CALCIUM

The Misunderstood Mineral

By Thomas R. Ryan, D.V.M.
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Calcium and phosphorus are two important minerals in the diet of birds. Calcium- and phosphorus-related problems are not uncommon in pet birds. The deficiency most frequently seen in pet birds fed an all-seed diet is of calcium. Calcium is required in greater quantities than any other mineral and its metabolism is closely intertwined with that of phosphorus and vitamin D.

Calcium is important for the following:

1. The major component of bone and egg shell;
2. Necessary for nerve impulses;
3. Heart rate and blood clotting;
4. Muscle function;
5. Metabolic processes.

Phosphorus is found in bone, egg shell, muscles and is important in the metabolism of fats and carbohydrates. Low calcium can be a result of several things including the following:

1. High phosphorus and magnesium in the diet;
2. Large amounts of fat (such as seen in high oil seeds);
3. Not enough calcium in the diet;
4. High intestinal alkalinity;
5. Calcium complexing with oxalates or phytates in the diet.

It is important to remember that the calcium-to-phosphorus ratio of seeds most commonly included in bird feed range from 1.6 to 1.37. The correct ratio of calcium to phosphorus is 1.5:1 regardless of the species.

Metabolic bone disease (MBD) is a term used to describe a variety of pathologic bone conditions due to calcium-phosphorus-vitamin D3 problems resulting from incorrect diet or diseases of the kidney, liver, intestine, thyroids, parathyroids or bone. Rickets is a form of MBD and is a disease of growing birds characterized by failure to deposit adequate calcium. In the strict sense of the word, rickets is due to a vitamin D3 deficiency. However, many people use the term to denote low calcium absorption. Due to the low calcium levels the parathyroid glands secrete a hormone, PTH, in ever-increasing amounts to compensate for this imbalance. This results in the condition known as Nutri-
tional Secondary Hyperparathyroidism (NSHP). The signs of NSHP initially may be vague and may include the following: dull feathers, slow feather growth after a moult, feather picking, sleepiness, mental dullness, gastrointestinal upset. In advanced cases there may be muscle cramps and involuntary wing flapping. Eggs may be laid deformed or with no shell or there may be a complete failure to lay eggs. Seizures can occur and may be triggered by stress, egg laying, noise, sudden turning on and off of lights or a meal with a high amount of phosphorus.

Treatment: The need for calcium is satisfied by taking in adequate calcium in the diet and by drawing upon the calcium depots (bone) of the bird via parathyroid hormone (PTH). Vitamin D alone should not be used in the treatment of NSHP. Vitamin D does not increase the intestinal absorption of calcium, but increases the blood calcium levels by taking it from the bone. In fact, prolonged vitamin D therapy will completely demineralize the bird unless the diet is corrected. The proper treatment is to correct any dietary problem and if necessary correct the hypocalcemia (low calcium) by injecting calcium gluconate in fortified 5% dextrose in saline into a vein.

Diagnosis of NSHP is done by a combination of signs that the bird is showing, blood tests and X-rays. The best prevention is a good diet no matter what the species.

Palm Cockatoo Registration

The first Regional Studbook for Palm Cockatoos, Probosciger atterimus, will be published and issued during the fall of 1985. Studbook cards are being mailed out now. If you have not been previously contacted and you are now holding Palm Cockatoos in your collection, please contact: Ronald A. Young, Studbook Keeper, Palm Cockatoo, Greater Baton Rouge Zoo, P.O. Box 60, Baker, LA 70704, phone 504/775-3877.

Some successful reproduction is now taking place in the private sector. It is important, therefore, that we identify and register as many of the birds now residing in the country in an effort to keep parentage information clean for the future of the species.

It is advisable that you identify your birds in some way. Tattooing under the wing is permanent. There are also good leg rings on the market made of stainless steel that can be custom stamped. Please contact me for more information.

R.A. Young

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SCHEDULE FOR AFA BOARD OF DIRECTORS MEETINGS
Mark these dates and plan to attend!

November 16, 1985
Redondo Beach, California - AFA Home Office Fall Quarterly Meeting

February 14-17, 1986
Phoenix, Arizona - Holiday Inn and Holidome Winter Regional Meeting

August 6 thru 10, 1986
New Orleans, Louisiana - Fairmont Hotel 12th Annual Convention