

PRACTICAL INTEGRATIVE VETERINARY CARE

W. Jean Dodds, DVM



Murphy's Oil Soap



❖ Lemon Scented Wood Floor Cleaner

- Used widely as cleaner for surfaces, artists and paint brushes, horse tack and utensils
- Also for spot cleansing dry flakey skin and dandruff on companion animals (dogs, cats, horses)
- Wet the areas, apply Murphy's undiluted; gently massage the lather into the skin with your fingers; leave on for 5-10 minutes; gently rinse off. Repeat as often as needed to soothe the skin and scratching.

Contains: potassium vegetable oil base, and no phosphates, plus sodium EDTA, propylene glycol, lemon fragrance, surfactants and water



Green Tea (*Camellia sinensis*)

Tannins and polyphenol catechins in tea are anti-inflammatory and anti-microbial

- Green tea more effective than white or black tea as it releases activity faster
- Use as decoction (quick boiling of plant or herb for medicinal use) or as infusion
- For itching, irritated belly, or licking of feet, make **green tea bag poultice**; make tea, let it cool, take the wet (not dripping wet) tea bag or thin washcloth dipped in the tea and place it over the area for about 5 minutes. Repeat as often as needed
- Add green tea to pet's meals twice daily (1/4 cup per 20 pounds)
- Bathe pets with bad skin in tea 3 times a week
- Used in humans with SLE (lupus); for periodontal disease, osteoarthritic pain, helps angiogenesis (less scarring, heals faster)



Other Teas for Medical Uses

- ❖ **Pigment (anthocyanin)** -- color intensity enhances anti-oxidant capacity
- **Rooibos tea** – for stroke; also for headaches, insomnia, asthma, eczema, hypertension, and allergies. Free of caffeine and low in tannins
- **Sage tea** – anti-colon cancer
- **Cinnamon tea** – high anti-oxidant properties
- **Fennel tea and seeds** – good for IBD/IBS (gas , bloating, abdominal cramps). Not for seizure patients (neurotransmitter)
- **Bacopa monnieri tea** – sharpens mind and intellect; inhibits tumor necrosis factor-alpha (TNF- α) and interleukin 6 (IL6)



More Teas

- **Mullein tea** – for coughs and upper respiratory issues. Helps pets with partial or collapsed tracheal rings. Brew strong mullein tea (1 cup boiled water and 1–2 teaspoons of dried mullein leaves or flowers); steep for 10–15 minutes. Drink or add to food daily, as needed
- **White & Black tea** – for inflamed Shar Pei wrinkles; also for diarrhea
- **Hibiscus tea** - for high blood pressure and cholesterol, upset digestion, avian influenza, liver disease, and reduces cancer risk
- **Chamomile tea**- protects skin, lowers stress, regulates sleep, boosts immune system, treats bowel issues
- **Calendula tea or lotion**- for sore throat and mouth, cancer, stomach and duodenal ulcers. Apply to skin to soothe, reduce pain and swelling



Cranberry Fruit Extract

Cranberry (*Vaccinium macrocarpon*)

- High in antioxidants, called proanthocyanidins
- Lowers urine pH
- Coats the bladder lining
- Anti-microbial
- Anti-cancer
- Available for pets; dose 475 mg for 25-50 pounds



Turmeric (*Curcuma longa*)

Turmeric tea and root –

- Use like other medicinal teas
- Orange colored member of ginger family
- Potent anti-oxidant and anti-inflammatory
- Anti-microbial
- Protects against certain cancers, treats osteoarthritis, supports liver, gut, and heart health, pain relief, may prevent cataracts, benefits those with IBD/IBS and allergies, lowers blood sugar, and may help prevent Alzheimer's disease in people
- Potentiated by black pepper , but do not use it with black pepper in dogs – can have severe reaction



Licorice

Licorice (*Glycyrrhiza glabra*)

- For leaky gut and other digestive issues including stomach ulcers, heartburn, colic, and chronic gastritis
- Treats prostate cancer
- For eczema
- For adrenal fatigue
- Anti-depressant
- Can use as a tea



Taurine & DMG

Taurine – amino acid that inhibits neurotransmission, so benefits seizure patients

- Dose = 200-1000 mg daily based upon pet size

DiMethylGlycine (DMG) – used for refractory seizures in infants and pets

- Also used to enhance athletic performance, treat immune deficiency disorders, cancers, and cognitive disorders
- Note: Do not give supplements containing Rosemary, Oregano, Fennel or Sage to epileptics = neurotoxic potential
- Also, no **spinosad** (Comfortis; Tri-Fexis), **afoxolaner** (NexGard), **fluralaner** (Bravecto), and **sarolaner** (Simparica) for flea and tick control.



Ginger

Ginger (*Zingiber officinale*)

- Helps digestion
- Reduces arthritic pain
- For nausea, gas
- For cough, bronchitis
- Appetite stimulant
- Anti-cancer
- Can use as a tea



Unsweetened Applesauce + Antacid

Very Useful



- Unsweetened apple sauce given to pets at bedtime helps neutralize nighttime accumulation of gastric acid
- Follow it in the morning with an antacid like famotidine (Pepcid) or licorice, 30 mins before breakfast
- Helps prevent and control low-grade morning gastritis



Slippery Elm Powder

Slippery Elm (*Ulmus rubra*) Bark

- Demulcent (muco-protective agent)
- Can use as a tea
- Soothes stomach and intestinal lining, reducing irritation
- Soothes throat and cough
- Reduces bladder irritation
- For heartburn and esophageal reflux



Other Supplements

- **Apple Cider Vinegar** – unfiltered, unpasteurized; place on wounds or in food
- **Dandelion root** -mild appetite stimulant, improves upset stomach and digestion. Mild laxative, may improve liver and gallbladder function
- **Tea Tree Oil (*Melaleuca alternifolia*)** – potentially toxic, especially if used undiluted on wounds or sores
- **Cinnamon Bark**– potent polyphenol anti-oxidant, anti-inflammatory, lowers blood glucose/ anti-diabetic, reduced risk of heart disease, high blood pressure and cholesterol, helps prevent cancer, neuroprotective
- **Clove oil**- for diarrhea, hernia, bad breath, intestinal gas, nausea, and vomiting. Applied to gums for toothache



The Picture of Optimal Health



Epigenetics

Programming for Health and Longevity

- Studies the genome as programmed for health & longevity
- Provides insights into metabolic regulation
- Involves mechanisms of development, parental gene imprinting, and metabolic programming beyond genetic control
- Modulates gene expression throughout life



How do Gene Expression and Epigenetics Relate to Oxidative Stress & Cancer?



Cellular Oxidative Stress & Chronic Disease

- Oxygen-derived **free radicals** cause cell toxicity
- Even in healthy state, ~ 25% of oxygen forms free radicals
- In unhealthy states, up to 75% of oxygen becomes free radicals
- Common causes : toxemia, infections, hypoxia-ischemia, hyperglycemia, xenobiotics (drug metabolism), hyperlipidemias, hyperproteinemias, cancers, phagocytic and immune reactions, and high metabolic rates
- Aging tissues under oxidative stress

(Mandelker, JAHVMA, 41:22-24, Winter , 2016)



Creating Diets Based on Epigenetic Factors

- Diets for individual animals should be designed and tailored to their genome or genomic profile (**i.e. Nutrigenomics**)
- To optimize physiological homeostasis, disease prevention and treatment, & productive, athletic, obedience or reproductive performances
- Diet can be serious risk factor for a number of diseases
- This approach **individualizes dietary intervention to prevent, mitigate or cure chronic diseases**



Canine Nutrigenomics: The New Science of Feeding Your Dog for Optimum Health

W. Jean Dodds, DVM
Diana R. Laverdure, MS

Dog Wise Publishing
Wenatchee, WA

2015



Ideal diets include “Superfoods”

What are they and how do they function ?



Nutrition is the most important factor for human and animal health



Functional Superfoods

- **Functional superfoods** are nutrient-rich whole foods that provide optimal well-being
- They include certain botanicals, amino acids, vitamins and plant phytochemicals that activate disease-fighting genes and suppress genes that promote disease
- Since each individual has a unique genome, a food benefiting one might *not* create the same effect for another -- could even prove harmful
- Commercial prescription diets might work for certain subsets of animals, but are not individualized



Dietary Effects of Soy Protein

- ❖ Effects on thyroid function (inhibits thyroid peroxidase)
- ❖ Soy is a phytoestrogen; concern for dog diets [skin, hair coat, immune response, delayed puberty, infertility]
- ❖ Peas and flaxseed are also phytoestrogens -- present in many pet foods



LECTINS are found in all foods

- present in certain foods more than others.
- same food may contain different amounts of lectins depending upon how processed, when and where grown, and the species of plant.
- foods and their oils contain lectins, including wheat (a gluten); soy (a phytoestrogen); and especially corn (often genetically modified origin = GMO).
- but *not* all lectins are toxic.
- cooking foods thoroughly destroys much of the harmful lectins.
- cause flatulence.



Variety of Lectins



Thyroid Function, Diet & Behavior

Foods/Supplements important for thyroid function:

- **Soy** – dietary goitrogens, but anti-thyroid effect protected by iodine
- **Iodine** – vital to thyroid function; excess and deficiency are occur
- **Zinc** – critical to immune function, and health of skin
- **Selenium** – protects against oxidative damage; boosts immunity
- **Vitamin E** – neutralizes free radicals; protects against cancer, aging
- **Vitamin B-6 (pyridoxine)** – keeps CNS healthy, aids RBC function
- **Vitamin D** – balances cellular and humoral immunity, regulates insulin and glucose

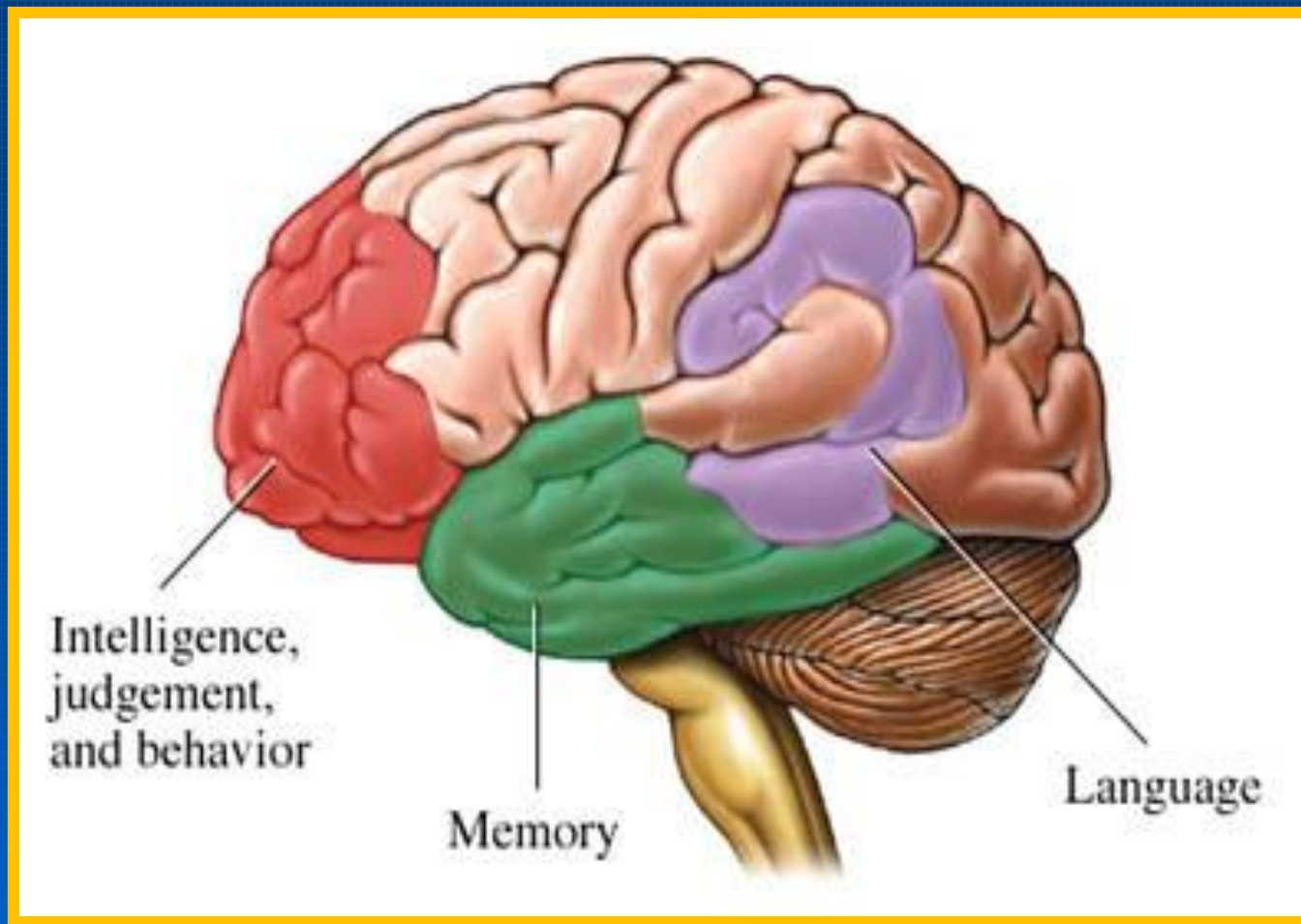


Dietary-Induced Hyperthyroidism

- ❖ In humans, excessive consumption of meat contaminated with thyroid tissue has resulted in exogenous hyperthyroidism
- ❖ Throat /gullet in raw meat fed to dogs & cats causes hyperthyroidism; first recognized in 2012
- ❖ Dietary hyperthyroidism can be seen in dogs or cats fed red raw meat diet or fresh or dried gullets (which include thyroid tissue). High circulating T4 concentration in a dog or cat, with or without signs of hyperthyroidism, should prompt a review of the dietary history.
- ❖ Clinical signs are readily reversed upon removing the thyroid-contaminated food or treats.



Brain Health, Memory & Cognition



BRAIN HEALTH & MEMORY

10 foods for Brain Health and Memory

- **Leafy greens** (folate, vit. B 9) - kale, spinach, collard and mustard greens
- **Cruciferous vegetables** (folate, carotenoids) - broccoli, cauliflower, bok choy, Brussel sprouts, kale, turnips, mustard and collard greens, watercress
- **Beans/ legumes** (choline)
- **Whole grains** (gluten-free = quinoa, millet, rice, soy, corn, flax, TEFF, tapioca)
- **Berries/cherries** (anthocyanins, antioxidants, vit. C & E)



Brain Health & Memory

10 foods for brain health and memory (cont'd)

- **Omega 3 fatty acids** (anti-oxidant, anti-inflammatory)
- **Yellow Squash, asparagus, tomatoes, carrots, beets** (folate, vit. A, iron)
- **Nuts** (omega fatty acids, vit. E & B6, folate, magnesium)
CAUTION macademia, walnuts are *unsafe* for pets
- **Seeds** (zinc, choline, vit. E)
- **Spices** (anti-oxidant, anti-inflammatory)



Brain Health & Memory

Other Superfoods

- **Eggs** - high in quality protein and choline for brain and memory
- **Kiwis** - antioxidant-rich, vit. A, C & E, potassium, high in fiber
- **Quinoa** - high in protein and fiber, iron, zinc, vit. E, selenium
- **Salmon** - high omega-3 and iron, low calorie and low saturated fat
- **Sweet Potatoes** - high in vit. A & C, calcium, potassium



Canine Cognitive Dysfunction



Improving Cognitive Function

Nutrients of benefit include:

- Milk thistle and SAME (S-adenosylmethionine)
- Phosphatidylserine & Phosphatidylcholine
- Medium-chain triglycerides (MCTs)
- DHA and EPA omega-3 fatty acids
- Anthocyanins (pigmented foods)
- Avoiding Glutens
- Avoiding carbs with high Glycemic Index



Milk Thistle and SAMe

Silibinin (milk thistle extract) prevents impairment of both short-term memory and recognition memory

- prevention for cancer as well
- works as antioxidant, protects brain from oxidative damage

SAMe (S-adenosyl methionine)

improves neuron membrane fluidity

- increases serotonin and dopamine metabolites
- reduces effects of depression in people
- may help Alzheimer's patients



Phosphatidylserine (PS)

- Phospholipid primarily from soy lecithin
- Beneficial effects for dementia and cognitive dysfunction
- Commercial animal products combine PS with ginkgo biloba, vit. E, pyridoxine (vit. B6) and grape-skin extract
- Improves canine cognitive function, decreases sleeping problems, apathy and disorientation
- Increases playful behavior and response to commands



Phosphatidylcholine

- Phospholipid choline is critical for cell membrane structure and function
- Increases production of acetylcholine
- Helps reverse signs of cognitive and other neurological disorders of aging pets



Medium-Chain Triglycerides (MCTs)

- MCTs, like coconut oil, break down and absorb rapidly, unlike fats; quick source of non-carbohydrate energy
- Readily cross blood-brain barrier, supplying 20% of brain energy requirement
- Important for ketone production
- Help body use omega-3 fatty acids more efficiently
- Helps age-related cognitive decline by providing alternative source of brain energy



DHA & EPA Omega-3 Fatty Acids

- Fight obesity, decrease inflammation, combat arthritis and cancer, and promote overall health
- Benefit neurotransmission and cognition, plus brain health and structure, since the brain contains up to 60% fat
- Used together to benefit mood
- EPA from marine sources such as fish oil decrease the cytokines of depression
- Individuals reactive to white fish (including sardines and herring) or salmon oils can use krill oil, anchovy oil, and plant oils (olive, moringa, sunflower, safflower, hemp)



Anthocyanins (pigmented foods)

- Give berries their rich pigment; antioxidants; also benefit cognitive health of senior dogs
- Most potent is **aronia**, the chokeberry. Greater antioxidant than all other berries; anti-cancer; anti-bacterial, anti-viral and even anti-diabetic; and anti-inflammatory



Avoiding Glutens

- Protect brain function in geriatrics and those with gluten intolerance by **avoiding wheat, barley, rye, oats unless labeled gluten-free, kamut, spelt, and couscous**
- Linked with impairment of brain function, including learning disabilities, attention-deficit-hyperactivity disorder, and memory problems
- Gluten sensitivity may manifest exclusively as a neurological disease



Avoiding Carbs

With High Glycemic Index (GI)

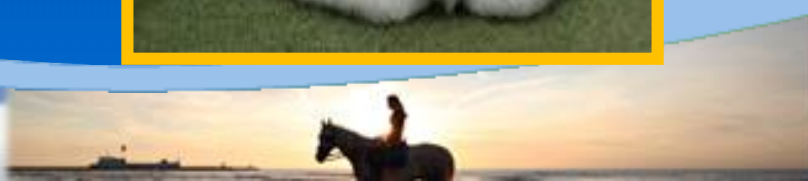
- Impaired glucose metabolism caused by sugary foods can promote brain starvation, leading to memory problems, like canine cognitive dysfunction
- Foods with high GI can also lead to hunger-related behavioral problems
- Simple carbohydrates digest and absorb quickly (hence rapid rise and fall in blood sugar concentrations), so pets feel hungry again quickly



Overweight = Increased Health Risk

- **Cardiorespiratory diseases:** airway obstruction in short-nosed breeds, and laryngeal paralysis
- **Endocrine disorders:** hyperadrenocorticism (Cushing's disease) and hypothyroidism
- **Functional alterations:** decreased respiratory capacity, exercise intolerance, heat intolerance/stroke and decreased immune functions
- **Metabolic abnormalities:** Lipid disorders like hyper- and dys-lipidemia
- **Neoplasia :** transitional cell carcinoma (TCC) of bladder
- **Orthopedic disorders:** osteoarthritis, anterior cruciate ligament (ACL) rupture, and intervertebral disk disease (IVDD)
- **Urogenital system conditions:** UTI, bladder stones





Oxidative Stress & Chronic Inflammation = CANCERS

Background

- Cancer responsible for half of canine and feline deaths in the USA
- Leading cause of death in dogs older than two years
- Why do some individuals get cancer ?
- Estimated 5 -10% of all cancer cases originate from genetic predisposition, **but** 90-95% are the result of lifestyle & environmental factors



Predisposing Factors & Cancer

- **Obesity**
- **Foods with high Glycemic Index (GI)**
- **Glutens** (release zonulin from bowel)
- **Fluoride** (accumulates in bones; osteosarcoma risk)
- **Environmental toxins**
- **PBDE (polybrominated diphenyl ethers)** (flame retardants; especially toxic for cats)
- **Secondhand smoke**
- **Topical flea/tick preventives**
- **Adverse vaccine reactions**



Diet & Cancer

Dietary changes can prevent 30-40% of all cancers

- Remove harmful foods that block effects of functional foods
- Promote DNA methylation (turmeric = curcumin, folate, cruciferous vegetables, SAMe, vit. B-12)
- Green leafy & yellow orange vegetables
- Herbs & Ginger
- Milk thistle (*Silybum marianum*); has active flavonoids
- Berries (blueberries, cranberries, aronia); Pomegranates
- Medicinal Mushrooms
- Prebiotics (Spirulina) & Probiotics
- Vitamin D
- Omega-3 fatty acids



If I had my life to live over...

I would have found you sooner so
I could love you for longer.

