diagnose prostatic diseases and changes, however there is a great potential for variation due to operator-dependent factors. In this part, CT eliminates some of this variation, which may allow for more consistent interpretation of examinations. Notwithstanding the fact that computed tomography in dogs requires general anaesthesia, all males in our study tolerated anaesthesia well and respiratory or cardiac disorders were not observed. Although all male dogs where clinically healthy, some of the results suggested presence of benign prostatic hyperplasia depending on the volume of the prostate gland. Regarding this, further research based on CT and USG examinations is needed to evaluate male dogs with prostatic disorders.

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053 | Systematic analysis of the literature regarding dystocia in the bitch

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Introduction and aim: High quality literature in the field of canine reproduction is rare (1). So there are no studies on the quality of the literature about dystocia in dogs. This is notable, because it is a heavily forensic charged topic.
The aim of this study was to analyze the literature regarding dystocia in the bitch with focus on caesarian section.
Material and Methods: Relevant articles and studies were collected with the help of the online databases PubMed, Medline and Google Scholar. It was focused on articles published between 1960 and 2014 in German and English. Work published earlier was not considered because of lack of comparability. The relevant papers were found by using the search terms "sectio caesarea", "cesarean section", "cesarean", "ceasarean" in combination with the words "bitch", "dog" and "small animal" and their plural forms together with the search item "anesthesia". Additionally, papers and book references from the library of the veterinarian department of the Justus-Liebig-University Giessen were added. The evidence of scientific work added was estimated to get a general view about the quality of the research with the schemes of Holmes (2004) and Greenhalgh (2003). This retrospective study analyzed the data base of 280 female dogs.
Results: 109 articles were included in the analysis: 69 opinions of expert, editorials and consensus reports, 21 case series, 5 clinical cases, 4 randomized, controlled studies and 3 otherwise controlled studies. Only one blinded, randomized controlled study, one cohort study and one case-control-study were included. Further 3 systematical reviews were added. The literature was further divided in different topics: 10 papers dealt with the topic physiological birth, 25 cited articles were about dystocia, 15 papers covered the topic of gaining a proper diagnose and 12 manuscripts pointed out breed predisposition. 43 articles covered the topic of proper preparation of surgery followed by 44 articles dealt with the surgery procedure. 21 of the articles discussed the different indications of a cesarean section. Further the general anesthesia was discussed in 57 articles. 2 papers dealt with the positioning of the dog during the surgery. The different kinds of cesarean section are the topic of 16 paper. Additionally the treatment of the bitch and the puppies during the recovery phase and postoperative medication were elucidated in 44 articles. In the selected literature is also one paper about stitching techniques, one about the responsibility of the veterinarian for clearing up and documentation and two case series about the risks of puppies of a cesarean section.
Conclusion: Improvement of the quality of research in the field of canine dystocia is required. One case of the low scientific quality at the moment may be that for ethical reasons, experiments are hardly possible.

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054 | Suckling behavior of puppies during the first 24 hours of life

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Introduction and aim: Within the very first hours after birth, colostrum ingestion, providing the newborns with both energy, is important for puppies' survival at short and long term [1] and immunoglobulins [2]. Establishment of an efficient suckling behavior during the first day of life is thus crucial but surprisingly it has never been described in canine newborns. The objective of this study was thus to describe the suckling behavior over the first 12 and 24 hours of life.
Materials and methods: Within one kennel, 34 Labrador puppies from 5 litters were included. Four dams were primiparous, one of parity 4, aged 18 months to 5 years. Births occurred by vaginal delivery 60–63 days after ovulation. At birth, puppies were identified by a plastic collar, weighted and sexed. They were then kept with their mother, in a heated whelping box 1.70 × 2.65 m. From birth to 24 hours of age, and for each puppy, the following informations were registered by permanent direct live visual observation: time at birth, birth rank,

time, duration of each suckling bout together with the position of the suckled mammary gland (from M1 thoracic gland until M5 posterior inguinal). Puppies were weighted at birth. Results are expressed as mean ± SEM. Normality of continued variables was tested by Shapiro-Wilk test, the influence of discontinued variables by Kruskal-Wallis and Student/Fisher test; correlations and associations were evaluated respectively by Spearman test and Khi 2 (XLSTAT software).

Results: Whelping lasted 54 min to 3.5 hours, with a mean interval of 28 minutes between two consecutive puppies. Mean birth weight was 389 ± 60 g. The mean delay between birth and first suckling was 1 h28 ± 1 h25 (min: 5 min; max: 6 h; median: 59 min). Each puppy experienced 10 ± 5 suckling bouts and 26 ± 9 respectively during their first 12 and 24 hours of life. The total duration of suckling was 80 ± 40 minutes over the first 12 hours of life (i.e. 11% of its life time), 213 ± 55 minutes over the first 24 hours (15% of its time life). Puppies suckled 5 ± 2 different teats over the first 12 hours and 9 ± 1 over the first 24 hours (p-value < 0.001). Puppies spent significantly more time suckling the left mammary chain (56 vs. 44% of suckling time; p-value = 0.021) and the most caudal mammary glands (30% suckling time on M5 vs. 17% M4, 19%M3, 16%M2, 18%M1; p-value < 0.001).

Birth weight did not affect delay from first suckling, but positively affected the number of bouts, the total suckling duration and the number of teats suckled over the first 12 hours.

Rank order did not affect delay from first suckling but negatively affected the number of bouts together with the total duration of suckling and the number of teats suckled over the first 12 hours.

Conclusions: This work described quantitative (duration, number of glands, number of bouts) and qualitative (time at first suckling, position of suckled mammary gland) aspects of suckling behavior, focusing on the colostral period in the canine species. It demonstrated the important variability of suckling behavior between puppies and between litters. Suckling is established very early after birth with no appropriation of any mammary gland by a given puppy. Birth weight and rank order are demonstrated as major variation factors of suckling behavior. The impact of the way of delivery on suckling behavior, together with differences among breeds would be interesting to explore, together with the impact of the different aspects of suckling behavior on puppies survival and growth.

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056 | Treatment options for ovarian cysts in the bitch – what do experts recommend?

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Introduction and aim: Decision making and giving good advice to patient owners is a central task of veterinary practitioners [1]. However, in some fields it is difficult to base our work on reliable research data, especially for conditions that we rarely see in practice and for which performing clinical research is difficult [2]. In that regard, we aim to design a database (working title REPROCASES) in which case reports on rare diseases in the field of small animal reproduction can be collected.

The first disease we want to exemplarily investigate are ovarian cysts in the bitch. This is a subject on which reliable information concerning the efficacy of medical treatment options, side effects and prognosis regarding fertility are hardly available [3]. So far, there are only few clinical studies that go beyond the individual case reports published [4]. In order to prepare a helpful case report form and provide some treatment guidelines we asked experts in the field of small animal reproduction which treatment regimens they would recommend for ovarian cysts in the dog.

Materials and methods: We used a survey with eleven questions that was performed via the online tool EFS Survey (https://www.questback.com/). The experts were contacted via the EVSSAR Newsletter and the mailing list cafereprod-l@list.cornell.edu in September 2018. Participation was anonymously and voluntarily.

Results: In total, 14 participants completed the survey until February 2019. The participants stated to be specialized without certification (n = 5), three participants had a national board certification, four had a Diplomate of the European College of Animal Reproduction, and two had a Diplomate of the American College of Theriogenologists. Work experience was between four and 33 years (mean 25.9 years). Being asked how many and which kind of cysts they had diagnosed throughout their working life, some participants stated to have seen only a few cysts (2–20). While one participant stated to have seen about 40 cysts, another one has seen 50 to 60 cysts. Two participant have seen as many as hundreds to thousands and one participant wrote "too numerous to count". Regarding the question which therapy they recommend for the initial treatment, seven of the participants suggested hormonal therapy. Four colleagues recommended surgical therapy, two would have chosen a different approach "depending on actual progesterone concentrations" and one participant stated that no therapy is promising. Taking a closer look on hormonal therapies, four participants proposed a treatment with hCG and/or GnRH. However, recommended dosages and application regimes differed markedly and ranged from 500 IU hCG + 100 mg/kg GnRH every 48 hours, 500 IU hCG SC for 3 days (suggested by two respondents, respectively) to a protocol such as: Day 1: hCG + GnRH; Day 2: GnRH; Day 3: hCG + GnRH; Day 4: GnRH with dosages of 1000 IU hCG IV and 2.2 µg/kg GnRH IM. Another participant proposed one administration of 500 IU hCG and if no improvement is seen after 2 weeks to increase the dose. This participant also suggested administering cabergoline and prostaglandin 25 days later to avoid progesterone effects on the endometrium.

Conclusion: It can be concluded that there is no uniformly recommended conservative therapy for bitches with ovarian cysts. The participants suggest different dosages of hormonal medication or different time intervals for administration. Thus, more research or

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