

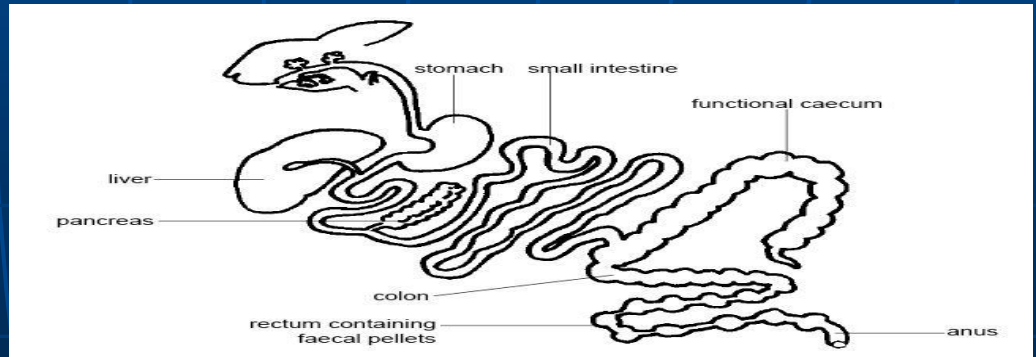
Behavioural patterns in rabbit



Behavioural patterns in rabbit

- Ingestive behaviour
- Pattern of behaviour

The digestive system of rabbit show many adaptations to its mode of life including specialized nature of teeth, heavy bile production and voluminous intestine with caecum ending in an appendix.



Mastication movements ensure that the food is cut and ground in a finely divided condition on entering the stomach.

Domestic rabbits seldom protrude its tongue while eating, however, they protrude it after drinking to lick the surplus water from the lips.



When grass is offered, the rabbit raises its head and chew the grass with a rate of 120 jaw movement / minute

Although rabbit is a highly selective feeder, its range of food is nevertheless wide.

Rabbits vary much in alertness which detected by the movement of ears

For much of the time, the ears lie back but periodically it erected and directed forward.

When the rabbit is alerted, both ears face forward and it will then cease to crop, raises its head and looks around.

Stimuli releasing feeding:

- Sunshine stimulates non grazing wild rabbits to feed and also stimulates grazing ones to start basking or washing
- Cold does not seem to stop rabbits from feeding unless is combined with wind where the rabbit lies close to the ground with ears flattened back and sometimes shelters from the wind in a depression in the ground.

Re-ingestion:

- Rabbits reingest its faeces rapidly. The animal sits and bends its head down between its legs or sometimes around its flank to procure the faecal pellets directly from the anus and swallow it immediately.
- These faecal pellets differ in its physical consistency from the familiar hard round ones which are voided onto the ground.
- They are lined with mucus and much of it is apparently made up of secretion from the caecum.



Re-ingestion is also called **pseudo rumination**. Certain B vitamins and nitrogen are utilized better as a result of this process.

It was observed that re-ingestion occurs in both adult and young suckling rabbits under 3 week old.



Sexual behaviour

Male sexual behaviour

A- (courtship)

a- Courtship chasing: -

This must be distinguished from aggressive chasing in which a definite attack occurs if the quarry is caught

Courtship chasing is the early for of the sexual activity that observed most frequently

In the open field, the buck usually follows some 10 – 20 yards behind the doe

The buck sometimes begins by rushing the doe which spurts its head to maintain her lead

. After this, the pace slows again.
Chases may interspersed with long intervals of false feeding during which, both animals remain alert and the buck sometimes edges towards the doe until he is near enough to attempt a rush.



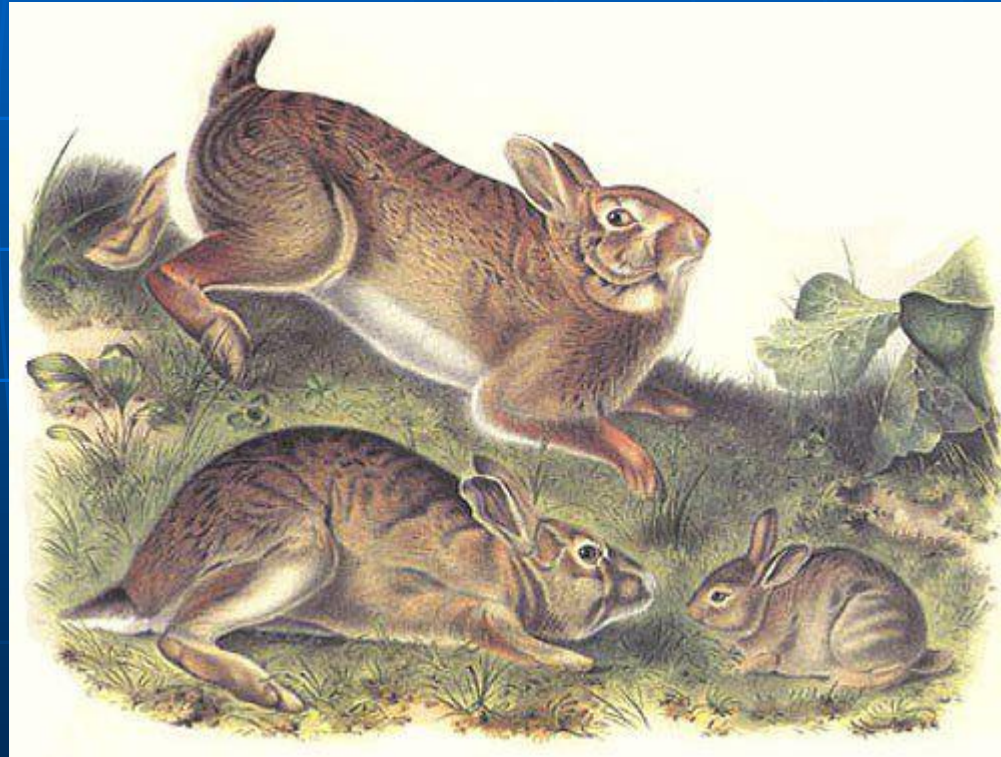
b- Tail flagging:

- Where the buck elevates his hunches and walk with stiff-legged gait and lays his tail flat along his back so that displays its white underside or what is called scut
- Various accompanied movements are performed including **false retreat** in which the buck walks stiffly away from the does for some 6 yards giving her a full view of his elevated tail.
- He will then returns to her and repeat this performance 3 – 4 times in succession.

Another accompanying movement is the **parade**

in which the buck circles the doe at about 2 yards distance with tail elevated and rear quarters are twisted to her

This display provides visual and olfactory stimuli from the inguinal glands.



c- Epuresis (enurination):

- Where the rabbit emits a jet of urine at the partner in the display. It performed in several ways: -
- The buck turns his hind quarters towards the doe and shoot out a jet of urine backwards.
- A very common method is running paste the doe about a yard away from her and twists his hind quarters towards her before shooting a jet of urine.
- A less common method is downward enurination in which the buck leaps over the doe and emits a jet of urine as he passes over her.

A less common method is downward enurination in which the buck leaps over the doe and emits a jet of urine as he passes over her.



d- copulation

- The buck may suddenly approach a doe from behind and attempt to mount her by placing his fore paws on her flanks.
- More commonly, the buck rests his head on the flanks of the doe or nuzzles her hind quarters
- An attempt to copulate is usually preceded by tail flagging and enurination
- The reaction of female to these attempts is generally negative.

In domestic rabbits, mating occurs after placing the doe in the buck's hutch

If the doe is fully receptive, she will lie in a correct position at once and raising her hind quarters to allow copulation where the buck mounts her and performs about of 8 - 12 copulatory movements ending with intromission with forcible penetration of the erected penis and ejaculation in time

Vigorous bucks may attempt to serve the head of the doe but speedily correct his mistake

As a terminal feature, the buck falls backward or sideway after emitting a loud cry but soon rights himself

Healthy and vigorous one will again performs the same act quickly often within a min

If the doe is less receptive it refuses to raise her hind quarters and tail.

So, the buck licks her base of ears or goes through other courtship displays.



Female sexual behaviour

1- Oestrus: -

- Oestrus is less easily detected in rabbits. Wild rabbits are generally anoestrus outside the breeding proper although a varying number conceive.
- Non oestrus doe accepts the buck even during this time although, in some individuals, mating is refused.
- In domestic rabbits, Adult non pregnant does varies in their receptivity. There are days and occasions when non pregnant does refuse mating or refuse one buck while accept other or even accept a buck once but refuse him in the second time.
-

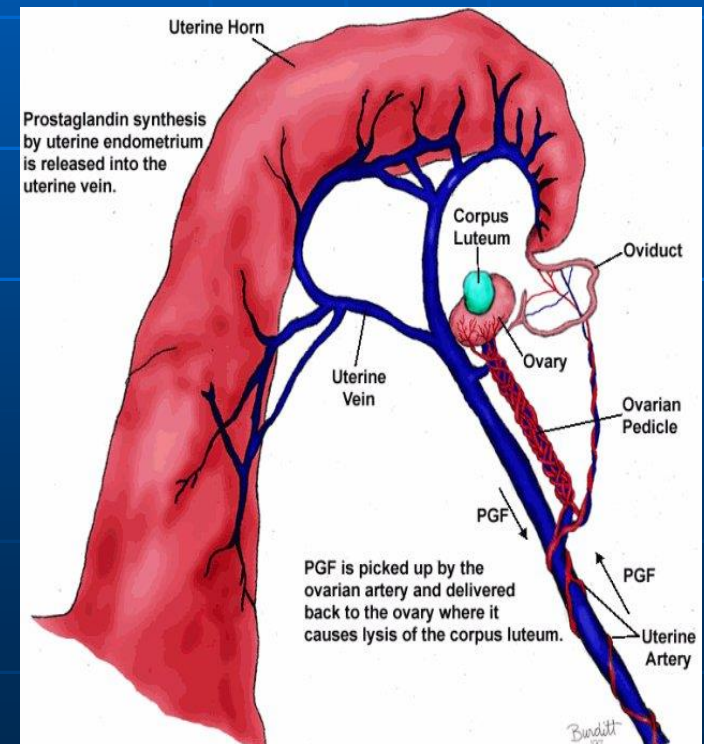
The onset of breeding season is determined by females. Studies on ovariectomized does show neuro-hormonal mechanisms involved in oestrus behaviour.

The doe which is willing to be mated usually shows a congested moist vagina with a purplish colour.



2- Ovulation:

- Does not ovulate spontaneously but after coitus with 10 – 11 hours or after other mechanical or hormonal stimuli
- It may occur experimentally through electrical or manipulative treatment
- It may also occur naturally through the orgasm induced by contact with other female during pairing or after any emotional stimuli.



3- Post partum oestrus: -

- Both domestic and wild rabbit can be successively mated at post partum oestrus
- If the young of previous parturition are removed, the mating willingness of the doe will persist for at least 36 days after parturition
- If suckling of young is permitted, sexual desire wanes
- It was recorded that 100% of rabbits copulate on the 1st day after parturition, 71% on the 4th day, 42% on the 8th day and only 11% on the 12th day

After that, all does refuse to copulate until they become receptive again when the young begin to feed themselves (50 – 60 days after parturition).

So, desire for coitus lost as long as the mammary glands of the domestic rabbits are actively functioning

Maternal behaviour

- Several days to few hours before parturition, the doe begins to collect hay, straw and other similar materials and carry it to the nest site
- She plunks hair from her body and interweaves it with the previously mentioned materials to build a nest
- The hair is normally fast if her body but becomes loose near the time of parturition
- The center of the nest is hollowed out where the young are generally born. In an excellent nest, the top is roofed over with nesting materials. This helps in maintaining the body temperature of young

After birth, the mother usually eats the foetal placenta and membranes and severs the umbilical cord of young

There are some abnormalities which may occur as: -
Failure to build a nest before parturition.
Birth of young outside the nest.
Scattering the young.
Cannibalism the young.



The previously mentioned associations indicated that better nest quality, earlier time of nest building, great percentage of live born young suckled on first day, lack of scattering as well as cannibalism were positively interrelated.

These behavioural patterns were classified as "**Maternal Care Complex**".



Nest building behaviour

- The core events in maternal behavior appear to be construction of maternal nest
- Initially, the doe builds a nest of hay, straw and other similar materials and this called "**straw nest**".
- At the end of pregnancy, the doe hair become very loose specially that at the abdominal region.
- The doe plucks this hair from her body and uses it in lining the nest and the nest then called "**maternal nest**".
- Collection of has, straw and other bedding materials reaches its peak on the day that the pregnant doe builds her maternal nest.

The quality of the nest that is built by the mother is linearly improved from the first through the third litter and then leveled off at the fourth litter.

The mechanism underlining this improvement of nest quality is not known

It may be a function of learning experience or may be systemic endocrine changes taking place with successive parturition which expressed in nest building.

Mother's hair is the most important element in establishing the functional value of the maternal nest.



Retrieving and suckling

- Although retrieving of young is quite common among mammals, it does not appear to occur among rabbits
- Attention that pays by the doe towards her young ranges from lack of concern to solicitous licking.



(c) Raising-Rabbits.com

Lack of this behaviour can be naturally understood when one considers the daily nursing pattern of mother towards her young.

Does only nurse their young once a day.

This is sufficient to maintain the adequate body gain and growth of young.



The amount of time that the doe spends in nursing her young ranges from 3 – 5 minutes / day.

Nursing is ended by the mother as she moves away from her young.

When a young attempt to suckle again, the mother prevents this either by running away or by lying flat so that her teats are not accessible.

This indicated that restriction of suckling to once a day is not related to the young, but the mother.

Some associations among maternal behaviour

- 1- There is a strong association between the time the nest was built and the time the nest was lined.
- 2- There is an association between the quality of the constructed nest the quality of the hair used in its preparation.
- 3- There is a weak relationship between the nest quality and time of nest building. However, there is a positive relationship between nest quality and percentage of live born young suckled on the first day of life.
- 4- There is a weak positive relationship percentage of suckled young and time of nest construction

5- There is a positive relationship between scattering, cannibalism, poor nest quality and the onset of nest construction.

6-The influence of nutrition on maternal nest building and cannibalism of young was stated as follows: -

a-Maternal food intake has no effect either on the quality of maternal nest or on the starting time of nest construction.

B-Percentage of viable young decreases with both over and under weight of the pregnant doe.

C-Cannibalism of young is not affected by maternal food intake.

7-Construction of maternal nest is initiated by changing in the ratio of progesterone and estrogen hormones. Progesterone dominates estrogen during normal pregnancy. At the end of pregnancy, this ratio shifts to one in which there is estrogen dominance that leads to hair loosing and brings maternal nest construction.

8-Although the previously mentioned ratio between estrogen and progesterone hormones is sufficient to induce maternal nest building, this does not eliminates the participating role of prolactin hormone in this act

Social behaviour

Warren system

Wild rabbit mainly inhabits a warren.

Rabbits excavate mainly with their fore paws and throw much soil backwards with their powerful hind feet leading to opening the ground and forming an entrance which often descend vertically for more than 9 feet

These openings are concealed by vegetation and known as bolt-holes.

Rabbits rest on the bare earth inside these warrens except those used for breeding which contain bedding materials.



Social structure

Social structure of wild rabbit's colony during breeding season is related to the territorial conservation of the does and the dominance of certain bucks

During summer, young males are driven out by older bucks and only the most vigorous of them are able to survive until the next year

No bucks were found to be a leader during his first season and before one year old. Most dominant males were the old bucks that weighing 1600 gm or more.

Dominant buck chases away other bucks that approach the does under his attendance.

It is believed that does form the more stable element in social organization. Older does are generally hostile towards young rabbits.



Aggressive behaviour

was found that aggressive behavior among wild rabbit colonies is not clearly defined as sexual behaviour

There are two categories of aggressive behaviour among rabbits:

aggressive chasing

leaping and bouncing

Aggressive chasing

It occurs primarily within the warren enclosures as a

The encounter is usually brief and the trespasser result of any trespass into the sphere of adult does which are aggressive towards younger rabbits especially by the end of breeding season as they not tolerate them within several yards of their burrows.

The encounter is usually brief and the trespasser retreats rapidly.

Bucks are not nearly aggressive as does but they respond when another buck approaches too near to their mate.



Leaping and bouncing

It is difficult to distinguish aggressive leaping between two bucks in combat from that involved in sexual behaviour which accompanied with enurination.

It was founded that leaping and bouncing increase during spring and summer with expected peak during March and April due to increased sexual activities.



Two instances of aggressive leaping and bouncing were observed: -

In one case, both animals indulge in false feeding and at the end, each one turns simultaneously and rushes at each other.

In the second case, two rabbits circle each other with hunches elevated for a while. They face each other and then leap into the air and land on the same spot from which it sprang.

Single animals may be often seen leaping in the air. This is probably related to play activities and mainly occur by young

Other behavioural activities

a- Latrines: -

Wild rabbits use latrines or earth closets which are special patches of the ground near to the burrows. It is usually found near the run.

It is circle in shape with a foot or more in diameter.

It contains brown herbage with a collection of dry faecal pellets at its center. Single latrines are often related to a particular burrow.



b- Locomotor activities: -

- Wild rabbits may travel a considerable distances which may reach to 4 miles / day in searching of food or water.
- In temperate regions, traveling is less due to restriction of its feeding movements.
- Territorial conservatism is marked among adult does which tend to occupy particular areas, usually patches of bare earth.
- This behaviour is combined with aggressive behaviour towards other females, young rabbits and occasionally bucks.
- Adult males also appear to have their territories in which they are dominant.

Maximum speed attained by rabbits is said to approach 24 km / hour.

Rabbit's gait is a hopping one and when it moves slowly, forefeet are placed in front of hind feet but as speed increases, hind feet tend to come further forward and land in front of forefeet.

Individuals vary in their capability to climb. Rabbits are also capable of swimming.

c- Resistance to thirst:

- Rabbits could be classified by measuring their resistance to thirst
- On this basis, it was found that Chinchillas are superior to Angoras and both are superior to Vienna blue.