ACTA THERIOLOGICA
Vol. 29, 29: 349—356, 1984

Growth and Development of Hand Reared Fallow Deer Fawns

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Krzywiński A., Niedbalska A. & Twardowski L., 1984: Growth and development of hand reared fallow deer fawns. Acta theriol., 29, 29: 344—356 [With 1 Table & 2 Figs.]

The experiment involved 11 fallow deer fawns aged several hours to 10 days and caught in an enclosed area of 100—150 ha. Observations were made on growth, development and behaviour. The fawns were weighed and measurements made at about ten-day intervals. Males were somewhat heavier than females immediately after birth. Males had also longer body, head and other measurements. The differences increased with age. At 3 months the males weighed an average of 22.1 kg, and the females 17.9 kg. At 3 months the males had an average daily weight gain of 0.19, and the females 0.15 kg. The fastest growth rate occurred during the second and third months. Fallow deer were significantly less tame than red deer or moose reared under similar conditions and living in the same enclosure.

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1. INTRODUCTION

In spite of the fact that fallow deer, *Dama dama* (Linnaeus, 1758), are popular in parks and for hunting, biological details of this species are not too well known. The taming of animals eases the carrying out of experiments and in some instances is necessary (Reichert, 1972; Kossak, 1981). Relatively little work has been done on hand rearing fallow deer (Wayre, 1970; Moore & Cowie, 1980(81). This is probably due to the fact that when fallow deer are born they are very lively and can quickly hide in bushes and therefore are rarely caught by people. The few experiments that have been carried out have dealt primarily with social behaviour (Gilbert, 1964). There is very little material dealing with the weight of newborn calves (Chapman & Chapman, 1975; Gilbert, 1968). The development of a method of hand rearing fallow deer can be significant not only for scientific research but also in cases where the female died. Hand rearing can tame animals that can be used for farm breeding (Yerex, 1979, Reinker, 1980). Recently several countries such as New Zealand, West Germany, Switzerland, Austria and Sweden are developing more and more fallow deer breeding farms. Having a basic

herd of tame females it makes manipulation, herding and e.g. dehelminthization much easier. Tame animals are also less susceptible to stress which is significant in starting breeding especially on small farms.

2. MATERIAL AND METHODS

Twelve fallow deer fawns (4 males and 8 females) were hand reared. The animals were caught in an enclosed wooded area of about 150 ha in the northwest part of Poland during the second half of June. The fawns were born from animals which had been caught several years earlier from natural habitats. Most of the fawns were caught shortly after birth (0.5 to 5 days old); one male was caught at a somewhat older age of about 10 days. Most of the newborn fawns were found in shrubs and bushes, very well hidden in dense nettle, elder and sloe bushes. They were never found in open areas such as pastures or alfalfa fields. To find the animals a call imitating the young fawn (and made from a blade of grass) was used. At this call the frightened mother came running with 1—3 other females to near where the young were hidden. Usually the fawns were in a crouching position. When the fawns were caught they gave a frightened call especially the older ones. In some cases when the mothers heard their offspring cry they came as close as 2 m and to defend their fawns they became aggressive

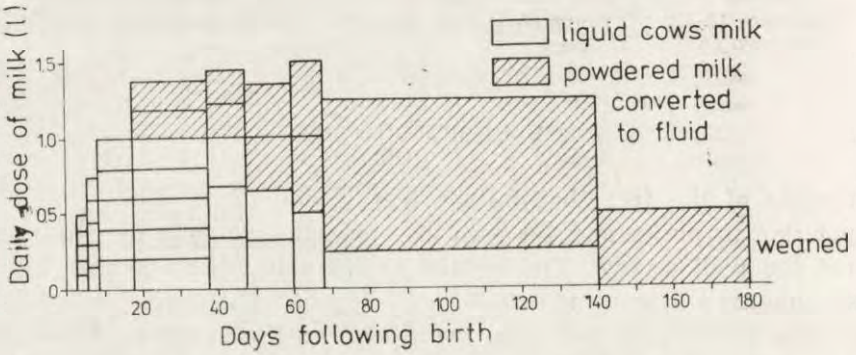

Fig. 1. Amount of milk and frequency of feedings per day according to the age.

by pawing the ground and sticking their tails straight up in the air. The caught fawns were then taken by car to Popielno Research Station and released into a 25×25 m enclosure in which they stayed for approximately 2 months. In August, the fawns were placed in a 0.3 ha grassy enclosure together with calves of other deer species such as moose, *Alces alces* (Linnaeus, 1758), red deer, *Cervus elaphus* Linnaeus, 1758, and roe deer, *Capreolus capreolus* (Linnaeus, 1758).

During the first month of life the fawns were fed cows milk from a bottle. At the end of the first month the fawns were fed powdered milk for babies mixed with bran and ground oats (Fig. 1). The amount of bran and oats was established so that during the day everything was eaten and there were no leftovers. The amount of feed at about 3 months was approximately 0.3 kg of such mixture per animal and at 6 months — 0.5 kg per animal. At the age of

2 months the amount of liquid milk was lessened to one minimal feeding per day and the rest of the feedings consisted of just powdered milk. The animals had free access to clean water all the time. Although the young fallow deer partially ate in the pasture, from the beginning of their life they were fed clover, alfalfa and willow-herb, *Chamaenerion angustifolium* Linnaeus, 1758. Furthermore everyday they received fresh branches of various deciduous trees and shrubs such as willow, rowan, linden, hornbeam, hawthorn, oak and aspen. They liked willow-herb, white clover and branches of rowan and hawthorn the best. At three months the fawns also received apples and half-sugar beets. At the age of 5—6 months the fawns were moved onto the deer farm in Wejsuny.

The animals were weighed and measured approximately every 10 days. Measuring and weighing were carried out during bottle feeding only since holding the animals by force on the scales or in the arms was very difficult since the animals had such strong defense movements. The length of the body, ear, head, mandible, metacarpus and metatarsus, head width and chest, metacarpus and metatarsus circumferences were measured with a tape measure. Shoulder height and chest depth and width were measured with a zootechnical cane.

3. RESULTS

Eleven of twelve fawns were hand reared. One of the caught females was in very poor condition. She drank very little milk and died after several days.

3.1. Rearing and Development

The length of time needed to learn to drink from bottle varied and lasted from 1 to 10 days. The fawn which was separated from its mother at the oldest age took the longest to learn to suck from a bottle. At first this fawn was kept in a small box since it kept hitting the fence in order to escape. Doe no. 6 started drinking from the first day. Three fawns learned within 6—7 days.

Table 1 shows the average measurements (for 3 males and 7 females) made after birth and at 3 and 6 months. At birth males weighed an average of 5.2 kg, females 4.7 kg. The average measurements for the males were longer than for the females. The differences increased with age. At the age of 3 months the males weighed an average of 22.1 kg and the females 17.9 kg.

Fig. 2 shows the growth rate for male and female fallow deer fawns. Average daily gains for the 5 months for males was 0.19 kg and for females 0.15 kg. During the first 7—10 days while the fawns became accustomed to cows milk and their new environment they hardly grew at all. Fastest growth rates were obserwed at 2 and 3 months. In both males and females the growth rate slightly decreased during the 4th and 5th months. However after two months the differences between male and female growth rate significantly increased.

Table 1

Average body measurements (cm) and weight (kg) of fallow deer fawns.

Item	Sex	Birth	3 month	6 month
Weight	M	5.3	22.1	31.8 [1]
	F	4.7	17.3	24.8 [1]
Body length	M	73.8	108.5	117.1
	F	66.5	101.1	108.4
Shoulder height	M	44.7	63.0	69.5
	F	43.4	60.0	64.9
Head length	M	19.3	24.8	25.4
	F	17.4	22.6	24.4
Head width	M	12.3	15.6	17.0
	F	11.9	14.7	16.6
Mandible length	M	11.8	16.3	16.8
	F	10.6	15.5	16.7
Ear length	M	10.2	13.7	—
	F	9.5	13.0	—
Chest circumference	M	41.0	66.3	82.0
	F	37.2	61.2	74.9
Chest width	M	11.3	17.0	—
	F	9.3	13.3	—
Chest depth	M	14.7	25.2	—
	F	13.8	22.4	—
Metacarpus length	M	15.0	16.2	17.2
	F	13.5	15.9	16.7
Metacarpus circumference	M	4.9	7.5	—
	F	4.8	6.6	—
Metatarsus length	M	20.2	25.0	26.7
	F	19.5	23.8	25.0
Metatarsus circumference	M	6.0	8.5	—
	F	5.8	7.6	—

[1] Weight concerns 5 months.

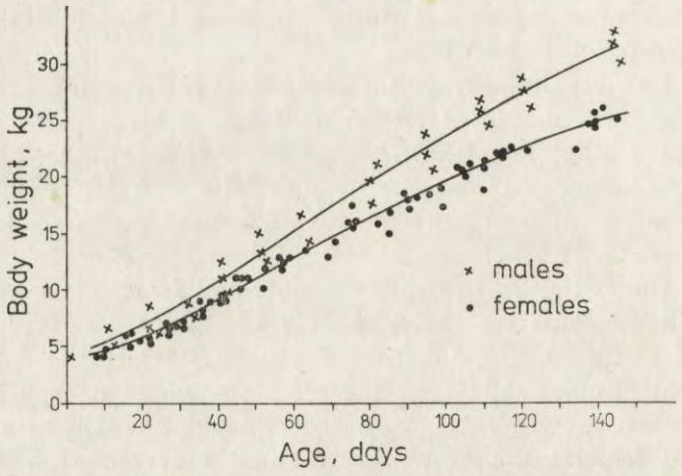

Fig. 2. Differences in the body weight growth between males and females of fallow deer fawns.

3.2. Taming and Behaviour

Of the 11 fawns no. 6 was especially tame (she drank from a bottle the first day and followed a person without difficulty), while no. 9 was a bit less tame. The remaining 9 animals were definitely less tame in comparison to red deer fawns, hybrid red deer × wapiti fawns and even roe deer kids which shared the same enclosure. Female no. 6 was so tame that she would accompany the manager while in the enclosure. The other animals came close to people only while drinking milk. It is easy to teach young red deer or moose to follow the manager during walks in the woods. They especially follow the manager when they do not know the area. However fallow deer fawns are not easily taught to follow the manager. Of course it is impossible to take all the animals at once for a walk. While teaching the fallow deer to go for walks they often got lost and in fright crouched in bushes. Often several hours passed before the animal rejoined the group. Outside of their known enclosure, especially when separated from the larger group the fawns hardly recognized people who reared them and often did not even approach someone with a bottle.

At 4.5 months when the entire group of animals was accidentaly in some near-by woods the animals were distrustful and were affraid to approach individuals whom they knew previously and ran away almost like wild animals. Sometimes the animals would run after someone which allowed them to be taken back to their enclosure. While together with other deer species the fallow deer always created a separate sub-group both while resting and feeding. At one month the fallow deer as it was observed in other young deer (moose, red deer) started mounting each other. They especially liked to mount when 3 months old. Usually bucks mounted does other bucks and even females sometimes do the same. At this time protuberances are beginning to form on the males' skulls where pedicles would later develop. At the same time they frequently pushed things with their heads and rubbed their heads against objects. Fallow deer reared in 1983 as a group amidst other young deer did not mount other species. Yet the individual red deer. It is an example of imprinting.

Already in the first month of life the fallow deer a certain daily ritual of playing and running. They especially like to play before sunset for a few minutes to about half an hour. Sometimes they played during the day, for example after a long rain. Playing began with a funny jumping on four legs at once. Other animals quickly joined in. Fawns jumped high and kicked up their heels

like wild horses. After a while the entire herd galloped and bucked. Usually they ran in circles. Sometimes while galloping or bucking they ran into each other or another obstacle. In 1981 when there was only one fallow deer fawn raised with other deer species and a hunting dog, the fallow buck played with the dog.

4. DISCUSSION

In the literature there is definitely less informations on hand rearing fallow deer than on rearing red deer, moose or roe deer. There is also a lack of information concerning lactation, milk yield and milk composition. In general it is felt that fallow deer fawns are fed like red deer fawns except that half the amount of milk is given (Moore & Cowie, 1980/81). It seems that a daily dose of 1.5 l of milk at the end of the first month is enough.

During the first 10 days the fawns did not grow. This was related to their learning to drink from a bottle as well as a change in feed. During this time the animals should be frequently fed small amounts of milk. A similar phenomenon was seen in hand rearing young red deer (Krzywiński *et al.*, 1980).

Cows milk can be easily replaced with powdered milk for babies. Feeding powdered milk in dry form mixed with bran and ground oats saves much work during feeding. Young fallow deer fawns, like roe deer and moose should be given green food at about 10 days of age. It is best if the animal feeds in a pasture. During the first month, especially during the first two weeks, the fawns like to eat sand and soil. This is also often observed in other deer species. As with other deer species the earlier an animal is started to be hand reared the easier it is tamed. In comparison to red deer and moose, fallow deer already during their first days of life are more wild. Even during the first day some animals when caught are definitely afraid of people and give a frightened call. Red deer fawns do this only after a few days. In general when 1—3 day old animals are caught they immediately follow a person like their mother. Similarly, when a young moose is rejected by its mother for several days and meets a man, cow or horse it will follow them to buildings. The wildness of individual fallow deer appears to be a matter of individual character. Fallow deer, in comparison to red deer, seem to have a greater herd instinct. Even though they were kept together with other species they always formed a separate group. When one fallow deer was hand reared with other deer species, even when it was mature, it prefered to stay with the deer it was raised with even when released in an enclosure with other fallow deer. This strong

imprinting during the first days in fallow deer is stressed by Gilbert (1968), in birds by Lorenz (1935) and in some domestic ungulates by Fraser (1968).

After the second month fallow deer demonstrated the ritual of evening play. This type of behaviour in young fallow deer is typical for this species and was described by Chapman and Chapman (1975).

In general it seems that it is more difficult to tame fallow deer in comparison to other deer species. Taming results are poorer that for other deer species in spite of similar hand rearing methods and conditions. This is probably due to their stronger herd instinct. It can be seen in their quick reaction of the entire herd when any type of manipulation is performed even on one individual.

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Accepted, June 28, 1984.

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WZROST I ROZWÓJ SZTUCZNIE ODCHOWYWANYCH CIELĄT DANIELA

Streszczenie

Przeprowadzono odchów 11 cieląt daniela *Dama dama* (Linnaeus, 1758). Do odchowu użyto zwierząt odłowionych w wieku od kilku godzin do około 10 dni. Przeprowadzono obserwacje nad wzrostem, rozwojem i behawiorem odchowywanych cieląt. Przedstawiono pomiary i wagi cieląt zaraz po urodzeniu oraz w wieku 3 i 6 miesięcy (Tabela 1). Samce były już przy urodzeniu nieco cięższe od samic. W podobnej relacji pozostawały pomiary ciała jak długość ciała, głowy, stopy itp. Różnice te powiększały się wraz z wiekiem (Ryc. 2). W wieku 3 miesięcy średnia masa samców wynosiła 22.1 kg, zaś samic 17.9 kg. Przeciętny dzienny przyrost za 3 miesiące dla samców wynosił 0.19, dla samic 0.15 kg. Największe tempo wzrostu wykazywały zwierzęta w drugim i trzecim miesiącu życia. Cielęta daniela oswoiły się w znacznie mniejszym stopniu niż w tych samych warunkach odchowywane cielęta jelenia szlachetnego lub łosia, z którymi przebywały we wspólnej zagrodzie.