

Purposeless Chewing (rats)



Description of behavior

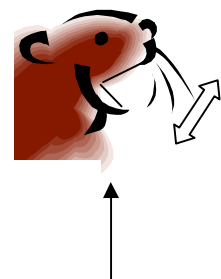
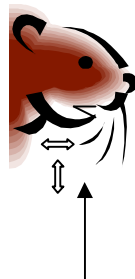
Purposeless chewing or Vacuous Chewing Movement (VCM) is a spontaneous or drug induced orofacial movement that can be characterized as a stereotyped or compulsive behavior during which the rat is making chewing like movements with the lips, jaws and head without the presence of any food. The behavior is sometimes also referred to as Oral Dyskinesia.

During the purposeless chewing behavior the rat is not showing any swallowing, but only a movement that is also done when grinding or shredding food. When chewing, the lower jaw is primarily in the back position, such that the molars are in contact with each other and the incisors are not.

Like with all stereotyped behavior purposeless chewing behavior is short (< 1s), without obvious function, overly repetitive and often structured in sequences of different types of chewing movements. This is in comparison to the relatively long and diverse sequences of normal chewing behavior.

The repertoire of VCM consists of small chewing movements of the mouth and lips only (sometimes also including tongue movements) and larger chewing movements involving the complete jaws and cheeks. In general yawning (gaping), which sometimes follows the chewing movements is normally not considered to be part of Purposeless Chewing or VCM.

Postural patterns



Small chewing-like movements of the lips and mouth

Large chewing-like movements involving the jaws and cheeks

Yawning / gaping (head bend backwards)

Context to other behaviors

The behavior often occurs together with yawning (gaping), when the animals opens the mouth very wide and moves the head backwards, sometimes withdrawing the tongue and sometimes with the tongue coming out of the mouth.

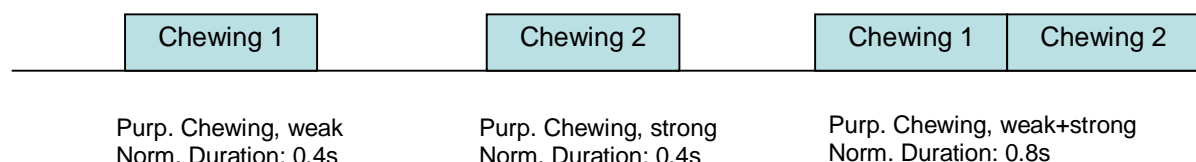
If the Purposeless Chewing or VCM becomes very intense it seems that the amount of yawning is also increasing.

The behavior can also be part of Dyskinesia behaviors which can be divided in Oral Dyskinesia (purposeless chewing), Locomotory Dyskinesia and Axial Dyskinesia.

Purposeless Chewing and the other behaviors are separated in time.

Temporal patterns

Isolated Purp. Chewing



Purp. Chewing + Yawning



Example of purposeless chewing followed by yawning
Tot. Duration: > 2 second

Pharmacological relevance

Based on phenomenological and pharmacological similarities, drug induced Purposeless Chewing or VCM is often used as an animal model of tardive dyskinesia (TD), which is the human hyperkinetic motor syndrome associated with chronic antipsychotic administration.

Examples of compounds inducing VCM are neuroleptic and cholinomimetic drugs, such as Haloperidol, Physostigmine, Pilocarpine, Metergoline and Cyproheptadine (some after chronical treatment and some already after a day of treatment).

Anti-neuroleptic drugs like Scopolamine or the Antitubercuclosis drug D-cycloserine (DCS) seem to reduce VCM. However, a lot of debate is still going on about these effects and also the use of this animal model in relation to human tardive dyskinesia (TD).

Please check out the definitions of the other behaviors automatically detected by Laboras!