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Lower urinary tract function in healthy rats: systematic review and meta-analyses

Autor(en):

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Einleitung:

Rats are the most frequently used laboratory animals for lower urinary tract function research. However, there are no generally agreed normal values. In addition, many different methods are used, each with advantages, disadvantages and limitations. Most importantly, there is no consensus statement with recommendations on the methods' strength and weaknesses.

Material und Methodik:

Objective: We systematically reviewed all available evidence on functional lower urinary tract assessment in healthy rats to define normal values and to allow recommendations on good urodynamic practice in rats.

Evidence Acquisition: The systematic review was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement.

Ergebnisse:

After screening of 2718 articles, 672 studies enrolling 17900 animals (71% Sprague Dawley, 21% Wistar, 2% Fischer-344, 4% other strains, and 2% not reported) were included. Reported adverse events were catheter clogging, infections and bladder stone formation. Risk of bias and confounding was high in most studies.

Schluss:

Although anaesthetized measurements are frequently used, we found differences in many values compared to measurements in an awake state. Thus, we recommend to assess lower urinary tract function whenever possible in the fully awake animals. The pooled data indicates gender differences in some urodynamic values, hence gender mixed study groups are recommended.