

Tiggywinkles Fact Sheets

Hedgehog Hibernation Fact Sheet

Which Animals actually Hibernate?

The only British animals which adopt hibernation as a winter strategy are the hedgehog, the bat, and the dormouse. All other animals including squirrels, seem to be able to eke an existence out of the meagre pickings of winter. Even snakes and lizards do not hibernate in the true sense of the word; they become inactive while hidden in a deep frost-free hibernaculum.

Why Do Hedgehogs Hibernate?

Many animals which feed on invertebrate life rely on being able to find vast quantities of insects and other small creatures. The hedgehog has more bulk than most insectivores and consequently can find itself in trouble if the food is not available, especially during the colder months of the year when more food is needed to provide the calories to keep the body warm and mobile. It's a catch 22 situation: Just when the hedgehog needs more food there is less available. The insects have either died out or have gone into hiding until the spring. Even the earthworms have gone deep into the soil where only the mole's deep tunnelling and the badger's tremendous digging powers can get at them. At this time of year the badgers will remain in their setts if the weather becomes too cold while the mole, unlike the hedgehog, has learned how to store a larder of paralysed earthworms just in case the ground becomes too hard to patrol. The other insectivore cousin, the shrew, needs to eat regularly but he is tiny and able to find enough small insects to keep him active throughout the winter.

It is therefore the hedgehog, bat and dormouse which cannot find enough food during the winter and have to resort to the perilous business of hibernation.

What happens to a Hedgehog during Hibernation?

The true miracle of hibernation brings about some very dramatic physiological changes which almost transform the warm-blooded hedgehog into a cold-blooded animal just for the duration of the coldest two or three months of the year.

Sleep is not an apt description of hibernation or aestivation; its summer equivalent. In sleep all the bodily functions remain nearly normal with the heart and respiration still continuing to keep the brain and other organs of the body unconsciously active. A hedgehog which is asleep can be seen dreaming and moving just like any other sleeping mammal but in hibernation its

metabolism almost reaches a stand still. To all outward appearances it is dead; its feet, ears and skin feel cold to the touch but, as you touch it, unconscious reflexes make its spines stand up and tuck its head further into the impenetrable ball. Any sound will evoke the same response and yet the hedgehog's centre of nerve activity, the brain, is virtually closed down. Its heartbeat will have dropped from a frantic 190 a minute to a barely detectable 20 per minute. It hardly breathes at all, perhaps taking one breath every few minutes, and its body temperature, normally 35°C, drops to 10°C, a fall which would kill most other mammals. However, deep within the hedgehog ball the temperature around the heart is normal, gradually lowering as you move outwards to the skin and appendages which are hardly warmer than the ambient temperature in the nest.

All told a drop of around 25°C in a hibernating hedgehog's temperature enables the rate of chemical reactions in its body to be reduced by 75 per cent, allowing the fat reserves, that are the sole source of sustenance, to last much longer. Fat is automatically created when an animal eats more food than is necessary to maintain a healthy body. It is laid down in cells distended with one or several globules of fat which are then yielded up to the bloodstream in times of excessive activity, shortage of food, illness and during hibernation. Throughout the autumn and early winter months a hedgehog builds up these fat reserves until they are the equivalent of 30 per cent of its whole weight.

What happens in Extreme Temperatures?

When a hedgehog is hibernating it is essential that its temperature does not fall below 1°C or it will suffer frostbite or may even freeze solid. It is obviously unaware of the outside temperature but if the weather turns very cold, the hedgehog's body brings into play brown fat reserves which are supercharged fuel boosts. This quickly produced heat is then pumped through the bloodstream, warming the muscles, causing them to shiver and produce even more heat until after three or four hours the hedgehog's temperature will have risen by 25°C and its pulse rate to 320 beats per minute. It will then awake, realise that there is insufficient insulation in its present nest and move elsewhere to build another one.

When do Hedgehogs Hibernate?

It is not usually until November, December or January that larger hedgehogs finally settle down to hibernation, when they must realise that the greatest threats they face are floods, the cold or predators which can destroy them while they are inactive. A great many will never survive until the spring so it's as a last resort, when they cannot stay out and about any longer, that they put the final touches to their hibernation nests. As long as there is still food to be had you will still see hedgehogs out and about. In Britain the really hard frosts do not usually descend until the end of January with February and the first part of March being the time when any adult hedgehog out in the open is in trouble, and so the old story that hedgehogs start hibernation in October has now proven to be inaccurate.

What about Injured or Underweight Hedgehogs?

Any hedgehog that has not reached 600 grams or is injured in any way when the weather turns cold, will not have the fat reserves to survive hibernation, and so must be kept indoors throughout the winter. (See our Hedgehog Overwintering Fact Sheet). Larger hedgehogs which have recovered from treatment but have not yet been released should be kept in outside pens with weatherproof boxes crammed full of hay and newspaper (not shredded). Dog or cat food and fresh water should be put out each evening, although if the weather turns very cold the hedgehog may go into hibernation.

When do Hedgehogs come out of Hibernation?

Hedgehogs awaken fairly regularly during the hibernation period but seldom leave the nest unless their body thermostat has warned them that it is too cold; then they will not bother to add extra insulation but will go elsewhere to build a fresh nest.

However, in the spring, as the weather warms and their fat reserves run low the hedgehog starts to wake from hibernation. At this time the hedgehog will be very thirsty and will have lost one third of its bodyweight so it must eat if possible, just in case the weather turns cold again and it temporarily opts for more hibernation.



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