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## Vitamin E deficiency

Vitamin E is usually given to poultry as  $\alpha$ -tocopherol in the diet. Diets which become depleted of vitamin E can often induce changes in birds because there is not enough vitamin E to protect cells against oxidative damage, resulting in cell death. The cell membrane is protected from oxidative damage by the selenium dependent enzyme glutathione peroxidase. Thus, there are interactive effects of vitamin E and selenium with regards to cellular viability. Oxidative damage of cells can be associated with encephalomalacia (crazy chick disease), exudative diathesis and nutritional muscular dystrophy in chicks and enlarged hocks and ventricular muscular dystrophy in turkey poults. Nutritional myopathy is seen in ducks.

## Encephalomalacia

Encephalomalacia is a nervous syndrome characterised by ataxia, backwards or forwards retractions of the head and decreased coordination. In the extreme form complete prostration, somersaults and death ensue. The most commonly affected part of the brain is the cerebellum which is swollen, oedematous and reddened due to numerous small haemorrhages.

## Exudative diathesis

Exudative diathesis is manifested as an oedema of the subcutaneous tissues due to an abnormal permeability of the capillaries. In severe cases chicks stand with their legs apart due to the accumulation of fluid under the skin in that region. Distension of the pericardium and sudden deaths can be seen.

## Muscular dystrophy

Muscular dystrophy, also known as nutritional myopathy, is usually seen when vitamin E deficiency is accompanied by a deficiency of the sulphur containing amino acids. Affected muscle in the breast shows lighter coloured streaks.

## Diagnosis & treatment

Diagnosis is by clinical signs plus post mortem findings, including histopathology, confirmed by feed analysis. Treatment in the early stages is by giving vitamin E and selenium in the feed or water. This usually reverses exudative diathesis or muscular dystrophy. If the damage to the brain in encephalomalacia is severe, treatment may not be very successful.

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