

Laboratory rabbit ethogram

From *Refining rabbit care: A resource for those working with rabbits in research*, by the UFAW/RSPCA Rabbit Behaviour and Welfare Group (2008), available at www.rspca.org.uk/researchrabbits.

This ethogram is a compilation of:

- Morton DB *et al.* (2003). Refinements in rabbit husbandry: Second report of the BVAAWF/FRAME/RSPCA/UFAW joint working group on refinement. *Laboratory Animals* 27: 301-329 (see Appendix 1, pp. 325-7). [doi](#)
- Held SDE, Turner RJ and Wootton RJ (2001). The behavioural repertoire of non-breeding group-housed female laboratory rabbits (*Oryctolagus cuniculus*). *Animal Welfare* 10(4): 437-443. www.ingentaconnect.com/content/ufaw/aw/2001/00000010/00000004/art00008
- Gunn D and Morton DB (1995). Inventory of the behaviour of New Zealand White rabbits in laboratory cages. *Applied Animal Behaviour Science* 45(3-4): 277-92. [doi:10.1016/0168-1591\(95\)00627-5](https://doi.org/10.1016/0168-1591(95)00627-5)

Air-boxing	Fast forward flicking of forelimbs whilst rabbit sits upright on haunches. Usually precedes body grooming.
Biting	Seen during inter-or-intra-sexual chasing/fighting.
Body-rolling	Rabbit throws self onto ground in a sideways roll, may lie immobile in outstretched position on side with eyes half closed for some seconds after roll. Often performed as dust-bathing in the wild.
Bowing	Head lowered, neck outstretched (sometimes with eyes partly or fully closed) towards approaching rabbit.
Chasing	Rabbit rapidly pursues another, often with tail erect.
Chin-marking	Rubbing the chin over an object or conspecific, releasing secretion from the chin gland
Circling	<ul style="list-style-type: none"> ▪ Courtship circling – male runs semi-circles, alternating around stationary or slow-moving female. Also occurs between females in single-sex groups. ▪ Aggressive circling – slow or rapid chasing around and around in one spot; participants may have rear end of opponent gripped between their teeth.

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Coprophagy/re-ingestion	Rabbit removes, chews and swallows soft, mucus-covered coprophagy pellets directly from anus.
Copulation	Sexual mounting and thrusting followed by ejaculation. Successful ejaculation accompanied by male vocalization as he falls backwards/sideways off the female.
Crouching	A submissive behaviour; animal “freezes” and presses head and shoulders against ground with ears flattened.
Defaecation	Release of faecal pellets.
Digging	Prolonged paw-scraping at deep substrate, usually associated with burrow excavation. The substrate is thrown under and behind the body and the rabbit may turn and push the displaced spoil further back with alternate forward thrusting movements of the forepaws.
Displacing*	Rabbit approaches another and takes over his/her location.
Drinking	Lapping up water with tongue (not normally seen in wild rabbits; these appear to extract most of their water requirements from their diet).
Dozing	Lying or sitting with eyes slightly to half open and one or both ears erect; aware of the environment and responsive to sound and movement.
Feeding	Taking food material into mouth and chewing and swallowing - from food dispenser or floor.
Fighting	Involves aggressive attack with limbs or teeth, often with combatants leaping into the air/past each other.
Fur-pulling	Only performed by females. Rabbit pulls mouthfuls of hair from her body in order to line her nest prior to parturition.
Gnawing	Gnawing wood or other solid material with teeth.
Grooming	<ul style="list-style-type: none"> ▪ Self-groom: A full body groom is usually preceded by air-boxing (see above). The forelimbs are the licked and passed over the head and ears, prior to licking/nibbling of fur over the rest of the body. ▪ Allogroom: Rabbits may also lick the fur of another rabbit (usually around the head, particularly the ears), typically of the opposite sex.

* Not to be confused with *displacement activity*, which is behaviour performed out of its usual context when an animal is in a state of stress, frustration, or uncertainty. Typical displacement activities are comfort behaviours such as scratching or grooming.

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Locomotory	<ul style="list-style-type: none"> ▪ Hopping – forward movement achieved by alternate extension of fore and hindlimbs. Distinguished from running by its slower speed and shorter distance covered per forward jump. ▪ Jumping – vertical movement by rabbit either onto an elevated surface or into the air. The latter may occur, for example: (a) when surprised by another rabbit; (b) during jump-fighting between same or mixed-sex pairs of rabbits (see above); or (c) during play gambolling (see below). ▪ Parallel running – two rabbits run in parallel, with elevated gait, tail erect and at a slow pace along a mutual territorial boundary. May be interspersed with bouts of jump-fighting (see below) and/or parallel paw-scraping and scent-marking displays. ▪ Running – rapid forward movement achieved by alternate, fully-stretched extension of fore and hindlimbs.
Lordosis	Female crouching still with curved, convex spine, tail elevated and vulva visible.
Mounting	Sexual mounting of hindquarters (or head) of conspecific. May see homosexual mounting by males or females grouped in the absence of opposite sex individuals in captivity.
Olfactory investigation	Close sniffing of object/conspecific.
Play	<ul style="list-style-type: none"> ▪ Head flicking - flicking head sideways. ▪ Play gambolling or “frisky hop” – forward hopping/jumping accompanied by sideways tossing of the head/ears, shaking/twisting the body or kicking out with the feet. Young rabbits may also run back/forth at some speed during this activity.
Nest-building	<p>Female gathers mouthfuls of nesting material, carries it to the nesting site and builds a nest which she then lines with fur plucked from her own body.</p> <p>If nesting in a purpose-built breeding-stop, the female emerges and then digs soil into the tunnel to close the entrance. The soil will then be patted down by alternate, downward thrusts of the forepaws and a small volume of urine and a few faecal pellets deposited on top. This same closing and patting-down action may be seen in domesticated rabbits at the entrance of their cage/pen nest box.</p>
Nibbling litter	Picking up and nibbling litter, with or without ingestion.
Nose to nose approach	Two rabbits approach head on with necks outstretched to sniff nose to nose and/or nose to chin.
Nose to tail approach	One rabbit approaches another from the rear and sniffs under his/her tail (typically in the context of a male sniffing to determine the oestrous status of a female).
Nudging	Rabbit pushes nose into body or rump of conspecific - may be in a sexual or non-sexual context.
Pawscraping	Rapid scratching at the ground with the forepaws in the context of: (a) foraging (typically for roots); (b) aggressive encounters between two rabbits; or (c) a scent-marking session by a rabbit alone. Scent products in the form of urine, faeces and/or chin-gland secretions are typically deposited during (b) and (c).

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Rearing	Sitting up on hind-limbs with both forepaws off the ground; ears partly or fully down.
Rearing alert	As above but with ears erect.
Resting	<ul style="list-style-type: none"> ▪ Sitting – in upright stationary position, with rear end and forepaws on ground and ears down. ▪ Sitting alert – as above, but with ears erect. ▪ Lying, limbs tucked under – resting with trunk on ground, hindlimbs tucked under the forelimbs lying under or forward stretched from body. ▪ Lying, limbs outstretched – resting with body trunk on ground, all four limbs outstretched and belly exposed. Rabbits often sunbathe in this position. ▪ Lying in physical contact with one or more conspecific(s).
Scratching	Scratching at own body with a hindfoot.
Sexual following	Male approaches female from behind and she moves forward with male repeatedly following. He may sniff under her tail and put his chin on her rump as a prelude to mounting, before she moves away. An unreceptive female will usually tail-flag (see below) as he moves away. Also occurs between does in single-sex groups.
Sexual submission	Female crouches with tail fully erect so that a male may mate with her (see also <i>lordosis</i>).
Sleep	Lying or sitting with both eyes closed, ears usually flat against the back. Facial twitching and rapid eye movements may be seen.
Submitting	Rabbit ceases to move and drops nose below the nose of an approaching animal.
Tail-flag	Rabbit has tail fully vertically erect (typically during aggressive/courtship interaction).
Tail-wagging	Outstretched tail is flicked rapidly from side to side by female (typically in the context of a rear approach by a male).
Thumping	Loud thumping of the ground with the hind-foot (feet), usually when alarmed but males may also foot-thump after mating.
Urination	<ul style="list-style-type: none"> ▪ Squat urination – the hindquarters are lifted slightly and extended backwards and urine released in a continuous, downwards-directed flow. ▪ Urine squirt – with hindlimbs typically extended and tail erect, the rabbit squirts a short jet of urine out behind. ▪ Urine spray (or enurination) – a short jet of urine is emitted during a twist/jump action where either the whole body, or the hindlimbs alone, are lifted and the hindquarters swung around in a semi-circle. Typically, this spray is directed at another rabbit, either during courtship or an aggressive encounter.
Vocalisation	<ul style="list-style-type: none"> ▪ Low-pitched grunting - heard in pursued does, sexually aroused does, sexually pursued but unreceptive does. ▪ Screaming - very high pitched screeching when rabbit is injured or frightened.

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