Chapter 27 - Management of metabolic disorders (including metabolic diseases) in ruminant and nonruminant animals

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Abstract
Metabolic disorders (including metabolic diseases), either inherited or acquired, result from defective biochemical pathways and deficiencies in enzymes, coenzymes or cofactors. Disorders caused by abnormal carbohydrate metabolism include diabetes, hypoglycemia, ruminal acidosis, ruminal bloat, equine exertional myopathy, hepatic and muscle glycogenosis, diarrhea in sucrose-fed neonatal pigs and lactose-fed chicks, and galactosemia. Disorders caused by abnormal lipid metabolism include fatty acid deficiency syndrome, ketosis in dairy cows, fatty cow syndrome, milk fat depression in dairy cows, fatty liver hemorrhagic syndrome in laying hens, fatty liver and kidney syndrome in chickens, pregnancy toxemia, yellow fat disease, obesity, and gangliosidosis. Disorders caused by abnormal amino acid metabolism include amyloidosis, kwashiorkor, hyperhomocysteinemia, hyperammonemina, gout, edma, anemia, ascites syndrome in broilers, melanosis, and porphyria. Dietary deficiencies of vitamins and minerals result in certain metabolic diseases or disorders, such as beriberi, pellagra, edema, burning-foot syndrome, neural tube defects, scurvy, photophobia, xerophthalmia, keratomalacia, rickets, osteomalacia, liver steatosis, myopathy, liver necrosis, hemorrhage, milk fever, grass tetany, anemia, Keshan's disease, goiter, dental caries, Menke's disease, polioencephalomalacia, and infertility. Acquired deficiency syndromes can be cured by supplementation with the deficient nutrients. Excessive vitamins (particularly lipid-soluble vitamins) and minerals in diets are toxic to animals and must be avoided. Knowledge of metabolic disorders is necessary to enhance the efficiency of animal production.