Info shared by Pitbull SA.

Manjaro APBT kennel.

South Africa.

My Website www.pitbullsa.co.za

My E mail "manjaro@pitbullsa.co.za"

My Facebook "Gawie Manjaro"

My Facebook page "Manjaro Kennel"

My mobile +27827838280.

Zello.com "VoIP" – ask for info.

Infertility in the bitch.

The article was originally released as a podcast on July 17, 2014.
The topic is infertility in the bitch, with reproductive specialist Dr. Cheryl Lopate of Wilsonville Veterinary Clinic in Wilsonville, Oregon. Dr. Lopate received her Master's degree in reproductive physiology and DVM from The Ohio State University. She completed a residency in comparative theriogenology (reproduction) at Purdue University and is boarded in theriogenology. She has worked in a variety of practice settings including general mixed practice, referral practice and academia.

She believes strongly in providing client education and speaks at breed group meetings regularly. She also speaks at many veterinary conferences and has written many journal articles on a variety of reproductive topics.
This podcast is part of a special series of podcasts on canine reproduction in partnership with our corporate alliance, Zoetis.

AKC Canine Health Foundation (CHF): Dr. Lopate, can you start by telling us what sort of medical history and considerations should be taken into account before a mating is planned?
Dr. Cheryl Lopate (LOPATE):Generally speaking,
the bitch's age,
physical condition,
temperament,
nutrition,
supplements,
medications,
vaccination history,
housing,
and health testing
should all be evaluated –
what is acceptable will varies with each individual do or dog breed and with the area of the country where the dogs live.
Each breed club and or register affiliation or registered breeder "should" have a website with a health page that will list the diseases that are common for that breed and what genetic implications there are, as well as what tests are available.
Areas of research and current research projects are often listed or could be found on the internet (so no excuses of claiming ignorance).
"Some breeds" will have a database of all genetic testing done for their breed so that anyone could have access to it.

The goal should be and this is encouraged … to share all health testing information for the sake of betterment of the health and longevity of the breeds.
More specifically, significant prior medical or surgical conditions should be discussed to determine what if any impact they may have on a pregnancy or lactation.
What type of performance is she involved in?
What is her body condition?
Note! >> About more sedentary or overweight bitches will have more issues with fertility, ovulation rate and ability to whelp normally.
Important to also note! >> Health testing of the male is also very important consideration as well as the studs general health, temperament, conformation, etc.
CHF: Once you have confidence in a bitch's general health … then what will become important to know about their reproductive health history?
LOPATE: Parity (the number of prior litters),
cycle history including interestrous intervals,
prior breeding history (when breeding's occurred …
types of breeding's,
what breeding management performed (includes looking at prior timing.
Just because progesterone tests were run doesn't mean they were correctly interpreted or followed through ovulation;
male fertility – proven or not,
semen evaluation and when performed);
was the bitch pregnant (how was this determined – u/s, x-ray, appearance, whelping);
number of pups;
ability to deliver naturally and the amount of time it took to delivery;
stillbirths,
mummies or SGA (small for gestational age) pups;
mothering behaviour; was lactation normal, etc.

CHF: After getting a thorough health history, can you tell us what to expect to be done during the physical exam?
LOPATE: Bitches over 4 years old should have a CBC/chem./u/a/UPC
bitches and dogs of all ages should have a brucella test.
Stud dog.

Also should get same info about the male being used if live breeding or chilled semen.
Males don't need bloodwork except for brucella.
Genetic testing will vary with the breed and should include;
orthopedic exams for the breed [may include hips (OFA or PennHIP), patellas, elbows];
ophthalmic exam (CERF);
cardiac exam;
tracheal exam;
a variety of blood tests for genetic diseases or
for thyroid evaluation.
In the USA - AKC CHIC certification is available for all AKC breeds and provides a database for breeders to study genetic tendencies in a pedigree.
Pedigree analysis may also be performed using a variety of computer programs available to breeders.
A general Veterinarian physical exam should include;
careful evaluation of the eyes,
teeth (especially periodontal disease);
peripheral lymph nodes;
auscultation of the heart and lungs and
assessment of pulse quality;
palpation of the abdomen;
assessment of the skin and coat;
assessment of mammary glands;
assessment of perineal conformation,

vulvar edema and digital examination of the vulva,
vestibule and v/v junction.
CHF: If everything checks out and we have a healthy bitch whose owner is concerned about infertility, where do you start when trying to determine the reason for infertility?
LOPATE: The most common cause of infertility in the bitch is improper or inadequate breeding management.
Breeding based on receptive behaviour or on a set day of the cycle may result in breeding outside the bitch's fertile period and this may result in decreased litter size or failure to conceive.

Receptive behaviour is a result of the change in the estrogen: progesterone ratio and this doesn't always correlate with ovulation. Since dog semen has particularly good longevity, breeding a bitch prior to ovulation by a few days, may still result in pregnancy because sperm will live in the bitch's tract for several days, but if semen quality is decreased or breeding occurs to early or after the bitch's fertile period, pregnancy rate and litter size will suffer.
Most bitches will be in proestrus for 9 days, with the LH surge happening at the end of this stage day 10 and then will be in estrus for 7-9 days.
Note! >> The fertile period is the last 4-5 days of estrus day 10 - 14.
At the very end of estrus or day 1 diestrus, the cervix will close to sperm, so that natural breeding or VAI will not result in pregnancy while if the cervix is bypassed by TCI or SAI, the eggs will still be fertilizable for another 2-3 days.
Not all bitches follow a textbook cycle – sometimes the first days of proestrus are missed because there is little "tell tail" bleeding or swelling, and sometimes proestrus may be abbreviated, thus affecting when the fertile period may begin;
alternatively, some bitches may have prolonged proestrus (lasting up to 3-4 weeks in some cases) or prolonged estrus.
Breeding these bitches too early will result in failure to conceive.

Another common cause of infertility is male factor infertility.
Too few sperm, poor motility or abnormal sperm may all result in poor fertility.
Note! >> Semen evaluation of the male prior to a breeding is always recommended, but if it wasn't done before breeding and the bitch fails to conceive, it is advice able that it should be done after the bitch is determined to be not pregnant (for the breeder to know).

Artificial insemination.
Sometimes this can be overcome by intrauterine insemination or multiple inseminations, but in other cases, the infertility may be too severe.
CHF: Once a breeder establishes their bitch's normal estrus period, how does the method of insemination make a difference with breeding success?
LOPATE: The type of breeding performed will have a definite impact on fertility.

Natural breeding with an inside tie will provide enough fluid media (prostatic fluid) to help the sperm swim up into the uterus. As long as the tie is present, prosatic fluid is being produced, flooding the paracervical area with fluid and assisting with sperm transport through the cervix.

Note! >> With vaginal AI, enough fluid is placed around the cervix and the hind end of the bitch is elevated so that sperm can hopefully swim up through the cervix.
Only about 10-25% of the sperm inseminated vaginally will make it through the cervix and into the uterus. If inadequate sperm numbers or semen quality is used for a vaginal AI, fertility may be compromised.
Both TCI and SAI provide for direct intrauterine insemination, so all sperm inseminated will reach the uterus.

Then it is natural to assume that the more sperm that make it to the oviductal reservoirs at the tips of the uterine horns, the greater the chances for pregnancy and increased litter size.

CHF: Now let's talk about some potential causes of fertility problems. Let's start with age and previous hormonal exposure, specifically estrus suppression drugs that owners may use to keep their dogs out of heat while on the dog show circuit.

How can age and hormonal modification cause problems?

LOPATE: Bitches that have been treated with progesterone compounds to suppress estrus may have cystic change in the uterus.
Similarly, bitches treated with estrogens for misalliance may have significant uterine pathology from their use (for this reason, these medications are considered unacceptable for use any more).
Mibolerone, which can be used for estrus suppression, is an androgen, so does not cause these pathologies in the uterus.
Exposure to estrogens from foods or nutritional supplements can also predispose to uterine disease.
In some cases, exposure to the owner's estrogen or testosterone creams or patches can cause uterine pathology.
Exposure to estrogens may result in persistent estrus signs without any follicular development.

CHF: What is cystic endometrial hyperplasia, also known as CEH?
LOPATE: When bitches cycle, the bacteria from the vagina enter the cervix and go up into the uterus.
If the bitch's uterus is functioning normally, these bacteria will be consumed by white blood cells or emptied from the uterus before the cervix closes by uterine contractions.
If uterine defenses are not normal, then bacteria can proliferate during diestrus, the progesterone phase of the cycle.

Progesterone is a hormone that promotes glandular secretions and these secretions provide a good nutrient base for bacteria to grow. Since each progesterone phase of the cycle for the bitch last 45-74 days, with every cycle, this bacterial proliferation can occur.
Initially, the bitch may have subclinical infection. This infection can become chronic or remain active. Over time, the inflammation can cause scar tissue to develop in the uterus and the glands may become choked off, causing glandular dilation.
The influence of progesterone causes the lining of the uterus to become thickened. The combination of the thickened endometrium and glandular dilation is called cystic endometrial hyperplasia. Most of the time CEH occurs with either chronic or active inflammation, but sometimes it occurs as an aging change without any evidence of inflammation. These changes in the uterus can have a significant impact on fertility.
The more severe the inflammation or cystic change, the poorer the prognosis for fertility, and if the bitch does become pregnant, she will be at higher risk for resorption or abortion, or progesterone failure at the end of pregnancy.
These bitches are also at higher risk for pre-term labor. Diagnosis is made via ultrasound or exploratory laparotomy, uterine culture and uterine biopsy (either surgical or with the endoscope). Treatment will depend on whether bacteria are present (antibiotics), chronic inflammation (steroid) or just CEH (nothing or surgical rupture of the cysts prior to breeding).
CHF: Let's finish up by discussing cycle anomalies, such as abnormal interestrus intervals, also known as shortened or extended interestrus intervals.
What causes them and how can they be managed?
LOPATE: A normal interestrous interval is usually 5-8 months for most breeds.

There are a few breeds that tend to have shorter IEI with normal fertility and some that cycle only once yearly.

The period of anestrus (no significant hormonal activity) is important for the uterine epithelium to recover from the prolonged period of hormone exposure during estrus and diestrus.
If the IEI is too short, then the endometrium (lining of the uterus) may not be compatible with embryo survival. We know that some bitches can conceive with a short IEI but others cannot. Under 4 months, less than 30% of bitches will conceive; while over 5 months 70% will. Short IEI can be caused by ovulatory failure, luteal failure, a normal non-pregnant diestrus, inflammation or CEH in the uterus. Short IEI is treated by using a drug like mibolerone to suppress estrus to provide a normal IEI.
Prolonged estrus or proestrus may be normal (up to 50-60 days), but it can also be caused by failure to ovulate (due to abnormal follicles, inadequate LH hormone production, shipping stress), cystic follicle development, exposure to exogenous or endogenous estrogens (ovarian tumors, adrenal disease, human estrogen/testosterone exposure, nutritional supplements, mismating injection, portosystemic shunts, ovarian remnant syndrome. Ovulation can be induced in about 50% of bitches using ovulatory drugs like GnRH, hCG or deslorelin. These drugs can also be used to treat ovarian cysts. Ovarian neoplasia is treated with ovariectomy. Removal of hormone exposure will result in return to normal cyclicity. Animals with adrenal disease should not be bred.
Split heats are common with the first heat cycle but some bitches may have them with every cycle. Typically the bitch comes into heat then goes out before ovulation and returns days to a few weeks later. The second half of the cycle is ovulatory and fertile.
CHF: And then the opposite case, what is happening when a bitch fails to enter estrus at all?

LOPATE: Prolonged IEI (also called prolonged anestrus) can be caused by prior spay, delayed puberty (from parasitism, nutrition, ovarian hypoplasia, immune mediated ovarian inflammation, abnormalities of sexual differentiation, progesterone secreting cysts. It may also be caused by silent heat or failure of a novice owner to notice a heat cycle because the bitch is fastidiously clean or not bleeding much.
Progesterone cysts can be with prostaglandins.
Silent heats can be diagnosed by bi-weekly vaginal cytology to determine when the cycle is starting.