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EVALUATION THE BODY COMPOSITION OF CROSSBRED KIDS USING COMPUTED TOMOGRAPHY

T. NÉMETH[1#] - J. NYISZTOR[2] - S. KUKOVICS[1] – A. LENGYEL[2] - GY. TOLDI[2]
[1]Research Institute for Animal Breeding and Nutrition, 2053 Herceghalom, Hungary
[2]Kaposvár University, 7400 Kaposvár, Hungary
[#]nemeth.timea@atk.hu

1. OBJECTIVES

evaluate and compare the body composition of Alpine and Boer firstcross kids

2. INTRODUCTION

„in vivo" methods to estimate the quantity of meat
- ultrasonography
- x-ray computed tomography (CT) } wide spread used
- MRI

In *Kaposvár University*: over the last twenty years
- poultry, rabbit, porcine, fish, sheep and bovine

3. MATERIALS AND METHODS

- (Hungarian Milking Brown *x* Alpine) F_1 female kids (n=8)
- (Hungarian Milking Brown *x* Boer) F_1 female kids (n=8)

- CT scans by HRCT (High Resolution Computer Tomograph)
- in all segments: area of fat, aquaeous, muscle and bone tissue
- pictures evaluated by Medical Image Processing V1.0 software *(Závoda, 2006)*
- fat, aquaeous, muscle and bone tissues: in mm^2 by CTPC programme based on Hounsfield Units (1980)

Type of tissues	Hounsfield Units
fat	from -200 to -20
aquaeous	from -20 to +20
muscle	from +20 to +200
bone	from +600 to +1000

Statistical analysis: mean±standard deviation, GLM using body weight as covariant (LSD-test; P<0.05) and partial correlation corrected for body weight

4. RESULTS

- body weight: (HMB *x* Alpine) F_1 > (HMB *x* Boer) F_1
- fat tissue: (HMB *x* Alpine) F_1 < (HMB *x* Boer) F_1
- aquaeous tissue: (HMB *x* Alpine) F_1 < (HMB *x* Boer) F_1
- mucle tissue: (HMB *x* Alpine) F_1 < (HMB *x* Boer) F_1
- bone tissue: (HMB *x* Alpine) F_1 < (HMB *x* Boer) F_1

low negative correlation: fat - bone tissues

strong significant correlation: muscle - bone tissues

Table 1. Average (±standard deviation) body weight (kg), fat, muscle and bone tissues (*10^3 mm^2)

	body weight	fat tissue	muscle tissue	bone tissue
(HMB x Alpine) F_1	17.88 ±2.42	64.60 ±20.57	290.44 ±42.73*a*	53.77 ±13.18
(HMB x Boer) F_1	16.94 ±5.45	71.09 ±34.46	372.03 ±94.12*b*	54.43 ±14.97

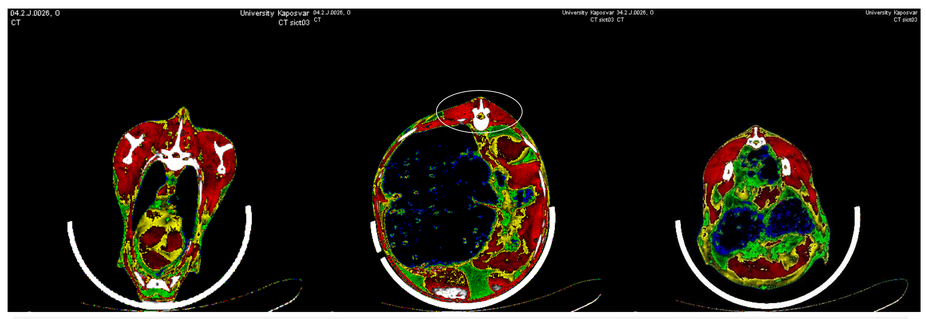

Figure 1. CT images made on shoulder blade, last rib (MLD) and thigh in (HMB x Alpine) F_1 kids

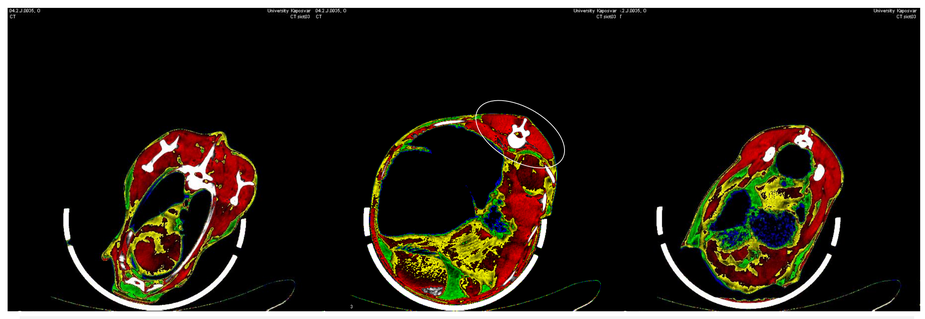

Figure 2. CT images made on shoulder blade, last rib (MLD) and thigh in (HMB x Boer) F_1 kids

Table 2. Partial correlation coefficients among different tissue areas

	fat tissue	muscle tissue	bone tissue
fat tissue		0,37	-0,25
muscle tissue	0,67		0,29
bone tissue	0,53	0,83*	

**P<0.05*
Values above diagonal are for (HMB x Alpine) F_1 kids; under diagonal for (HMB x Boer) F_1 kids

5. CONCLUSIONS

Boer crossbred kids: higher area of all measured tissues
↳ stronger and significant effect on body tissue composition