## EFFECTS OF EXOGENOUS PORCINE GROWTH HORMONE (pGH), SEX AND STRAIN ON SEMITENDINOSUS MUSCLE FIBRE IN PIGS

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Porcine GH has been found not to alter muscle fibre type proportions when administered to pigs between 45 and 100 kg live weight (Beermann *et al.* 1987). The responsiveness of pigs to **pGH** therapy, however, may be inversely related to capacity for protein growth (Campbell *et al.* 1989). This study was undertaken to determine the interrelated effects of exogenous **pGH** administration on the muscle characteristics of pigs of two strains growing from 60 to 90 kg.

Forty-eight pigs at 60 kg live weight were allocated in a 2x2x2 factorial arrangement. The factors were strain, (faster-growing and slower-growing), sex (boar and gilt) and pGH administration (control:0, recipient: 100 ug/kg/d). A single diet was fed ad lib. and pGH was injected (i.m.) daily. At slaughter (90 kg), superficial samples of the semitendinosus muscle (ST) were frozen for histochemical analysis. Sections were stained for myofibrillar (acid) ATPase and succinic dehydrogenase activity and muscle fibres were classified on the basis of stain reaction as slow-twitch/oxidative (bR), fast-twitch/oxidative (aR) or fast-twitch/glycolytic (aW).

Table 1 Mean percentage ST fibre types for each treatment group

Fibre types	Faster growing				Slower growing			
	Boar		Gilt		Boar		Gilt	
	Cont.	pGH	Cont.	pGH	Cont.	pGH	Cont.	pGH
bR	6.4	4.2	5.8	4.7	5.3	6.2	5.8	4.7
aR	26.4	18.3	23.3	15.4	21.5	19.5	22.1	20.8
aW	67.2	77.6	70.9	79.9	73.2	75.3	72.1	74.6

The proportion of bR fibres was not affected by sex, genotype or pGHadministration. Porcine G reduced the percentage of aR fibres (P<0.05) and increase the percentage of aW fibres (P<0.05). Furthermore, with respect to aR fibres, a significant interaction was observed between pGH administration and genotype, with the faster-growing strain responding more to pGH than the slower-growing strain (P<0.05). The interaction between strain and sex was also significant for aR fibres, with the difference in the proportion of these fibres between sexes being greatest in the faster-growing strain (P<0.05). Pigs treated with pGH had a higher percentage of aW fibres than those from control animals (P<0.05), but there were no significant interactions. These results, in terms of fibre types, suggest that pGH had a greater effect on the faster growing strain of pig. High proportions of aW fibres have been associated with pale, soft, exudative meat (Ashmore 1974). Effects of pGH administration on muscle characteristics therefore require further attention.

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