

# High Energy Diets Affect Broiler Chicken Welfare

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Within the poultry industry, intensive production practices are implemented to maximize economic returns. Air quality, stocking densities and feed/ water availability all have set limits, which have been established to provide a suitable environment. Regulating the feed intake of broiler chickens is not always practiced, but it should also be taken into consideration as a welfare issue.

Broilers are raised on a highly concentrated energy diet to maximize growth rates and reduce the total number of days needed to reach market weight. The feed is available constantly in a pellet form. The intense growth rate which results causes stress on the broilers and can result in metabolic diseases and skeletal disorders. These not only harm the welfare of the broilers, but result in economic losses due to reduced animal performance, mortalities, and condemnations at slaughter plants.

The most common metabolic disease that broilers experience due to excessive growth rates is ascites. Ascites is the excessive accumulation of fluid in the abdominal cavity. It occurs due to an imbalance of oxygen requirements and oxygen intake, which results in increased blood pressure due to hypoxemia like conditions. These conditions result in increased blood pressure (pulmonary hypertension syndrome), which leads to failure of the right ventricle of the heart.

According to Dr. Olkowski of the University of Saskatchewan, the incidence of ascites in broilers has been increasing at an alarming rate, and this condition has become one of the leading causes of mortality and whole carcass condemnations in modern broiler flocks throughout the world. In 2002, the Canadian Food Inspection Agency (CFIA) reported approximately 1.2 million broiler chickens were condemned in Canadian slaughter plants.

Sudden death syndrome, commonly called flip-over disease, also occurs in rapidly growing broilers. This disease occurs more often in males as they tend to grow faster than females. Affected broilers die immediately and collapse on their backs, hence the name flip-over disease. The causes are very similar to ascites where heart failure is the cause of mortality.

Rapid growth rates due to highly concentrated energy feeds increases the occurrence of skeletal disorders. The symptoms range from malformation of the bones found in the legs to abnormalities in the hock or hip joints. Skeletal disorders reduce the mobility of the bird, and as it worsens the broilers often succumb to dehydration and/or starvation. These birds are also more susceptible to crushing, either in the barn or in the trailer going to slaughter. Broilers that survive to reach market weight are most likely condemned at the slaughter plant. The CFIA condemns broilers that have skeletal disorders such as arthritis, synovitis, and valgus/ varus deformities.

The welfare concerns caused by excessive feeding of broiler chickens can be reduced by simple modifications. Decreasing feed intake by changing lighting systems in the barns from constant lighting to lighting periods with some periods of darkness (intermittent lighting) has shown to reduce the occurrences of ascites.

Feed restriction at an early age also reduces the occurrences of ascites and sudden death syndrome. This temporary feed restriction reduces growth at a critical time in a broiler chick's life cycle when it is the most susceptible to metabolic disease due to its high oxygen demands. Final growth rates between broilers fed with no restrictions and broilers fed with a temporary feed restriction are the same.

Feed structure can also reduce intake. Broilers are most commonly fed diets in pelleted form to maximize feed consumption. Broilers fed the same diets in crumble form consume less. Producers can slightly alter growth rates by temporarily substituting pelleted diets with crumble form early in production.

Feeding highly concentrated energy diets without restriction of intake may seem to be the most economically desirable practice in producing broiler chickens, but it increases the occurrences of metabolic and skeletal disease. These diseases not only result in economic losses for the producer, but they greatly affect the welfare of the broilers. Minor alterations in traditional broiler production practices have proven to sustain production and at the same time provide a more desirable living environment.