STUDY ON THE EVOLUTION OF THE BODY SIZES IN YOUNG HORSES OF THE HUTSULS BREED

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Abstract

The scientific paper belongs to a larger project, which has as aim to study the growth and development of young horses. Thus, based on the body measurements done at different periods, we followed the evolution of main growth indices in Hutsuls young horses, under conditions of the Lucina Herd, Suceava County. This paper focused on the 3 sizes: withers height, thoracic perimeter and shinbone perimeter. In order to follow the evolution of the growth process, we have done body measurements at birth, at the age of 6 months, 12 months, 18 months 24 months, 30 months and 36 months. Data found in this scientific paper may be compared to those in the literature, showing that the LucinaHerd has offered good breeding conditions for Hutsuls horses.

Key words: growth, horses, indices, Hutsuls, young horses

INTRODUCTION

Hutsuls horse from Lucina stud was, is and will always be an attraction for lovers of horses.

And today, breed grows under the direct influence of environmental factors. Research the growth and development of youth Hutsuls is always a topical issue. For this reason, we believe that the data obtained in this work will contribute to a better understanding of this complex process - the growth and development of young horses, generally.

MATERIALS AND METHODS

The biological material is represented by 10 females of young Hutsuls horses, born in 2006 at the Lucina Herd. We followed their growth until the age of 3 years.

In order to follow the evolution of the growth process, we have done body measurements (withers height, thoracic perimeter and shinbone perimeter) at birth, at the age of 6 months, 12 months, 18 months, 24 months, 30 months and 36 months. The obtained data after the body measurements were processed and statically interpreted, using the classical methods (arithmetic mean, standard deviation of mean, analysis of variance, etc).

The increase in the analysed body sizes was evaluated according to the following growth indices: growth energy, absolute growth rate (AGR), relative growth rate (RGR) and growth coefficient (GC).

RESULTS AND DISCUSSION

Data of body measurements were processed and centralized in *Table 1*. According to these data, we have made the growth curve for each body size *(Figure 1)* and calculated the growth indices *(Tables 2, 3, 4; Figures 2, 3),* according to the literature (Cucu et al.,2004; Furtunescu, 1971; Doliş and Gavrilaş, 2006; Mărginean et al., 2005; Moldoveanu, 1961; Negruțiu et al., 1969).

Table 1

Data on growth energy

Body size	Withers height (cm)		Thoracic perimeter (cm)		Shinbone perimeter (cm)	
Age	media	V%	media	V%	media	V%
Birth	91.0 ± 0.7	1.73	79.8 ± 0.58	1.62	11.4 ± 0.41	3.59
6 months	117.0± 0.54	1.04	129.8 ± 2.16	3.71	15.6 ± 0.38	5.54
12 months	128.0 ± 0.54	0.95	147.0 ± 0.31	0.47	16.8 ± 0.17	2.26
18 months	131.6 ± 0.45	1.14	153.4 ± 0.51	0.74	17.2 ± 0.17	2.20
24 months	135.1 ± 0.36	1.11	160.0 ± 0.33	0.84	17.7 ± 0.08	1.98
30 months	136.0 ± 0.89	1.47	160.2 ± 0.89	1.24	18.0 ± 0.15	1.94
36 months	136.9 ± 0.67	2.36	160.6 ± 0.82	2.45	18.2 ± 0.10	2.86

Table 2

Data on absolute growth rate (cm)

Body size / Age	Withers height	Thoracic perimeter	Shinbone perimeter
Birth - 6 months	26.0	50	4.2
6 months - 12 months	11.0	17.2	1.2
12 months - 18 months	3.6	6.4	0.4
18 months - 24 months	3.5	6.6	0.5
24 months - 30 months	0.9	0.2	0.3
30 months - 36 months	0.9	0.4	0.2
Birth - 36 months	45.9	80.8	6.8

Table 3

Data on relative growth rate (%)

Body size / Age	Withers height	Thoracic perimeter	Shinbone perimeter
Birth - 6 months	28.57	62.66	36.84
6 months - 12 months	9.40	13.25	7.69
12 months - 18 months	2.81	4.35	2.38
18 months - 24 months	2.70	4.30	2.91
24 months - 30 months	0.67	0.13	1.69
30 months - 36 months	0.66	0.25	1.11
Birth - 36 months	50.44	101.25	59.65

Table 4

Data on growth coefficient (%)

Body size / Age	Withers height	Thoracic perimeter	Shinbone perimeter
Birth	66.47	49.69	62.64
6 months	85.46	80.82	85.71
12 months	93.50	91.53	92.31
18 months	96.13	95.52	94.51
24 months	98.69	99.63	97.25
30 months	99.34	99.75	98.90
36 months	100	100	100

The height at birth was in a mean of 91 cm. Their height has increased by 26 cm, until the age at weaning, when the relative growth rate was the highest (28.57%) and the growth coefficient represented 85.46% of the size value reached at the age of 3 years. After weaning and until the age of 3 years, the height has increased by 19.9 cm and the relative growth rate diminished until the age of 3 years.

At birth, the thoracic perimeter in females had a mean value of 79.8 cm. Until the age of 3 years, the thoracic perimeter recorded an increase of 80.8 cm. The relative growth rate was higher until the age of 6 months, when it was the highest (62.66%), and then it decreased significantly.

At birth, the females' shinbone perimeter measured 11.4 cm, on the average. Until the age of 3 years, this body size recorded an increase of 6.8 cm. The highest relative growth rate was found during the weaning period. At the age of 6 months, this value was of 36.84%, and then, as in case of the other sizes, it decreased significantly, reaching 1.1% at the end of the studied period. At weaning, the shinbone perimeter had 85.71% of the value recorded at the age of 3 years.

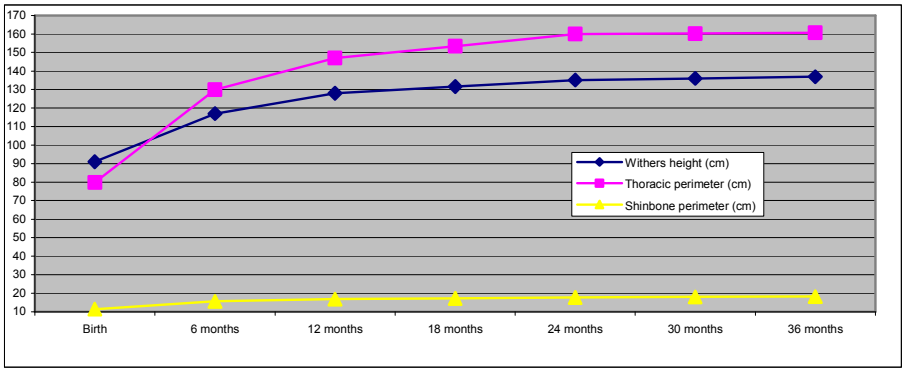

Fig. 1 - Growth curve of withers height, thoracic perimeter and shinbone perimeter

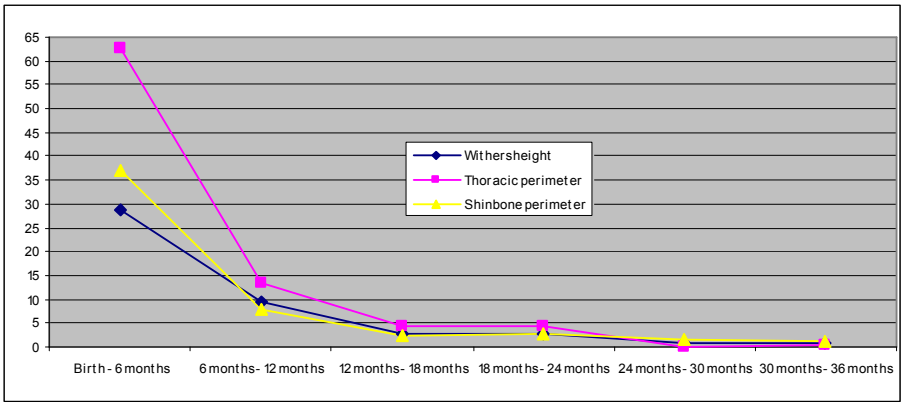

Fig. 2 – Relative growth rate of withers height, thoracic perimeter and shinbone perimeter, from birth until the age of 3 years

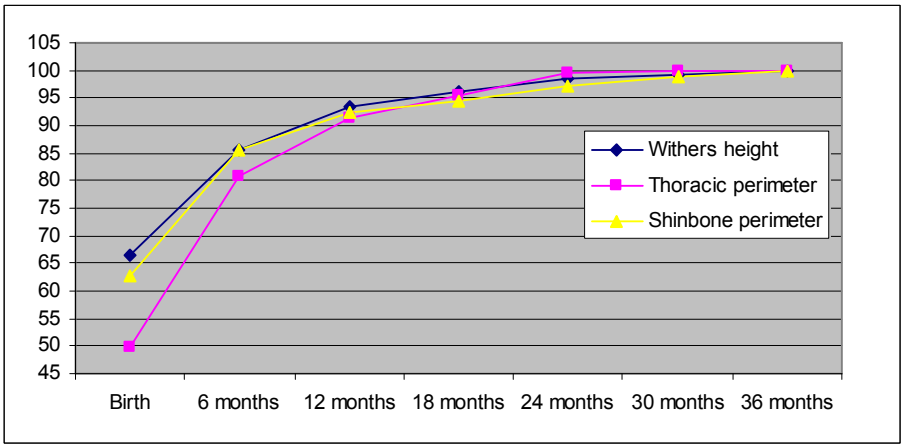

Fig. 2 – Growth coefficient of withers height, thoracic perimeter and shinbone perimeter, from birth until the age of 3 years

CONCLUSIONS

Each body area has a genetically determined growth rate and potențial, found in tight connection with the other areas. When reaching the age of adult, each body area gives the horse the harmonious aspect and the body size typical of the breed.

Growth has known the highest intensity during the first year of horse life, especially until the age of 6 months (suckling period); then, the intensity has greatly diminished.

Generally, the recorded growth coefficients had values, which were adequate to the breed standards.

The results obtained in this work may be compared to those found in the literature.

REFERENCES

1. Călinescu Eras – 1958 - Cercetări asupra liniilor şi familiilor la calul Huţul din herghelia Lucina - Editura Agro Silvică de Stat – Bucureşti.

2. Cucu G.I., V. Maciuc, D. Maciuc, 2004, Cercetarea ştiinţifică şi elemente de tehnică experimentală în zootehnie. Editura Alfa, Iaşi.

3. Furtunescu A., 1971, Zootehnie generală şi genetică. Editura Didactică şi Pedagogică, Bucureşti.

4. Doliş M., A. Gavrilaş, 2008, Tehnologia creşterii animalelor. Editura Alfa, Iaşi.

5. Georgescu G., V. Ujică, G. Lungulescu, N. Marcu, 1982, Tehnologia creşterii cabalinelor şi echitaţie. Editura Didactică şi Pedagogică, Bucureşti.

6. Georgescu G., E. Petrache, 1990, Tehnologia creşterii cabalinelor şi echitaţie. Editura Ceres, Bucureşti.

7. Mărginean G., G. Georgescu, M. Maftei, 2005, Îndrumător de lucrări practice pentru exploatarea cabalinelor. Editura AgroTehnica, Bucureşti.

8. Moldoveanu G., A. Radu, V. Temişan, 1961, Aprecierea valorii productive a animalelor după exterior. Editura Agrosilvică, Bucureşti.

9 Negruţiu E., A. Petre, N. Pipernea, 1969, Genetica şi ameliorarea animalelor, Editura Didactică şi Pedagogică, Bucureşti.

10. Suciu T., G. Moldoveanu, V. Gligor, G. Georgescu, V. Oţel, N. Balaş, 1975, Zootehnia României, Vol. IV (cabaline). Editura Academiei, Bucureşti.

11. Ujică Vasile – 1988 -Tehnologia creşterii cabalinelor – Lucrări practice C. M. I. A. I. Iaşi.

12. Velea C., I. Tîrnoveanu, N. Marcu, I. Bud, 1980, Creşterea cabalinelor. Editura Dacia, Cluj-Napoca.