

Report from »Symposium über Hamster und Gerbil«, Detmold, Germany, March 1st & 2nd

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In cooperation between Akademie für Tierärztliche Fortbildung and Altromin Tier-Labor-Service a symposium specially dealing with Hamsters and Gerbils in biomedical research was arranged in Detmold in March 1990. This was the third symposium dealing with laboratory animals arranged by this group. Most of the symposium was dealing with different hamster species. Two lectures were about Mongolian gerbils, while a single one was dealing with *Gerbillus per-pallidus*.

HISTORY

Heinecke gave a short introduction to the history of the Syrian goldhamster (*Mesocricetus auratus*) in research. As the names describe the first animals were captured in Syria close to Aleppo in 1926. Only a single litter was used for the upstart of breeding at the Hebrew University in Jerusalem and later on as breeding animals were distributed over the world only few animals were passed on. This very little genetic pool in the original goldhamsters is similar to the upstart of the Mongolian gerbil laboratory colonies, which *Hansen* described in his lecture. Only 20 breeding pairs were originally captured in the Amur River Valley in 1935, and furthermore all gerbil colonies today are decedents of only 4 breeding pairs brought to USA in 1954.

Militzer gave a statistical review of publications on rodents species with special concern to publications on hamsters and gerbils. Publications concerning the urogenital system are the most common for hamster species, while more than 70 % of the publications on gerbils deals with the nervous systems. Out of all publications 1.2 % deals

with goldhamsters. 2.9 % deals with other hamster species, while only 0.4 % deals with gerbils.

BREEDING AND MAINTENANCE

Roßbach et al. talked about rederivation and SPF-breeding of primarily goldhamsters and chinese hamsters, but also some other rodent species such as Mongolian gerbil and mastomys. As foster mothers mostly mice, but in some cases also rats, were used. The success rate on caesarian section varied from 0 % to 76.9 %. In some cases hypnotics, analgetics and oxymetrin was used for the treatment of the foster mothers. *Sickel* used decontamination with antibiotics and anti-parasite drugs for the upstart of SPF-colonies of hamsters. The method is very time and work consuming, but it functions. *Hansen* used selection of Mongolian gerbils with a satisfactory microbiological quality for the upstart of a SPF-colony. All three methods for rederivation resulted in animals of high quality.

For chinese hamsters *Roßbach* found a mean litter size of about 4.5 born, but only about 3 weaned. The interbirth intervals are about 40 days. *Rapp et al.* found a mean litter size of about 6 for Syrian goldhamsters at birth, reduced to a number of about 4 weaned. The interbirth intervals are about 40 days for this species. Both found that these reproductive data varied with the successive litter number of the female. Furthermore *Rapp et al.* found variation in various reproductive data caused by environmental, seasonal and genetic factors. *Hansen* made up a mean litter size of 4.6 and a mean interbirth interval of 46 days in his Mongolian gerbil colony.

FEEDING

Madry et al. gave a description of the huge research work that has been the base of the development of a breeding and a maintenance diet for goldhamsters. Some references especially on hypovitaminoses in hamsters can be found in the literature, but the goldhamster is not fully characterized in all its metabolic aspects. *Hansen* uses a rat diet for the Mongolian gerbils as a commercial gerbil diet is not available. The use of different diets gave a variation in the reproductivity of goldhamsters (*Rapp et al.*).

GENETICS

Kluge and Rapp examined enzymatic genetic markers and hematological values of 12 lines of goldhamsters and made out that both enzymes and hematology were useful for genetic characterization. However, variation inside the sublines was found, although the generations of inbreeding were between 15 and 20. *Hackbarth* showed that different hamster species could be characterized by morphometric methods, e.g. relations between the weight of different organs and bodyweight.

PATHOLOGY

Deerberg et al. studied the pathology of chinese hamsters. The mean life span is 27+-10 months for the males and 26+-8 months for the females. Maximum life time is never more than 50 months. Diabetes mellitus type II is relatively common reaching an incidence of more than 10 % pr halfyear for

males above the age of one year, and a little less for the females. Diabetes is connected with the findings of hydronephrosis, inflammation in the urogenital tract, liver cirrhosis and glomerulosclerosis. Incidences of thyroiditis, sialoadenitis and pancreatitis are remarkable in aging chinese hamsters, especially in females.

SPECIFIC BIOMEDICAL MODELS

Schneider found the hamster very useful in atherosclerosis research. Also *Beynen* described characteristics of cholesterol metabolism in gerbils. In both species hypercholesterolaemia is the result of feeding of high-cholesterin-diet. *Buselmaier* found that the sensitivity of chinese hamsters to chemical mutagens is comparable to mice and that the number and architecture of the chromosomes make this species a very useful model for in vivo cytotoxicity. *Dasenbrock* uses the goldhamster as third choice for toxicological inhalation experiments and gave instructions for the practical application of inhalation studies in hamsters. *Warncke und Linow* showed that *Gerbillus perpallidus* is more efficient in controlling water turn over under dry and hot conditions than e.g. the Mongolian gerbil.

PROCEEDINGS

Proceedings edited by *Fortmeyer, Madry and Schumacher* are available from Altromin Tier-Labor-Service, Postfach 1120, D-4937 Lage.