Scratching / Itching
(mice and rats)

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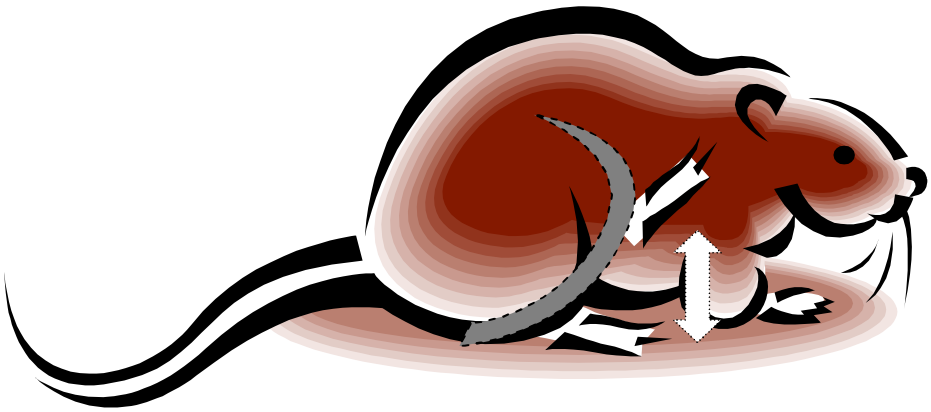
Definition used for automated behavior recognition

The scratching or itching behavior is a repetitive fast up and down movement of the hind foot rubbing and scratching the side of the body, the neck or the face. The scratching movement is one of the fastest repetitive movements made by mice and rats and can exceed frequencies of 20 Hz. During a scratching episode the frequency is relatively constant and is dependent on the mouse and the cause of the scratching between 14 and 26 Hz. For rats this frequency is slightly lower.

In between the scratching movements, the rodent might be gnawing and licking on the hind foot. During the scratching the animal tends to move the head in the direction of the scratching hind limb. The scratching occurs mostly in a sitting position and can be very short (0.3 seconds) to more than 2 seconds of consecutive scratching. Specific drug induced scratching can even occur for much longer periods of time.

Sometimes the mouse or rat is also rubbing the head or neck with the fore paws. However, this behavior is generally considered to be part of the grooming repertoire.

Postural patterns



Fast up and down movement of the hind foot, rubbing the side of the body, neck and face.

Context to other behaviors

As part of the normal behavior repertoire, the scratching behavior often occurs together with grooming behavior (licking or biting of the fur and paws and licking and wiping the body, head and genitals).
Excessive scratching (induced or not induced) is normal separated in time from grooming behaviors.
For more information on grooming refer to the description of grooming.

Isolated scratching

Normal scratching
Duration: 0.5 to 2s

Short scratching
Duration: 0.2s

Long scratching
Duration: > 2s

Scratching + grooming

Example of scratching in between two types of grooming
Tot. Duration: > 2 second

Pharmacological relevance

Background scratching is an important component of human atopic dermatitis. The duration of scratching determines the extent of skin damage and thus the rash. Measurement of the duration of scratching and the number of scratching episodes is important to make objective assessments of the factors that may cause the itch and also the efficacy of antipruritic drugs.

In laboratory tests the scratching is often evoked using the compound 48/80 that is administered intradermally in the back of the animal. Other compounds leading to increased scratching or itch are histamine, substance P and serotonin.

Applications are the evaluation of potential mediators and mechanisms of itching to be used in the treatment of dermatitis, psoriasis and eczema and other chronic skin diseases.

For more information or other behaviors automatically detected by LABORAS, please visit the LABORAS page on our website.