Effect of glycerol on GHR and IGF-1 gene expression in breast muscle and on growth of Japanese meat quails

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Received January 21, 2013
Accepted July 24, 2013
Published September 23, 2013
DOI http://dx.doi.org/10.4238/2013.September.23.3

ABSTRACT. We evaluated messenger RNA (mRNA) expression of the growth-hormone (GHR) and insulin-like growth factor (IGF-1) genes in 28-day-old Japanese meat quails fed diets containing 0, 8, or 12% dietary glycerol in substitution of corn. Total RNA was extracted from the breast muscle and the DNA was amplified with specific primers using real-time PCR. Feed conversion ratio and feed intake were evaluated. The birds fed 8 and 12% glycerol presented higher IGF-1 mRNA expression [0.059 and 0.049 arbitrary units (AU), respectively] relative to those not fed with glycerol (0.029 AU), while 12% glycerol reduced GHR mRNA expression (0.022 AU). Dietary inclusion of 8% glycerol promoted similar performance results (feed conversion) as the diet with no glycerol. We conclude that inclusion of glycerol in the diet affects GHR and IGF-1 gene expression in Japanese meat quails. However, considering the performance results.
and the expression of the GHR and IGF-1 genes, 8% glycerol may be safely included in the diet of meat quails.

**Key words:** Body growth; Japanese quail production; Nutrigenomics