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Growth and development of Serrana kids from Montesinho Natural Park (NE of Portugal)

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Abstract

This study was to evaluate meat potential of Serrana goats, raised under harsh conditions of the mountains of NE Portugal. Sixteen males of the local Serrana goat breed were taken from different herds in Montesinho Natural Park in NE Portugal. Allometric coefficients of different body tissues and carcass were calculated. Shoulder and leg were earlier developing than loin and breast. Muscle was isometric ($b = 1.07$; $P \geq 0.05$) and bone was the most precocious tissue ($b = 0.763$; $P \leq 0.01$). Different fat deposits were later developing, with allometric coefficients ($P \leq 0.01$) higher than 1.0, and the order of fat deposition was: subcutaneous fat, intermuscular fat, mesenteric fat, kidney knob and channel fat (KKCF — the perinephric and retroperitoneal fat) and omental fat. Subcutaneous and intermuscular fat deposits, which were later developing in relation to BW, were isometric in relation to total fat of carcass. All fat deposits in the different carcass joints (with the exception of fat deposits in leg and shoulder and the subcutaneous fat in loin and neck) had allometric coefficients ($P \leq 0.01$) higher than 1.0. Sites of the later subcutaneous fat deposition were breast and chump, whereas later intermuscular fat depositions were in loin and breast. The results suggest that intermuscular fat is later developing than subcutaneous fat in relation to half carcass weight. The higher proportion of muscle and lower proportion of subcutaneous and intermuscular fat deposits indicate the potentialities of the Serrana breed as a source of lean meat, according to the consumption preferences of the Mediterranean area of the European Union.

Keywords: Serrana; Kids; Growth; Carcass; Allometric

1. Introduction

In most countries, goats are considered almost exclusively as meat animals (Gall, 1981). Particularly in NE Portugal, goats supply meat mainly in small communities, because they produce light carcasses that can be consumed entirely by a family or groups of families without the necessity of cutting and processing meat. According to Naudé and Hofmeyr (1981) the economic value of a carcass depends upon yield of saleable meat as well as cutting and processing quality of the meat.

Proportions of muscle and fat vary greatly according to breed, carcass weight, age of animal and plane of nutrition. The effect of plane of nutrition on growth and development has been studied by Wilson (1958a,

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Table 1
Means and standard errors (SE) of characteristics measured ($n=16$)

Variable	Mean	SE
BW (kg)	13.7	1.24
Empty BW (kg)	11.8	1.09
Carcass weight (kg)	6.9	0.67
Half carcass weight (kg)	3.5	0.34
Omental fat (g)	247.4	52.71
Mesenteric fat (g)	162.6	26.54
KKCF (g)[a]	164.4	36.10
Muscle (g)	2029.7	194.91
Subcutaneous fat (g)	99.4	13.82
Intermuscular fat (g)	394.5	56.73
Bone (g)	625.4	46.69
Carcass		
Muscle %	59.1	0.07
Subcutaneous fat %	2.7	0.02
Intermuscular fat %o	10.6	0.07
Bone %o	19.0	0.07
Remainder %[b]	8.6	0.03

[a]KKCF, kidney knob and channel fat (the periphrenic and retroperitoneal fat).
[b]Remainder – major blood vessels, ligaments, tendons, and thick connective tissue sheets associated with some muscles.

1960) and Treacher et al. (1987). Wilson (1958b) noted that changes in proportions of several body tissues during growth were chiefly due to a large increase in the proportion of muscle. Several authors have reported that, in goats, the subcutaneous fat is less important than the intermuscular fat.

According to Gall (1982) between breeds a large heterogeneity in results of goat carcass composition can be found. Partition and growth of tissues should be determined for each breed. Morand-Fehr et al. (1976) analyzed growth characteristics and meat quality of kid carcasses from the Alpine breed. They reported small amounts of fat in kid carcasses in agreement with Kirton (1970) working with New Zealand feral goats, and Gaili et al. (1972) and Gaili (1978) studying carcass characteristics in Sudan desert goats and semi-desert areas of North Africa and the Middle East. Owen (1975) studied meat-producing characteristics of the indigenous Malawi goat, Owen et al. (1978) reported on meat production characteristics of Botswana goats and Owen et al. (1983) analyzed the effects of body weight, body components and carcass development of Criollo goats in Northern Mexico. Studies on the meat production abilities of Saanen were made by several authors. McGregor (1980, 1982) researched growth and composition of wether goat carcasses and the growth of organ and body components. Treacher et al. (1987) studied carcass compositions of castrate male Saanen and Saanen × Angora kids. Carcass composition of New Zealand Saanen goats was analyzed by Colomer-Rocher et al. (1992).

Table 2
Allometric coefficients (b) of carcass joints in relation to half carcass weight ($n=16$)

Carcass joints (kg)	R^2	$s^2_{y.x}$	s_b	b
Leg weight	0.99	0.02	0.02	0.90**
Chump weight	0.98	0.03	0.04	1.05
Loin weight	0.98	0.03	0.05	1.16**
Ribs weight	0.96	0.04	0.053	0.96
Anterior ribs weight	0.93	0.05	0.06	0.90
Shoulder weight	0.99	0.02	0.02	0.84**
Breast weight	0.99	0.02	0.03	1.19**
Neck weight	0.98	0.02	0.03	1.00

$b \neq 1$ for $P \leq 0.05$; **$b \neq 1$ for $P \leq 0.01$.

Serrana is one of the largest goat breed in NE Portugal, particularly in Montesinho Park, and no information about this meat production is available. The purpose of this study was to evaluate meat potential of Serrana goats raised under harsh conditions in the mountains of the Montesinho Natural Park in NE Portugal.

2. Materials and methods

Sixteen males of the local Serrana goat breed were taken from different herds in Montesinho Natural Park in NE Portugal. Montesinho Natural Park is one of the largest protected areas in Portugal. Covering an area of 75 000 ha and at altitude from 439 to 1486 m, Montesinho Park is a succession of uplands and deep valleys.

The characteristics of Serrana kids used are in Table 1. Variations of BW from 6 to 22 kg correspond to a variation of carcass weight from 3.3 to 11 kg, providing a wide range of weights, according to various stages of development of the animals.

The age of kids varied from 1.5 to 5 months and management of the kids was nursing milk from their dams for a long period but not being weaned.

Kids were slaughtered in an experimental slaughter house of the Escola Superior Agrária de Bragança, after

Table 3
Allometric coefficients (b) of different body tissues in relation to empty BW ($n=16$)

Body tissues (g)	R^2	s^2_{yx}	s_b	b
Omental fat	0.83	0.23	0.36	2.94**
Mesenteric fat	0.79	0.18	0.29	2.05**
Subcutaneous fat	0.83	0.12	0.18	1.50*
Intermuscular fat	0.92	0.08	0.13	1.66**
KKCF	0.81	0.23	0.36	2.81**
Muscle	0.98	0.03	0.04	1.07
Bone	0.94	0.03	0.05	0.76**

*$b \neq 1$ for $P \leq 0.05$; **$b \neq 1$ for $P \leq 0.01$.

Table 4
Allometric coefficients (b) of different fat carcass tissues in relation to total fat carcass ($n=16$)

Fat carcass tissues (g)	R^2	s^2_{yx}	s_b	b
KKCF	0.92	0.15	0.13	1.66**
Subcutaneous fat	0.90	0.09	0.08	0.86
Intermuscular fat	0.99	0.02	0.02	0.95

*$b \neq 1$ for $P \leq 0.05$; **$b \neq 1$ for $P \leq 0.01$.

24 h fasting. Carcasses were cooled at 6°C for 24 h. After slaughter, contents were removed from the digestive tract, weighed and subtracted from BW to obtain empty BW. Omental, mesenteric, kidney knob and channel fat (KKCF — the perinephric and retroperitoneal fat) were removed and weighed separately. Carcasses were halved carefully and the left side of the carcass was divided into eight standardized commercial joints: leg, chump, loin, ribs, anterior ribs, shoulder, breast and neck. The jointing procedure was outlined by Teixeira (1984) according to the commercial jointing and cutting system of Estação Zootécnica Nacional – Fonte Boa (EZN-Portugal). Each joint was then dissected into muscle, subcutaneous fat, intermuscular fat, bone and remainder (major blood vessels, ligaments, tendons, and thick connective tissue sheets associated with some muscles). All 16 carcasses were evaluated and dissected. Tissue separation and carcass evaluation was according to standard methods and procedures for goat carcass evaluation by Colomer-Rocher et al. (1987).

Percentages of carcass tissues were calculated in relation to half carcass weight. Using BW, the empty BW, half carcass weight, total carcass fat and total body fat weight as independent variables (x), the relative growth coefficients (b) for each carcass and body com-

Table 5
Allometric coefficients (b) of different tissues of carcass joints in relation to half carcass weight ($n=16$)

Tissue joints (g)	R^2	s^2_{yx}	s_b	b
Leg				
Muscle	0.98	0.28	0.04	0.98
Subcut. fat	0.68	0.16	0.22	1.23
Interm. fat	0.73	0.12	0.18	1.08
Bone	0.93	0.03	0.04	0.57**
Chump				
Muscle	0.97	0.14	0.05	1.06
Subcut. fat	0.89	0.11	0.16	1.64**
Interm. fat	0.86	0.11	0.16	1.45**
Bone	0.84	0.06	0.09	0.73**
Loin				
Muscle	0.97	0.04	0.05	1.081
Subcut. fat	0.53	0.26	0.37	1.45
Interm. fat	0.79	0.18	0.26	1.88**
Bone	0.89	0.07	0.10	1.04
Ribs				
Muscle	0.95	0.04	0.06	0.98
Subcut. fat	0.52	0.26	0.38	1.48**
Interm. fat	0.91	0.09	0.14	1.60**
Bone	0.69	0.09	0.13	0.71**
Middle neck				
Muscle	0.93	0.05	0.07	0.96
Interm. fat	0.85	0.11	0.16	1.46*
Bone	0.57	0.12	0.17	0.74
Shoulder				
Muscle	0.98	0.03	0.04	0.87**
Subcut. fat	0.58	0.16	0.23	0.96
Interm. fat	0.82	0.11	0.16	1.27
Bone	0.92	0.04	0.05	0.65**
Breast				
Muscle	0.97	0.04	0.05	1.11
Subcut. fat	0.68	0.24	0.05	1.87**
Interm. fat	0.92	0.10	0.34	1.84**
Bone	0.85	0.06	0.15	0.72**
Neck				
Muscle	0.96	0.04	0.05	0.91
Subcut. fat	0.41	0.29	0.42	1.31
Interm. fat	0.89	0.10	0.15	1.58**
Bone	0.91	0.06	0.08	0.92

*$b \neq 1$ for $P \neq 0.05$; **$b \neq 1$ for $P \leq 0.01$.

Table 6
Allometric coefficients (b) of carcass tissues in relation to half carcass weight ($n=16$)

Carcass tissues (g)	R^2	s^2_{yx}	s_b	b
Muscle	0.99	0.02	0.03	0.98
Subcutaneous fat	0.8609	0.10	0.15	1.39*
Intermuscular fat	0.9427	0.07	0.10	1.53**
Bone	0.94	0.03	0.05	0.69**
KKCF	0.81	0.23	0.33	2.58**

*$b \neq 1$ for $P \leq 0.05$; **$b \neq 1$ for $P \leq 0.01$.

Table 7
Allometric coefficiens (b) of different body fat deposits inrelation to total body fat ($n=16$)

Body fat deposits (g)	R^2	s^2_{yx}	s_b	b
Omental fat	0.98	0.09	0.06	1.48**
Mesenteric fat	0.94	0.09	0.07	1.04
Subcutaneous fat	0.89	0.09	0.07	0.72**
Intermuscular fat	0.97	0.05	0.04	0.79**
KKCF	0.93	0.14	0.10	1.39**

*$b \neq 1$ for $P \leq 0.05$; **$b \neq 1$ for $P \leq 0.01$.

ponent (y) were calculated from the equation of Huxley (1932): $\log y = b \log x + \log a$. Significance of differences of allometric coefficients was determined using the confidence intervals for each one (Steel and Torrie, 1982).

3. Results and discussion

Means and standard errors of all characteristics are shown in Table 1. They had substantial variation and this allows for the accurate calculation of the different allometric coefficients.

Table 2 shows the allometric coefficients of each carcass joint in relation to half carcass weight. The analyses verified that the shoulder ($b=0.84$; $P \leq 0.01$, different from 1.0) and leg ($b=0.90$; $P \leq 0.01$, different from 1.0) are earlier developing than the loin and breast with allometric coefficients 1.16 and 1.19 ($P \leq 0.01$, different from 1.0), respectively, indicating later developing. These results agree with results obtained by Morand-Fehr et al. (1976) who worked with Alpine kids, and Teixeira and Azevedo (1989) with sheep. The data confirm the general suppositions of Hammond Jr. et al. (1974) that long bones are earlier developing. The other joints had allometric coefficients not ($P \geq 0.05$) different from 1.0.

The allometric coefficient of head weight, calculated in relation to empty BW ($b=0.69$; $P \leq 0.01$), confirms an early developing in relation to empty BW and, in

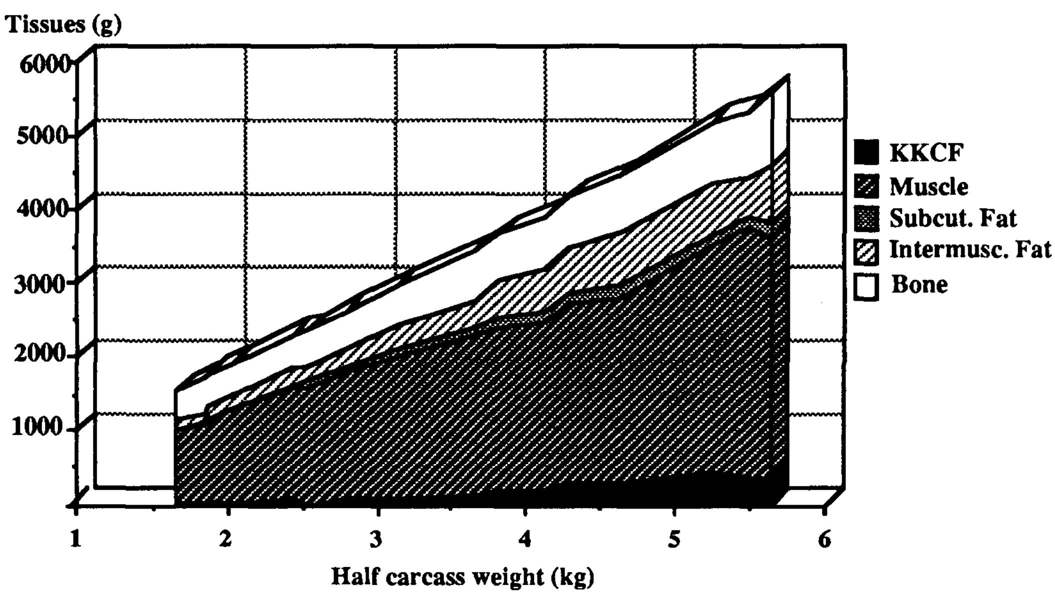

Fig. 1. Tissue variation in relation to half carcass weight.

agreement with results from Teixeira (1991), indicating that the head is the body region with an earlier development.

To know the different carcass tissues in growth, Fig. 1 and Table 3 were organized. Muscle was isometric ($b=1.07$; not, $P \geq 0.05$, different from 1.0) and bone was the most precocious tissue in relation to empty BW, ($b=0.76$; $P \leq 0.01$, different from 1.0). Different fat deposits were later developing, with allometric coefficients higher ($P \leq 0.01$) than 1.0, and the order of fat deposition was: subcutaneous fat, intermuscular fat, mesenteric fat, KKCF and omental fat. The results confirm the conclusions by Wilson (1958a,b), Morand-Fehr et al. (1976), Owen et al. (1978) and Colomer-Rocher et al. (1992) that growth of bone is faster than that of the rest of carcass and growth rate of muscle was comparable to the whole carcass, while fat was deposited more and more during later growth.

Subcutaneous and the intermuscular fat deposits, which were late developing in relation to empty BW, were isometric in relation to total fat carcass (Table 4) in agreement with growth coefficients for intermuscular fat, not for subcutaneous fat as reported by Colomer-Rocher et al. (1992) on New Zealand Saanen males. The other fat deposit, the KKCF, was late developing in relation to empty BW.

About the different tissues in each carcass joint (Table 5) the results showed the general tendency of bone to grow earlier than other tissues, mainly the bone in leg and shoulder, the long bones of skeleton, ($b=0.57$ and $b=0.65$; $P \leq 0.01$, different from 1.0), in agreement with results in Table 3. An exception of bone growth was the bone in loin, which was isometric in relation to half carcass weight. Muscle was isometric, but the muscles in shoulder had a tendency to grow earlier ($b=0.87$; $P \leq 0.01$) than the others. All fat deposits in the different carcass joints (with the exception of fat deposits in leg and shoulder and subcutaneous fat in loin and neck), had allometric coefficient higher ($P \leq 0.01$) than 1.0. Sites of the later subcutaneous fat deposition were the breast and chump, whereas the later intermuscular fat depositions were in loin and breast. These results agree with Morand-Fehr et al. (1976) on growth characteristics and quality of kid carcasses from the Alpine breed. Variations of muscular proportions in different parts of carcass were larger in kids, especially in the anterior part, breast, shoulder, anterior ribs and neck.

Table 6 shows relative growth coefficients of carcass tissues in relation to half carcass weight. As indicated in other tables, muscle was isometric and bones grew earlier than fat carcass deposits, mainly KKCF, that was the last fat deposit developed. The results suggest that intermuscular fat was later developing than subcutaneous fat in spite of different data by Colomer-Rocher et al. (1992). In terms of total carcass fat, the results confirm the supposition by several authors that subcutaneous fat in goats is less important than intermuscular. The data agree with Gaili et al. (1972) that fat development is relatively poor in goats.

The relative growth coefficients of body fat deposits in relation to total body fat (Table 7) suggest that the subcutaneous and intermuscular fats are earlier developing than the omental and KKCF. The mesenteric fat accompanied the total body fat growth.

4. Conclusions

From the results under the experimental conditions we conclude that: the least important fat deposit in kid carcasses was subcutaneous fat; the carcass joints with earlier development were leg and shoulder; bone was a tissue with a very precocious growth, mainly the bones in leg and shoulder; all fat depots were earlier developing in relation to empty BW and half carcass weight; intermuscular fat was later developing than subcutaneous fat, in relation to half carcass weight; in order of fat body deposits the development was: subcutaneous, intermuscular, KKCF and omental fat; subcutaneous and intermuscular fats were early developing in relation to total carcass fat and total body fat.

The higher proportion of muscle and lower proportion of subcutaneous and intermuscular fat deposits indicate the potential of the Serrana breed as a source of lean meat, according to meat consumption preferences of the Mediterranean people of the European Union. Although Serrana goat growth may not be as rapid as other improved breeds, with modest care and minimum investment they can produce good yields of meat and improve income for rural communities.

References

Colomer-Rocher, F., Morand-Fehr, P. and Kirton, A.H., 1987. Standard methods and procedures for goat carcass evaluation, jointing and tissue separation. Livestock Prod. Sci., 17: 149–159.

Colomer-Rocher, F., Kirton, A.H., Mercer, G.J.K. and Duganzich, D.M., 1992. Carcass composition of New Zealand Saanen goats slaughtered at different weights. Small Rumin. Res., 7: 161–173.
Gaili, E.S.E., 1978. A note on the effect of breed type and sex on the distribution of intermuscular fat in the carcasses of sheep. Anim. Prod., 26: 217–219.
Gaili, E.S.E., Ghanem, Y.S. and Mukhtar, A.M.S., 1972. A comparative study of some carcass characteristics of Sudan desert sheep and goats. Anim. Prod., 14: 351–357.
Gall, C., 1981. Milk Production. In: C. Gall, Goat Production. Academic Press, London, pp. 286–307.
Gall, C., 1982. Carcass composition. Proc. 3rd Intern. Conf. on Goat Production and Diseases, University of Arizona, Tucson, pp. 472–487.
Hammond, Jr., J., Mason, I.L. and Robinson, T.J., 1974. In: E. Arnold (Editor), Hammond's Farm Animals, Edward Arnold, 4th edn. London.
Huxley, J.S., 1932. Problems of relative growth. Methuen, London.
Kirton, A.H., 1970. Body and carcass composition and meat quality of New Zealand feral goat. N.Z. J. Agric. Res., 13: 167–181.
McGregor, B.A., 1980. Growth and composition of wether goat carcasses. In: Animal Production in Australia. Proc. Aust. Soc. Anim. Prod., 13: 345–348.
McGregor, B.A., 1982. Growth of organ and body components of grazing goats. In: Animal Production in Australia. Proc. Aust. Soc. Anim. Prod., 14: 487–490.
Morand-Fehr, P.M., Sauvant, D. and Dumont, B.L., 1976. Croissance et qualité des carcasses de chevreaux de boucherie. (Growth and carcass quality of meat kids.) 2émes Journ. de la Rech. Ovine et Caprine. INRA-ITOVIC, Paris, pp. 166–189.
Naudé, R.T. and Hofmeyr, H.S., 1981. Meat Production. In: C. Gall, Goat Production. Academic Press, London, pp. 286–307.
Owen, J.E., 1975. The meat-producing characteristics of the indigenous Malawi goat. Trop. Sci., 17: 123–138.
Owen, J.E., Norman, G.A., Philbrooks, C.A. and Jones, N.S.D., 1978. Studies on the meat production characteristics of Botswana goats and sheep. Part III: carcass tissue composition and distribution. Meat Sci., 2: 59–74.
Owen, J.E., Aris Cereceres, M.T., Garcia Macias, J.A. and Nunes Gonzales, F.A., 1983. Studies on the Criollo goat of Northern Mexico. Part 1: The effects of body weight and body components and carcass development. Meat Sci., 9: 191–204.
Steel, R.G.D. and Torrie, J.H., 1982. Principles and Procedures of Statistics. A biometrical approach, 3rd edn. McGraw Hill, Tokyo, Japan, 633 pp.
Teixeira, A., 1984. Avaliação das carcaças de borregos do grupo étnico Bragançano e seu cruzamento com a raça Milchschaf. (Carcass evaluation of Bragançano and Milchschaf × Bragançano lamb.) Relatório de estágio, UTAD-VILA REAL, 169 pp.
Teixeira, A., 1991. Contributo para a classificação etnológica dos ovinos churros portugueses mediante distâncias morfométricas do esqueleto cefálico e do osso metacarpo. (Contribution to ethnologic classification of Portuguese Churros by morphometric distances of cranium and metacarpus.) Tese de doutoramento, UTAD-VILA REAL, 141 pp.
Teixeira, A. and Azevedo, J., 1989. Crescimento relativo dos diversos componentes do peso vivo e da carcaça determinados em borregos machos cruzados da raça Suffolk com a churra da terra quente. (Relative growth of body and carcass components of male Suffolk × Churro da Terra Quente lambs.) I° Congresso de Zootécnia UTAD-VILA REAL, pp. 97–103.
Treacher, T.T., Mowlem, A., Wilde, R.M. and Butler-Hogg, B., 1987. Growth efficiency of conversion and carcass composition of castrate male Saanen × Angora kids on a concentrate diet. Ann. Zootech., 36: 341–342.
Wilson, P.N., 1958a. The effect of plane of nutrition on the growth and development of the East African Dwarf Goat. I. Effect of plane of nutrition on the live-weight gains and the external measurements of kids. J. Agric. Sci., 50: 198–210.
Wilson, P.N., 1958b. The effect of plane of nutrition on the growth and development of the East African Dwarf Goat. II. Age changes in the carcass composition of female kids. J. Agric. Sci., 51: 4–21.
Wilson, P.N., 1960. The effect of plane of nutrition on the growth and development of the East African Dwarf Goat. III. Effect of plane of nutrition and sex on the carcass composition of the kid at two stages of growth, 16 LB weight and 30 LB weight. J. Agric. Sci., 54: 105–130.

Résumén

Teixeira, A., Azevedo, J., Delfa, R., Morand-Fehr, P. and Costa, C., 1995. Crecimiento y desarrollo de cabritos de raza Serrana del Parque Natural de Montesinho (NE de Portugal). *Small Rumin. Res.*, 16: 263–269.

El principal objetivo del estudio ha sido evaluar la composición de las canales de cabritos de raza Serrana y determinar los coeficientes alométricos de los diferentes tejidos del cuerpo y de la canal. Para este trabajo se utilizaron 16 cabritos de la raza localmente designada como Serrana, elegidos de diferentes rebaños del Parque Natural de Montesinho ubicado en el NE de Portugal. La espalda y pierna tuvieron un desarrollo más precoz que el lomo y el costillar. El coeficiente alométrico del peso de la cabeza ($b=0{,}69$; $P\leq 0{,}01$) confirmó su precoz desarrollo respecto al peso vivo vacío. El muscúlo fué isométrico ($b=1{,}07$, no significativamente diferente de 1,0, para $P\geq 0{,}05$) *y el hueso fué claramente el tejido más precoz respecto al peso vivo vacío* ($b=0{,}76$; significativamente diferente de 1,0, para $P\leq 0{,}01$). En lo que concierne a los diferentes depósitos adiposos tuvieron un desarrollo tardío, con coeficientes alométricos significativamente ($P\leq 0{,}01$) mayores de 1,0 y el orden de deposición de grasa respecto al peso vivo vació fué: subcutánea, intermuscular, mesentérica, pélvico-renal y omental. Sin embargo los depósitos de grasa subcutánea e intermuscular, que tuvieron un desarrollo tardío respecto al peso vivo vacío, fueron isométricos respecto a la grasa total de la canal. Todos los depósitos de grasa de las diferentes piezas de la canal tuvieron coeficientes alométricos significativamente mayores de 1,0 ($P\leq 0{,}01$). Las piezas donde la deposición de grasa subcutánea fué más tardia fueron el badal y la cadera, mientras que las deposiciones de grasa intermuscular más tardías tuvieron lugar en el lomo y pecho. Los resultados indicaron que la grasa intermuscular tuvo un desarrollo más tardio que la grasa subcutánea.

Résumé

Teixeira, A., Azevedo, J., Delfa, R., Morand-Fehr, P. and Costa, C., 1995. Croissance et developpement des chevreaux de race Serrana du Parc Naturel de Montesinho (NE du Portugal). *Small Rumin. Res.*, 16: 263–269.

Le principal objectif de cette étude était d'évaluer la composition des carcasses des chevreaux de race Serrana et de déterminer les coefficients d'allométrie au niveau des différents tissus du corps et de la carcasse. Pour réaliser ce travail, 16 chevreaux de race locale appelée Serrana on été utilisés, ayant été choisis parmi différents troupeaux du Parc Naturel de Montesinho, situé au NE du Portugal. L'épaule et le gigot ont eu un développement plus précoce que le dos et que le carré couvert. Le coefficient d'allométrie du poids de la tête ($b = 0{,}69$; $P \leq 0{,}01$) a confirmé son développement précoce par rapport au poids vif vide. Le muscle a été isométrique ($b = 1{,}07$; significativement pas différent de 1,0, pour $P \leq 0{,}05$) et l'os s'est avéré le tissu le plus précoce par rapport au poids vif vide ($b = 0{,}76$; significativement différent de 1,0, pour $P \leq 0{,}01$). En ce qui concerne les différents dépôts de gras, il faut dire qu'ils ont eu un développement tardif, en ayant des coefficients allométriques significativement plus élévés que 1,0 ($P \leq 0{,}01$), et l'ordre du dépôt de gras par rapport au poids vif vide a été le suivant: sous-cutane, intermusculaire, mésentérique, pelvico-rénal et omental. Néanmoins, les dépôts de gras sous-cutane et intermusculaire, qui avaient eu un développement tardif par rapport au poids vif vide, ont été isométriques par rapport au total du gras de la carcasse. Tous les dépôts de gras des différents pièces de la carcasse ont eu des coefficients allométriques significativement plus élévés que 1,0, ($P \leq 0{,}01$). Les pièces où le dépôt du gras sous-cutane a été plus tardif ont été le carré découvert et la selle, tandis que les dépôts du gras intermusculaire plus tardif ont eu lieu au niveau du dos et de la poitrine. Les résultats ont indiqué que le gras intermusculaire a eu un développement plus tardif que le gras sous-cutané.