DETERMINATION OF THE EFFECT OF GENDER AND MYOG GENE ON HISTOLOGICAL CHARACTERISTICS MUSCLE IN PIGS

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Objective

The objective of this study was to determine the effect of MYOG gene on histological characteristics muscle in pigs

Materials and Methods

The purpose of this study was determined differences in histological characteristics between gilts and barrows and differences between genotypes of MYOG gene. A total 30 pigs of Pietrain x (Czech Large White x Czech Landrace) were evaluated. The samples were obtained from loin (m. longissimus lumborum et thoracis), ham (musculus semimembranosus) and shoulder (m. serratus ventralis)

The results of the tests were evaluated by statistical and mathematical methods, the SAS programme, and the procedures MEANS, UNIVARIATE, GLM (SAS, 2001). The differences among the individual monitored features were tested by variance analysis. For the evaluation of the influence of a genotype the following model was applied:

$$Y_{ij} = \mu + G_i + P_j + e_{ij}$$

when
μ = the average of the population
G_i = the stable effect of the genotype MYOG (AA, AB, BB)
P_j = the stable effect of sex (1, 2)

e_{ij} = residual error

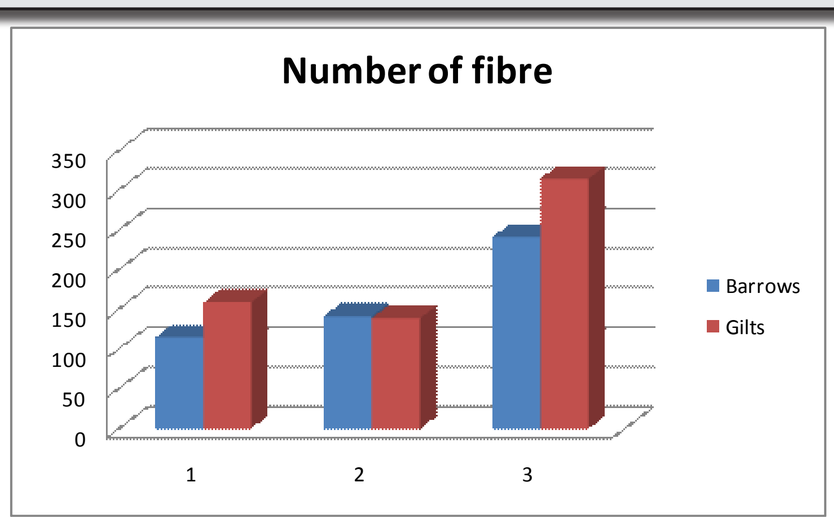
Conclusions

Animals with AB genotype had the highest number of muslce fibre/mm2, the smallest cross sectional area, the smallest EqDiameter in loin and ham.

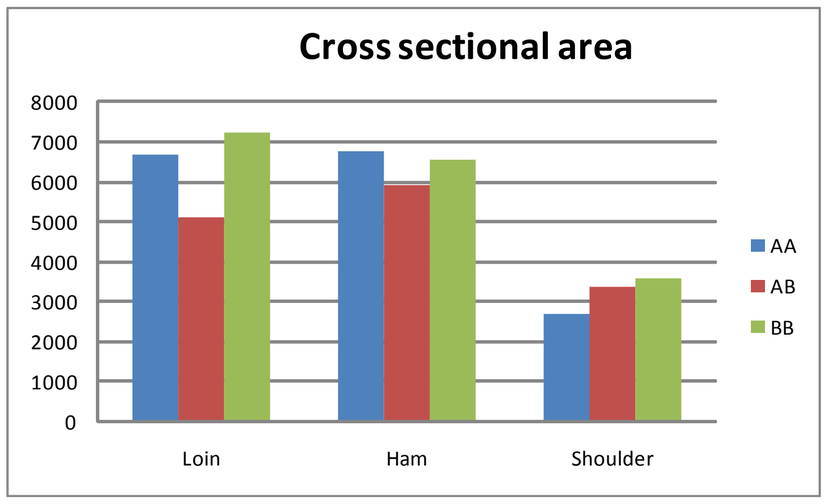
Animals with AA genotype showed the greatest cross sectional area, the largest EqDiameter, the lowest nomber of muscle fibre/mm2 in the ham, then also the smallest cross sectional area, the smallest EqDiameter, the highest number of muscle fibre/mm2 in shoulder too.

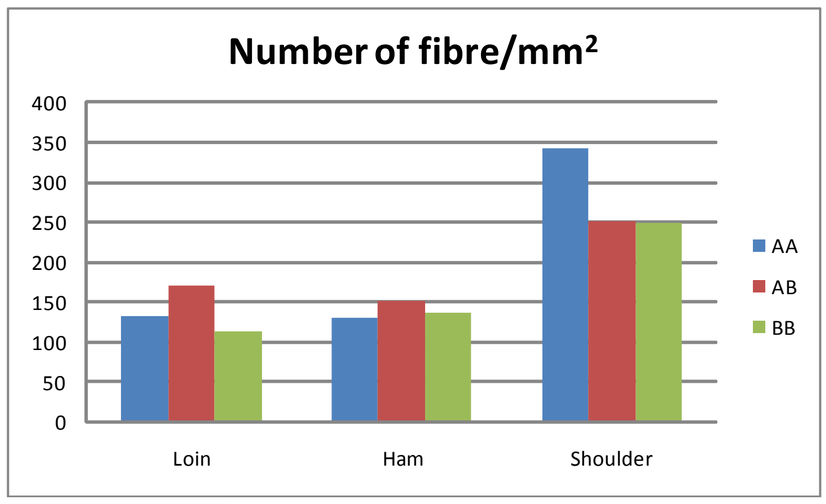
Animals with BB genotype showed the greatest cross sectional area, the largest EqDiameter, the lowest nomber of muscle fibre/mm2 in the loin.

Results



	Gender		Polymorphism MYOG		
	Barrows	Gilts	AA	AB	BB
Loin:					
Cross sectional area (μm)	7130.33	5613.21	6685.95	5110.99	7250.83
Number of fibre/ mm²	114.86	158.36	133.24	169.62	114
EqDiameter	93.29	81.06	89.25	77.6	91.59
Perimeter	340.24	296.13	327.3	287.16	317.76
Ham:					
Cross sectional area (μm)	6121.5	6556.58	6778.85	5924.72	6568.9
Number of fibre/ mm²	141.14	138.9	131.3	150.74	136
EqDiameter	85.29	88.17	89.55	83.95	87.41
Perimeter	304.71	316.88	323.59	299.78	314.02
Shoulder:					
Cross sectional area (μm)	3543.54	2947.4	2700.57	3375.61	3583.35
Number of fibre/ mm²	241.4	314.22	341.64	250.32	250
EqDiameter	65.52	58.59	56.53	64.56	62.98
Perimeter	230.49	208.64	203.16	224.37	224.89





	Gender		Polymorphism MYOG		
	Barrows	Gilts	AA	AB	BB
Weight of loin without fat and skin(kg)	6.41	6.32	6.07	6.38	6.95
Weight of fat and skin of loin (kg)	1.99	2.2	2.35	2.01	1.91
Weight of ham without fat and skin (kg)	11.22	11.59	11.32	11.75	11.66
Weight of fat and skin of ham (kg)	3.16	2.69	2.85	2.81	2.36
Wight of shoulder without fat and skin (kg)	4.34	4.7	4.81	4.13	4.43
Weight of fat and skin of shoulder (kg)	1.51	1.53	1.41	1.67	1.42

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