

Effect of supplementation with linseed and CLA on adipose tissue cellularity of Holstein young bulls

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The aim of this work was to study the effect of whole linseed and conjugated linoleic acid (CLA) diet supplementation on adipocyte cellularity in bulls. Forty eight Holstein bulls were distributed into four feeding groups: Control (C, n=12), fed on corn, barley and soybean meal concentrate; Linseed (L, n=12), receiving the same concentrate but including 10% of whole linseed; Conjugated linoleic acid (CLA, n=12), including 2% of synthetic CLA; Linseed plus conjugated linoleic acid (L+CLA, n=12), including 10% of whole linseed and 2% of synthetic CLA. The four concentrates were isoenergetic (3.34 McalEM/kg) and isoproteic (16.9% CP). Animals were fattened from 239.8±6.61 to 458.6±9.79 kg body weight (322±6.0 d old at slaughter). Bulls of the four groups had similar growth, carcass, and fattening parameters. Subcutaneous adipocyte diameters were similar in the four groups of young bulls (160.0, 160.0, 159.7, 169.4 µm for C, L, CLA and L+CLA, respectively; P>0.05). In the same way, intramuscular adipocyte diameters were similar in the four groups (45.6, 48.1, 43.6, 48.8 µm for C, L, CLA and L+CLA, respectively; P>0.05). The frequency distribution of subcutaneous adipocyte diameters showed a normal distribution in the four groups of animals. However, the frequency distribution of intramuscular adipocyte diameters showed a not normal distribution (skewness coefficients: 0.8, 1.2, 0.9, 0.8 for C, L, CLA and L+CLA, respectively; P<0.05), indicating a possible adipocyte proliferation in this adipose tissue. In conclusion, the supplementation with linseed and CLA had not effect on the cellularity of subcutaneous and intramuscular adipose tissues, which showed a different pattern of development.