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A PRELIMINARY NOTE ON THE VISUAL CHANGES IN FEMUR MARROW FAT AS AN INDICATOR OF FEMUR FAT PERCENTAGE OF SPRINGBOK *ANTIDORCAS MARSUPIALIS* AND BLESBOK *DAMALISCUS DORCAS PHILLIPSI*

by

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Changes occuring in marrow fat reserves of animals have been used as an indicator of their physical condition (Cheatum, 1949; Riney, 1955). Cheatum correlated his visual estimate with a chemical analysis and Riney used four different condition classes on red deer (*Cervus elaphus*) for both colour and texture.

In this study material was obtained from 19 mature blesbok (sampled on the Van Riebeeck Nature Reserve, near Pretoria), two blesbok lambs (sampled on the same locality as the mature blesbok) and 37 mature springbok from four different localities, *viz.* the farms Rooipoort, Lovedale and Brakpan (Kimberley, Cape Province) and the S.A. Lombard Nature Reserve (Bloemhof, Transvaal). Only the central five to eight centimetres

Table 1

Femur marrow classified according to colour and texture

Condition Class	Description	Marrow fat %
1	Watery gelatinous and bloody.	0–10
2	Softly gelatinous and bloody.	10–20
3	Solidly gelatinous. Colour pinkish to bloody.	20–30
4	Gelatinous to slightly greasy. Colour pinkish. "Marrow shaft" bends very easily.	30–40
5	Soft and greasy. Colour pinkish. "Marrow shaft" bends easily.	40–50
6	Thickly greasy. Colour pinkish to white. "Marrow shaft" bends slightly.	50–70
7	Hard, brittle and waxy. Colour white, or white streaked with small red vessels. "Marrow shaft" does not bend.	70+

The marrow in classes 1–3 breaks up when removal is attempted. Those in classes 4–7 can be removed as one solid piece.

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($\pm \frac{1}{3}$) of the femur shaft were used (Cheatum, 1949). After removing the marrow, colour and texture were described. The marrow was then subjected to chemical analysis (Els, *in press*). Data obtained from these two procedures were then classified into ascending order according to fat percentage. This classification resulted in a division of seven condition classes (Table 1).

Results obtained from the condition evaluation of springbok and blesbok are summerised (Table 2) and employed to compile a correlation table (Table 3).

Although the visual estimate correlates with the chemical analysis at the 5 per cent level of significance for both blesbok and springbok (Table 3), the small number of animals involved permits no conclusions and the data only indicates a tendency which requires further investigation.

Table 2

Visual estimate and chemical analysis of blesbok and springbok femur marrow

		Blesbok							*Springbok*						
Visual estimate		1	2	3	4	5	6	7	1	2	3	4	5	6	7
Sample size	♂	—	1	—	2	1	3	12	1	2	2	—	1	6	6
	♀	—	—	—	—	—	—	—	—	1	1	1	2	5	8
	♂ + ♀	2*	1	—	2	1	3	12	2*	3	3	1	3	11	14
Chemical analysis	♂	—	13	—	36	50	61	87	5	16	32	—	47	67	84
	♀	—	—	—	—	—	—	—	—	17	21	44	51	70	87
	♂ + ♀	2*	13	—	36	50	61	87	8*	16±3,5	28±6,6	44	49±2,4	69±14,4	86±5,7

* Animals of unknown sex are included

Table 3

Correlation (r) between the indices in blesbok and springbok

Index	Species	Sample size	*Chemical analysis* Correlation (r)	Significance level
Visual estimate	*Antidorcas marsupialis*	21	0,967	0,05
Visual estimate	*Damaliscus dorcas phillipsi*	37	0,943	0,05

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