

**385 Phenotypical characterisation regarding growth, hormones, and meat quality in bulls of two types of cattle as a source for segregating family structures.**

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The physiological and genetical background for transforming nutrients into body fat in secretion type of cattle or into body muscle in accretion type of cattle is still unknown. For that reason, we designed a study of segregating family structures using a population of Charolais (CH) cattle as a model for the accretion type and a population of German Holstein (H) cattle as a model for secretion type of cattle. In a first step the P0-generation was characterised phenotypically. The results presented in this paper were obtained from bulls starting at birth up to slaughter (18 months of age). 13 bulls of each metabolic type (CH and H) were raised using a tethering system with individual feeding. Samples of the *semitendinosus* muscle were taken by shot biopsy at 6, 8, 10, 13, and 16 months of age. Blood samples were taken by a single injection from the jugular vein on the same days as the muscle biopsy but prior to both biopsy sampling and feeding. At nine months of age blood sample collection in a frequent manner was started. At this time growth rate was at maximum, i.e. the transformation of nutrients into accreted protein and fat was at high levels. CH bulls did show higher body weights and the carcass contained more muscle protein and less fat than H bulls did. The higher body weight of the CH bulls is linked with higher muscle fiber cross section area. No differences were seen in the fiber type frequencies. The average plasma concentration of growth hormone did not differ, but differences in pulse frequency (CH 4.7 vs. H 3.5 pulses/6h) and amplitude were observed (CH 6.3 vs. H 10.1 ng/mL). Plasma concentrations of insulin, glucagon, and leptin also differed (insulin: CH 18.7 vs. H 28.1 U/mL; glucagon: CH 82.3 vs. H 120.8 pg/mL; leptin: CH 2.4 vs. H 3.0 ng/mL). The results suggest that different genetic based utilization of nutrients leads to pronounced protein synthesis in CH and elevated fat synthesis in H to meet the episodic energetic demands during lactation in this type.

**Key Words:** Cattle, Growth, Development