iron, iodine, manganese, selenium, zinc	Organic minerals
Vitamins, fat soluble	A, D, E, K	Fortified vitamins
Vitamins, water soluble	Thiamine, riboflavin, niacin, pantothenic acid, B6 (pyridoxine), biotin, folic acid, B12 (cobalamin)	
Vitamin-like substances	Choline	
*Nutrient Research Council (2006)		

Antioxidants

Antioxidants in cats neutralize harmful free radicals, supporting cellular health and immune function. They promote healthy ageing and help maintain skin, coat, and eye health. Drools includes a natural antioxidant source, such as rosemary extract, which helps scavenge free radicals and protect cells from oxidative damage. By including antioxidants like rosemary extract in a cat's diet, it can mitigate the effects of ageing and support their immune system, contributing to overall well-being.

Milk intolerance

As cats reach maturity, their ability to digest milk and other dairy products decreases because of decreased lactase activity in the intestinal mucosa. Similarly, it is thought that very young animals have low levels of sucrase, which indicates that oral sucrose solutions are not recommended for very young or orphaned kittens.

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Appeal to PPAM Members to Renew Membership

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PPAM Annual Day Event held on 14.01.2024



27th annual DAY

Dear PPAM Members,
Welcome to 2024!

It is a pleasure to invite all of you to 27th Annual Day of PPAM on Sunday, 14th January 2024.

This event is free for all PPAM members and their family members.

RSVP: Dr. Savita Tambekar (9820876218) or Dr. Subhas Rane (9323699887) on or before 10th January 2024.

Kindly note that RSVP is a must for this event.

Event Date: Sunday, 14th January 2024

Venue: 6th Floor, Concorde Hall, Peninsula Grand Hotel, Sakinaka Junction, Lokmanya Tilak Nagar, Andheri East, Mumbai, Maharashtra 400072 (Near Sakinaka Metro Station)

Schedule:

6.30 pm to 7.15 pm -	Key Speaker - Mr. Anurag Jadhav - (The Memory Coach)
	Topic - Improving the Memory Skills for Vets and Students
7.15 pm to 7.30 pm -	Interactive Session
7.30 pm -	Publication of PPAM Diary/Directory 2024 and PPAM Bulletin
7.40 pm -	Fun Games / DJ
8.00 pm -	Dinner
10.30 pm -	Event Closure

Enjoy and Take Care!

PPAM Managing Committee
noctppam@gmail.com



Annual Day Haldi Kunku Function held on 14.01.2024



Official Add : Shop No 1, Bramhandev CHS, Padmabai Thakkar Road, Shivaji Park, Mahim, Mumbai 400 016.

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