Module 1: Krill Oil in Canine and Feline Medicine

Phospholipid Delivery, Astaxanthin, Joint Support, and Erythrocyte Monitoring

Speaker Notes Summary and Self-Assessment Quiz

Key Teaching Points

• Dogs and cats have limited conversion of ALA to EPA and DHA. Direct marine sources are required for meaningful EPA/DHA status.

• Phospholipid-bound omega-3s (as in krill oil) are absorbed via a different pathway than triglyceride-bound forms and can raise the Omega-3 Index more efficiently at matched EPA+DHA doses in some canine studies.

• Astaxanthin co-localizes with EPA/DHA in krill oil. Proposed mechanisms include NF-κB suppression, MMP inhibition, and mitochondrial ROS scavenging. Most mechanism data are from in-vitro or rodent models; interpret species carefully.

• The Omega-3 Index (erythrocyte EPA+DHA percentage) is available for dogs via OmegaQuant. It provides a useful baseline and serial monitoring tool. No validated feline equivalent is currently in wide clinical use.

• NRC 2006 safe upper limit for combined EPA+DHA in dogs is 370 mg per kg^0.75 per day (total from food + supplements). No NRC safe upper limit has been established for cats.

• When recommending supplements, account for EPA+DHA already present in the diet, verify product COAs for potency and oxidation, and monitor for gastrointestinal tolerance.

Self-Assessment Quiz

Select the best answer for each question. Answers appear at the end.

1. Why do most dogs and cats require a direct marine source of EPA and DHA rather than relying on ALA?

A. ALA conversion efficiency is high in both species

B. Conversion of ALA to EPA/DHA is limited in dogs and cats

C. Marine sources contain only ALA

D. ALA is toxic to companion animals

2. Which delivery form of omega-3s has shown higher Omega-3 Index responses in some canine studies at matched EPA+DHA doses?

A. Triglyceride-bound fish oil

B. Ethyl ester concentrates

C. Phospholipid-bound krill oil

D. Free fatty acid forms only

3. The NRC 2006 safe upper limit for combined EPA+DHA applies to:

A. Dogs and cats equally

B. Dogs only (no feline limit established)

C. Cats only

D. Neither species

4. The Omega-3 Index used for monitoring in this module is measured in:

A. Plasma free fatty acids

B. Erythrocyte membranes (dogs; OmegaQuant)

C. Serum triglycerides

D. Adipose tissue biopsies

5. Astaxanthin mechanisms discussed (NF-κB, MMP inhibition, mitochondrial ROS scavenging) are primarily supported by:

A. Large randomized canine clinical trials only

B. In-vitro and rodent-model data (interpret species carefully)

C. Feline-specific RCTs

D. Epidemiologic human studies only

Answer Key

1. B
2. C
3. B
4. B
5. B

These materials are for educational purposes only and do not constitute veterinary medical advice for any specific patient.