

Penile reflex

Objectives:

In mammals, penile erection occurs in several different contexts. Erection stimulated by touch outside the context of copulation is commonly referred to as “reflexive” erection. When erection results from other than tactile stimulation, e.g. from viewing, hearing, or smelling sex-related stimuli, or from recalled or imagined sexual stimuli, then erection has usually been termed “psychogenic” (Sachs, 1995). Male rats represent a useful model to study the mechanisms controlling both types of erection. In male rats, reflexive penile erections and movements can be observed if the penile sheath is retracted with light pressure directed at the base of the penis (Hart and Melese-D’Hospital 1983; Sachs and Garinello 1978). This test allows to measure penile erection in conscious and restrained animals following lesions or administration of various pharmacological treatments. It has the advantage in that it does not involve social interaction with the female and it examines penile reactions directly.

Summarized methodology:

During the penile reflex test, male rats are restrained in a supine position in a tube with their penile sheaths gently held back and the penis retracted (Hart and Melese-D’Hospital 1983; Sachs and Garinello 1978). The penis then shows a characteristic pattern of tumescence and detumescence accompanied by “cups” (the end of the erect glans penis flares out) and “flips” (rapid dorsoflexion of the erect penis) (Hull et al. 1991; Warner et al. 1991). Erections serve to extend the penis beyond the penile sheath, a function that is necessary to achieve vaginal penetration during copulation. Penile flipping serves to stretch the vaginal wall and cupping serves to collect coagulating semen and seal the seminal plug against the cervix.

Endpoints:

Primary endpoints :

- latency to erection
- frequency and time distribution of three gradations of erections: E1, reddening and distension of glans; E2, tumescence of the base and tip of glans; and E3, intense erection accompanied by cupping of the tip of glans
- frequency of different reflexes

Secondary endpoints :

- number of seminal emissions (defined as the expulsion of seminal fluid followed by a coagulating plug)

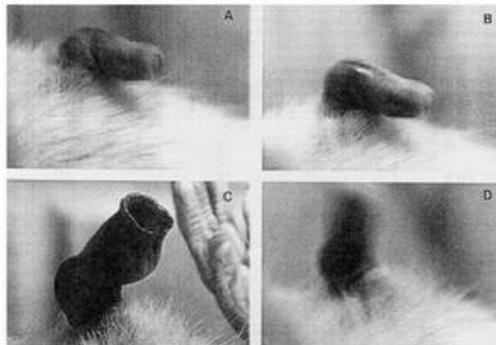


Figure 1: Rat is in supine position, the sheath of the penis being gently retracted: series of penile tumescence, cups and flips occur.

Related Pelvipharm bibliography:

Rosslar, A.S. et al. ISSM Conference, Le Caire (2006)

Links to applicable therapeutic areas / targeted disorders:

- Sexual pharmacology

- * ED (Erectile Dysfunction)
- * Ejaculatory Disorders