

LEVEL I AVIAN COURSE FOR VETERINARIANS AND TECHNICIANS

HOW TO USE THE Avian Physical Examination Form

For years, we have all been told that birds hide symptoms of illness. But this is not really true. Up until now we have not made fine enough distinctions between physical characteristics or behavior to notice the very early signs of disease. Nor in the past did we study the components of the intestinal flora or deviations from the normal individual's baseline data, both of which allows us to note the very early trends in body function.

During the development of Harrison's Bird Diets, we closely examined thousands of birds and compared the physical attributes of healthy, wild-caught birds to those of birds on a variety of captive diets. Discriminations between healthy and less-than-healthy began to emerge as early signs of illness. It also became apparent that the clinical signs we are familiar with in the classic "sick" bird are actually *advanced* signs of a dying bird. Is it no wonder then that treatment attempts in these birds are frequently unsuccessful?

Obviously, it would be to everyone's advantage to be able to intercept the progression of a disease at the earliest possible point and to correct and reverse the trend. In all species, preventive medicine is much more rewarding to the practitioner and client/patient alike. It's exciting to think this approach may now be more available to avian veterinarians with an accompanying enhancement of public image.

The Avian Physical Examination (PE) Form is designed to assist you in refining observational skills. In using the form, frequent "yes" answers indicate serious overall problems in the bird and the need for further diagnostics. In the case of the beginning veterinarians, this means immediate consultation or referral. Apparently healthy birds may be referred for a wellness program (preventive health care) at the convenience of the client. Many veterinarians choose to offer this program of bi-annual physical exam, fecal Gram's stain and attending advice as the best health maintenance program for clients and their birds.

Follow along with the Physical Examination Form as you read these explanations.

DIET

High-seed, fruit and vegetable and carbohydrate diets are not appropriate. Basically, they don't supply the items a healthy bird needs or they dilute a proper diet. Birds that are fed these diets show (or soon will show) signs of malnutrition. Oversupplementation with table food has a similar outcome. High salt items have been associated with increased mutilation incidences. Supplemental vitamins and minerals are seldom consumed unless placed directly in the water, but this route is unsatisfactory because they quickly deteriorate and become toxic pollutants, making them more harmful than useful. Protein and high fat items (meat, eggs, cheese and nuts) are seldom fed in *small* enough amounts

to avoid obesity and an unbalanced diet and should thus be avoided. Exceptions are birds listed on the back of the Harrison's High Potency Coarse bags. Hyacinths, Queen of Bavaria Conures, some Green-winged Macaws, Palm Cockatoos and some other birds may benefit from daily addition of nuts. Recent research shows that malnourishment sets the stage for the weakened to become producers of new strong mutant disease organisms, especially viruses. We have ample clinical evidence to show most behavior problems are associated with high sugar and fat items, thus another reason to avoid nuts, seeds and sweet fruits.

Birds fed an organic formulated diet should also eat only organic fruits and vegetables. Food should not be dunked in the water. Organic foods need to be offered fresh daily and stored in the original bags to prevent rancidity. New food should be tasted and smelled to detect rancidity. Such stale food should not be fed. To assure food freshness, it is best to open the bag of food and use within 4-6 weeks. Powdering and wasting the powder can lead to sorting and selecting bits of food particles and rejecting others – this can lead to eating an unbalanced diet so the amount offered needs to be consumed. Water should also be pure and filtered or bottled due to the high incidence of contaminants in wells and city waters. Many good formulated diets are on the market today. Keeping track of the physical condition of the bird may uncover subtle changes that often justify an organic diet. Birds are reported to do better on an organic formula free of pesticides, preservatives, colors and by-products. Chemicals such as preservatives, coloring and waste by-products commonly found in non-organic bird foods may, over time (2-3 years), lead to symptoms similar to those of malnutrition in general (“yes” answers on the PE form). Birds do not select food based on the color, shape or flavor; manufacturing procedures to alter these factors are performed for the owner only.

HUSBANDRY

The bird needs an enclosure wide enough for it to open and flap its wings without touching the sides. The enclosure needs to be free of accumulated feces and food. Sandpaper perches tend to create bald or sore spots on the feet. A cement perch may assist in keep the nails short but it can also cause sore feet if it is the only perch offered. Fresh branches from fruit, citrus, apple, eucalyptus, Australian pine, northern hardwoods, oak, Melaleuca, aspen or Manzanita are good for birds' feet. Perches need to be kept clean, i.e. scraped with a knife. Feathers that are frequently misted with water are cleaner, stronger and exhibit less dust. Many birds enjoy showers. Birds should not be exposed to pet shows bird shows, bird fairs or other new birds to prevent exposure to diseases. The cage floor should be covered with newspaper or meat wrapping paper – not sand, corncob or shaving type beddings that tend to be not cleaned daily.

TOXINS

Over exposure to insecticides, herbicides, fungicides, preservatives, disinfectants, mycotoxins and rancid food can lead to illness; these should be brought to the attention of the client as things to avoid. Cage and toy parts need to be free of zinc and lead. Burnt Teflon, cigarette smoke and the other chemicals listed can produce toxic fumes and

should be avoided.

MEDICAL HISTORY

Beginning veterinarians should only accept birds that the owner believes are normal. With that in mind, only a cursory history is needed -- more to prevent problems than to uncover problems. More experienced veterinarians will be handling cases with previous treatments or problems often involving the chronic presence of bacteria, yeast, fungi or Chlamydia which are signs of a serious primary problem. Malnutrition is the most common predisposing factor. Poor genetic diversity, viruses, chlamydia, environmental toxins and other stressors, (eg, visual) are also common causes of such stresses.

WEIGHT

Birds must be weighed in grams. Then one must determine the fat, muscle and bone relationships. A healthy bird has a 10-15% fat reserve. Many birds on high fruit & vegetable diets are too thin. Severely underweight (emaciated) birds are usually in the terminal stages of illness. Birds on seed diets are frequently overweight and have obvious fat deposits and lipomas. Alcohol can be applied over feathers to reveal the underlying skin, the presence of emaciation or fatty deposits. The earliest fat deposits are usually seen at the site of the thoracic inlet, on the anterior chest or over the ventral abdomen. The dark muscles of a healthy bird are covered by yellowish-white fat in obese birds.

FEATHERS

After changes in the fecal Gram's stain, the character of the stool, urine and feathers show the critical first signs of the impending disease, especially if due to malnutrition. Birds in early stages of such illness show feathers that:

1. The bird experiences abnormal molts. This is usually only a partial molt and occurs with abnormal frequency. Birds may lose small powder feathers periodically throughout the year. Major feathers (tail, wing) should be molted (lost and replaced with pin feathers) once a year. Many malnourished birds partially molt several times a year and retain most of the large tail and wing feathers as well as rump, breast and neck feathers, which develop the signs that are outlined. A normal molt often occurs when a bird is fed a proper diet. It may take up to (and occasionally over) one year to completely replace abnormal feathers. Abnormal feathers retained a second year following a diet change indicates further evaluation procedures including organ function tests and perhaps biopsy.
2. Feathers are constantly in the developing (pin feather stage). This is actually a form of

- hyperkeratosis, which is an accumulation of over-production of keratin in the surface layers of simple, squamous epithelium or structures derived from this skin layer.
3. Feathers fail to zip (ie, they have saw-toothed edges).
 4. Feathers are broken, bent or malformed.
 5. Some birds have a dust (powder down) that needs to be present (ie. African Greys, cockatoos and to a lesser degree in cockatiels).
 6. Feathers are dull, dirty or stained (may be green-stained around the vent from urine).
 7. Feathers have longitudinal defects in structure (stress lines).
 8. Feathers in malnourished birds are thin and transparent or translucent. When an unhealthy feather is held up to a light, one may be able to readily see through it.
 9. Abnormal feathers often fail to snap back when bent or creased; they remain bent or are damaged; these imperfections may encourage the bird to over-preen, resulting in feather "chewing" or splitting.
 10. Overpreening, picking, chewing and consuming are all forms of mutilation that require diet, health and behavior adjustments.
 11. Feathers are inappropriately colored for the species (pink instead of red, yellow instead of blue, black in green feathers or yellow in white feathers). Such feathers fail to snap back when bent or creased. Such feathers remain bent or are damaged and may encourage the bird to over-preen, resulting in feather "chewing" or splitting. The color patterns of feathers should be vivid, intense and symmetrical.

Most of these problems are related to liver disorders, and the common cause is malnutrition. (The presence of yellow feathers in normal white feathered areas of cockatiels is a sign of liver disease and is just as serious as yellow skin is in humans). Birds that are constantly fluffed up with drooped wings are actually in the later stages of illness or starvation. The presence of parasites or their eggs although rare, needs to be ascertained.

NAILS & BEAK

Nails and beaks in a state of abnormally fast growth require constant trimming. This condition is usually related to liver disease, and malnutrition is a primary cause. The nails and beak (as well as skin and feathers) reflect metabolic disorders early in the disease process. The outer layer of normal nails and beak is shed as the tips wear off; with malnutrition the outer layer is retained leaving a rough, jagged look to the surface. This is a form of hyperkeratosis. If allowed to continue or is complicated by mites the nails can twist and curl.

SKIN

The skin is a critical area to note the first signs of impending disease. Flaky skin is lacking in luster and often leading to itching. Use the fingernail to evaluate peeling (flaking) of the skin covering the feet and legs. The bottoms of the feet are the most

important skin surface to evaluate for pattern breaks and balding areas (pre-bumblefoot). Flaking, hyperkeratotic skin is less able to absorb pressure on the weight bearing surface and tends to rip, tear or wear thin. On the undersurface of the feet this begins as pattern loss, then develops into balding and then ulceration (bumblefoot) and then swelling. Malnourished birds tend to develop slow-healing sores in areas of flexion and stretching. These areas are painful and lead to reluctance to move while the area itself may get over-preened, resulting in cannibalization. Ears, nares, the orifices often become dry and crusty. Examine the ears, nares and eyes for redness.

LIMBS

Many malnourished birds have weak tendons and sit on the hocks. Resulting bald spots are early signs of dietary imbalance. The wings are held in abnormal positions and appear to be painful due to the fragile nature of the ligaments and tendons. Such pain can lead to failure to stretch and preen, leaving long tail feathers bound in their sheaths. Early bone deformities, arthritis and gout can lead to bent limbs, sternum, spine or swollen joints.

BLEEDING

Excessive bleeding could result primarily from liver dysfunction and is most often diet-related. When malnourished cockatiels bang around cages when startled and bleed from wing tips. African Greys may develop "red tears" when restrained, these conditions often respond to vitamin K injections. Chronic bleeding in the digestive system shows as black occult test positive droppings.

SWELLINGS

The differential diagnosis for abdominal swellings may be: tumors (which are believed to commonly be virus-related), liver disease or female disorders. With the exception of tumors, most abnormal swellings such as egg-related peritonitis, can be diet-related. Some toxins in the diet may predispose to tumors; lipomas are diet-related. A bird often requires anesthesia to evaluate swelling of the salivary glands.

RESPIRATORY

Many birds with runny eyes and nares need an oral exam, as oral liths (abscesses) are frequently involved in this condition. Thyroid, abdominal and air sac disorders (mycoplasmosis, chlamydiosis, liver disease, aspergillosis, egg peritonitis) and upper respiratory problems often start from malnutrition. Rhinoliths are often missed on the physical exam. The fine edge of a broken wood applicator or a bent needle can be used to gently probe for these. Rhinoliths can be rock-hard. Use magnification to evaluate this common respiratory occurrence. The conchae are soft and bleed easily. Hyperkeratosis of the respiratory epithelium leads to loss of mucin, thus drying and cracking of the hyperkeratotic epithelium which flakes off causing liths. The cracked surfaces ooze serum that stain the nare feathers or is the perfect media for pathogens to grow in. Treating such problems only with antibiotics, anti-year or anti-fungals is fraught with frequent

recurrences unless the diet is corrected and the months of healing have occurred. Loss of choanal papillae are early malnutrition signs and they frequently never regrow following recover. Infraorbital sinus swelling is associated with lith formation that plugs the sinus draining system. Hyaluronidase (Wyndase) and fluids flushed through the sinus over several days and diet change are a part of therapy, syrngeal liths or foreign bodies are a common cause of voice change or loss. Sneezing is a common problem from respiratory system change from malnutrition but also increases during the early recovery phase as the system starts to regain cleaning function upon diet change. Discharge often shows up as a stain on the feathers over the nare. Liths that are missed or sinus and rhinal problems often become secondarily infected and if ignored the nare will enlarge and the turbinates and chonchae atrophy. Leaving a massive opening. Low environmental humidity is also a cause of dryness, corrected by frequent misting with water.

NEUROLOGIC

Genetics, malnutrition, electrolyte imbalance ie. hypocalcemia, giardia, viruses, chlamydia, lead/zinc poisoning and sarcosporidia are common causes of neurological disorders. The eye blink is tested by using the wispy edge of a cotton-tipped applicator touched gently to the commissure of each eye. Nonresponsive eye blink is common in cockatiels and leads to eye disorders. A weakened jaw is seen as an inability to bite hard or crack sunflower seeds. Poor tongue control is recognized as the accumulation of food and debris in the oral cavity. Both conditions are also common in cockatiels. Signs of impending parathyroid disorders in African Greys are falling off perches and petimal-like seizures and trembling. Cockatiels that "convulse" in the night, fall or self-traumatize when the phone rings may have a nutritional as well as genetic cause.

BEHAVIOR

One must be able to note common early clinical signs of dietary imbalance that express as unusual behaviors: over-eating, over-drinking, constant regurgitation, less talking and playing, biting, or chewing self, others and toys. Many abnormal behavioral characteristics are often appreciated only after the bird's diet is corrected and normal behavior returns. Sexual maturity stimulates many instinctive behaviors that can turn into misbehavior. Most of the preceding birds are spoiled and are acting as the Alpha birds need behavior modification training. Visual barriers, accepted colors, textures and privacy boxes and cuddly items should be introduced or explored.

REPRODUCTIVE

Malnutrition, viruses, chlamydia, mycoplasma, secondary bacteria and yeast are the most common causes of the clinical signs listed. Here again the owner offering high fat (seeds, nuts) and sweets (fruits), rubbing, spoiling and allowing Alpha bird behavior can stimulate a bird to start obsessing with reproductive behavior. Certain toys can become surrogate mates and need to be removed on an alternating basis. Many cockatiels have been selected for their massive egg production, but the frequency of their reproductive disorders proves the need to select companion birds for pet qualities. Aviculturists often fail to keep good reproductive records and as a result showing problems and measuring

improvement becomes impossible.

DROPPINGS

Many birds in the early stages of illness (primarily involving the liver) show mild green in urine (biliverdinuria) and urates (biliverdinurates); often this occurs months to years prior to clinical presentation. The usual cause is malnutrition, although chlamydiosis and viruses are also common causes of illness affecting the liver. Very ill birds show scant feces, pasting of the vent or diarrhea. Normal birds' feces show a pH of 6.8-7.0. Warm fresh feces should be examined for motile protozoa (Giardia). Undigested food is a common symptom of GI disorders. Glucose should be negative even if some feces is in the urine.

GRAM'S STAIN OF THE DROPPINGS

One of the most valuable tests in pet psittacine practice is the fecal Gram's stain, a fast, easy way to assess the general condition of the intestinal "immune system" and to determine if a bird's diet is correct.

Normal birds seen at The Bird Hospital in Lake Worth, Florida show fecal bacteria on Gram's stains with 150 bacteria per oil field including 70% gram-positive (G+) rods, 30% G+ cocci and 0% gram-negative (G-) rods. An occasional yeast (none budding) may be seen. Birds on poor diets may have low total counts (10-40 bacteria per field) showing 90% G+ rods, 9% G+ cocci, 1% G- rods and some budding yeast. Birds with results in between these two counts can either be recovering or getting worse, depending on recent history. For example, two birds may have the same Gram's stain picture even though one may be converting to a good diet in conjunction with lactulose and echinacea remedies (improving) and the other may have been hand-raised on a high quality formulated diet but is now being fed seeds and is actually deteriorating.

The higher the percentage of gram-negative bacteria and yeast, the more important it is to critically evaluate the case. All birds with any abnormality in the fecal Gram's stains need immediate referral to a Level II or higher veterinarian for treatment. After treatment, it is advised to recheck every 2-3 weeks until the Gram's stain has more normal distribution of components. If this fails to occur after 6-12 months, a second referral for evaluation of other internal medical problems, such as pancreatitis, endometritis, is recommended. Clostridium can be seen in some birds normally and are not treated unless enteritis (loose, smelly stool) is evident. (See "Using and Interpreting a Fecal Gram's Stain" to follow. Also see Avian Examiner Number 3.)

OPHTHALMIC

Magnification observation with ample light is a must. Routine procedures such as flourecin staining, Schimer testing and ophthalmoscopic exams used in routine small animal ophthalmology are useful. Corneal, lens and retinal disorders are common. Infraorbital sinus problems often look fine ophthalmic disorders.

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