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RESEARCH NOTES SPINAGE & FAIRPLE

The utilisation of metabolisable energy by a wildebeest

During the course of energy balance experiments with exotic and zebu cattle the opportunity arose to carry out some exploratory trials on a few game animals. The results of such metabolic experiments on a wildebeest (*Connochaetes taurinus* Burchell) are briefly described here. It should be stressed that because of the very limited data so far obtained the results are primarily of academic interest and no inference should be drawn concerning the production potential of the wildebeest. It is hoped to make a more valid assessment of this subject when more detailed carbon-nitrogen balance data become available at a later date.

The wildebeest had been in captivity for several months, ate hay readily and was by any standards quite tame. It was accustomed to the respiration chamber prior to the current experiments and spent a large part of each experimental period lying down. The respiration chamber used for the energy balance experiments has been previously described (Rogerson, 1960) and the techniques used for computing the oxygen consumption and carbon dioxide output were also similar. Carbon was determined in the food, food residues, faeces and urine by a micro-combustion technique and corresponding energy values were determined in a bomb calorimeter. Nitrogen was determined by the Kjeldahl method. Energy balance data were extracted from duplicate twelve hour experimental runs in the chamber at constant temperature and humidity. The animal was fed at four levels of nutrition, namely ½M, M, 1½M, 2M, where M was the maintenance energy requirement.

The results indicated that the wildebeest had a higher basal metabolic rate than the interspecific mean of 70 Kcal/Kg body weight $^{0.73}$. The metabolic rate of the wildebeest was 30% above this figure compared with the 15% generally found in cattle. From the data derived from the energy balance experiments at the various planes of nutrition it was found that the efficiency of utilisation of the metabolisable energy for maintenance purposes was 80%. This is similar to results normally obtained for cattle. The efficiency of utilisation of metabolisable energy for production, however, which in cattle at a similar stage of maturity might be expected to be around 50% was found to be over 60%. Such efficiency of utilisation might be expected only from very young cattle (Ritzman and Colovos, 1943), when available nutrients are being used for growth rather than for lipogenesis. The carbon-nitrogen balance data so far obtained lends support to this possibility and it is hoped that further experiments might clarify the matter.

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Removal of a snare from a white rhinoceros in the West Nile White Rhino Sanctuary

On 27.6.65, one of us (R.D.F.) observed in the Ajai's Island White Rhinoceros Sanctuary, West Nile District, Uganda a female white rhinoceros *Ceratotherium simum simum* which was limping badly from a wire snare embedded around the left foreleg. During the next five days she remained in the same area.

On the morning of 2.7.65 the animal was darted by C.A.S. using a Yeoman crossbow. She was approached on foot to within twenty-five yards and darted from a sitting position, the dart lodging in the right rump, about six inches from the anus. When hit the rhinoceros ran about a hundred yards and stopped. Seven minutes after being struck she started to sway from side to side, and a minute later collapsed onto her left side.

The animal was estimated to weigh about two tons and the immobilising drug dosage was 1.5 mgm M.99; 120 mgm hyoscine hydrobromide and 3.75 mgm acetylpromazine maleate; the latter added as a colouring agent and to increase the solubility of the M.99. The mixture was in 0.75 ml of distilled water.

Examination showed the wire snare was deeply embedded and touching the radius bone. It was cut out with a hacksaw, the only way in which it could be reached. The wound, which was extensive but clean, was swabbed with alcohol (physiological saline would have been better), and then smeared with intramammary penicillin, 300,000 IU. It was then dusted with penicillin powder, 5,000 IU, and a rough bandage applied. During this operation she was injected in the rump with approximately eight grams of dimethylchlortetracycline in 200 ml water. (Supplied by Cyanamid of Great Britain).

Seventeen minutes from the time of collapse the operation was complete and the animal was rolled into the sternal recumbent position. An antidote of 600 mgm of nalorphine hydrobromide in 15 ml water was injected intramuscularly. There was no observable reaction. One hour later, the animal having become very quiet with ears drooping, jected i.m. This dose was repeated twice 1.7 mgm M.285 in 0.5 ml water was inat intervals of ten minutes.

The observable effects of these injections were a curling of the tail, which was held coiled above the anus, and cocking of the ears accompanied by frequent flicking. Anal and palpebral reflexes were present and breathing was rapid.

Twelve minutes later a dose of 3.4 mgm M. 285 was injected i.m. Twenty-eight minutes after this the respiration rate was 44/min. and the pulse rate 96/min. Two hours and forty minutes after the animal first collapsed there was still no change in her condition and she was left under the supervision of a game guard. She was revisited four hours later and found to be lying on her side, having made some attempts to rise. Her respiration rate was now 18/min. and her pulse rate 106/min.

Several attempts were then made to bring her to her feet by douching her head with water. At first she tried to rise with each application but eventually ceased to react. She was rolled onto her sternum again and, eight hours from collapse, a further 10.2 mgm M.285 were injected i.m. A barricade of sticks was made against her right flank so that she could not roll onto her side and the animal was left at 1825 hours.

The spot was revisited at 0730 hours the following day when the animal was found grazing, having walked about a hundred yards in a circle. Subsequently the animal was kept under observation for ten days during which she moved about, eating and drinking. Three weeks after the operation the wound appeared to be almost healed, and six weeks later she had stopped limping. At the end of November she produced a calf.

Discussion

Failure of the animal to respond to the injection of nalorphine was probably due to insufficient being administered, although the amount was greater per estimated pound of body weight than that used by Harthoorn (1965), but this worker did not administer sufficient M.99 to prostrate the animal. As the animals were crated and transported the inability of an animal to recover immediately would probably be regarded as advantageous. King and Carter (1965) found in the black rhinoceros that M.285 failed to effectively antagonise M.99 and when in the presence of phencyclidine the period of recumbency was prolonged. King and Carter (op. cit.) also found that rhinoceroses left on their sides for 353 and 1,060 minutes

suffered radial paralysis. That this rhinoceros which was recumbent for 459 minutes and possibly until dawn (1,170 minutes), did not suffer a similar paralysis, could be attributed to its being maintained in the sternal recumbent position, so that no pressure was put upon the radial nerve although the legs were doubled under the body during the recumbent period.

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Python predation on Uganda Kob

The Toro Game Reserve in the Semliki Valley of Uganda supports a Uganda kob (*Adenota kob thomasi* Sclater) population of approximately 12,000 animals. The area consists largely of dry savannah with a large area of marsh marginal to Lake Albert and also contains two fair-sized rivers. The Wasa river flows the full length of the reserve; it is a permanent stream with seasonal swamps and backwaters bordering it.

Five cases of predation on kob by pythons (*Python sebae* Gmelin) have been either observed by the authors or reported in detail by game guards since December 1964. The first observation was made in January 1965 by the senior author when a small python was discovered with a female Uganda kob. There were marks on the brisket of the kob where it had apparently been seized or bitten by the snake. No bones were broken and the kob had apparently been killed by suffocation due to constriction or shock. Attention was originally drawn to the scene by the large number of vultures circling the area.

The second case, also observed by the senior author, was in March 1965 when vultures again drew his attention to the scene. The prey was a female kob; there were no bones broken and the muzzle was covered by saliva, either prior to the commencement of swallowing or after it was disgorged upon being disturbed. In this case the vultures were attempting to obtain a share of the prey; the python was hissing loudly and lunging at the vultures to keep them away. While the python never managed to strike a vulture, the vultures were successful in snatching the occasional beakful of kob.

The third case was reported by game guards. The python and prey were in open grassland. Circling vultures led to the discovery of the python and its prey. Once again the prey was an immature female kob.

In the fourth case the senior author found a python about 13 feet long with a kill which was badly torn up by vultures. The snake was trying hard to retain possession of its prey but the vultures appeared to be gaining the upper hand. It left the kill when disturbed by humans, while neither of the former three did so.

In the fifth instance both authors encountered a python in possession of a kob on September 17th, 1965 (see illustration). We were travelling parallel to a swamp, by landrover in high grass, and did not see the snake until almost upon it. The time was about 5.30 p.m. and there were no vultures present. The python was a very large one, measuring 15 feet in length and weighing 119 pounds. The prey was a small female kob weighing about 65 to 70 pounds. Ingestion was well advanced with the whole head and neck of the kob already down the snake's throat. The snake's nose was level with the forward edge of the kob's scapula, and the coils about the kob appeared to be merely holding