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Advantages of the Use of Chilled and Frozen Semen in Canine Reproduction

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Who am I?

- Graduated 1984 Utrecht University
- Mixed Practice Eersel 1986
- Orthopedics/Surgery/ Medical Imaging/ Reproduction
- Companion Animal Clinic Eersel1995: Dogs
- Cryolab Eersel Semen bank 1997

Basic Problems in Canine Reproduction Today:

1 Inbreeding:

2 Reduced Fertility

Way Out:

1. Breeding with broad genetic basis
2. Registration and Exchange of genetic material all over the world
3. Use of optimal techniques to improve fertility
4. Use of optimal techniques to preserve genetic material

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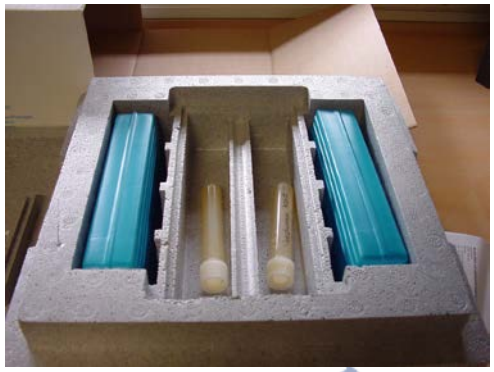
4 Myths in Male Canine Reproduction hampering these better techniques:

1. Natural Breeding gives better results then Artificial Insemination
2. The use of chilled or frozen semen gives lower pregnancy rates
3. Surgical insemination is better then Trans Cervical Insemination
4. Shipping semen and storing semen both lead to a quality loss



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#1 Natural breeding gives better results then AI

1 Natural breeding in the literature: average of 70-80% pregnancy rate

2 Much variation noted in the literature

3 Litter size is related to breed but can vary

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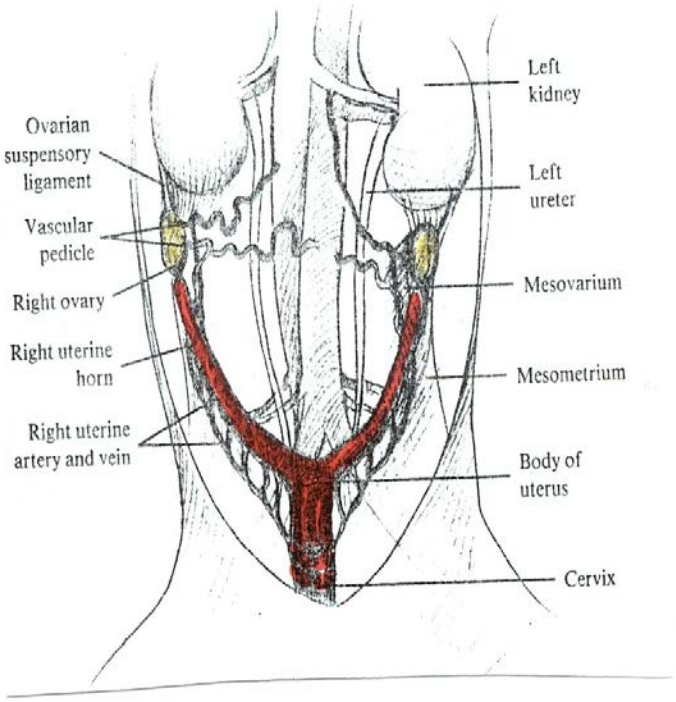
#1 Natural breeding gives better results then AI

1. Male dog ejaculates in the anterior (deeper) part of the vagina: not in the uterus
2. Average 2 times in same heat
3. Mostly but not always with a tie



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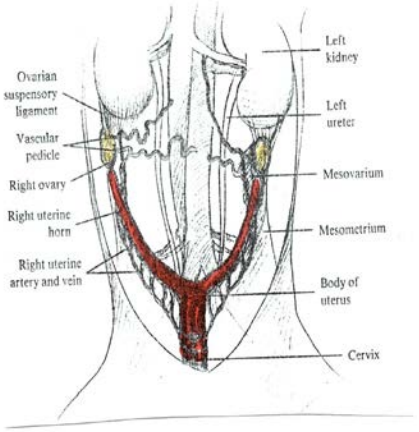
AI: 4 most commonly used methods

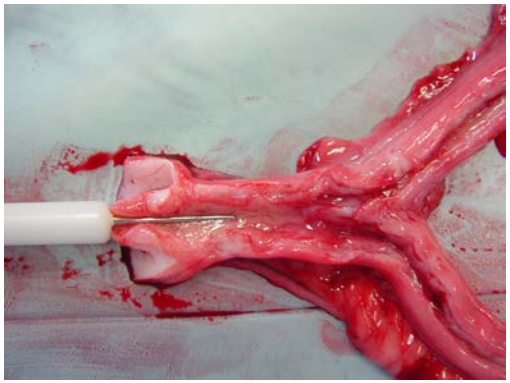
1 In the Vagina with flexible or rigid catheter, Foley catheter, Minitube

1 Intra Uterine with Norwegian Catheter

2 Intra Uterine by a surgical procedure

1 Intra Uterine with the Endoscope: Trans Cervical Insemination (TCI)





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TCI basic equipment

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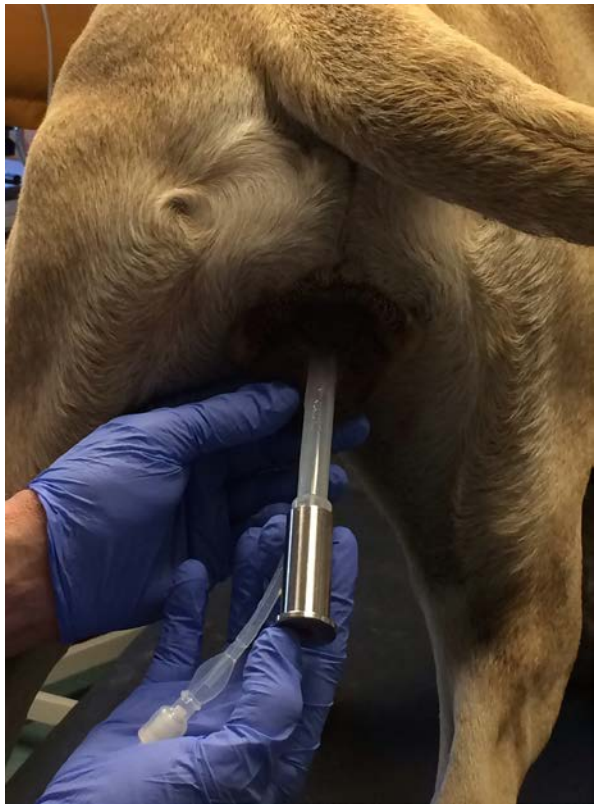
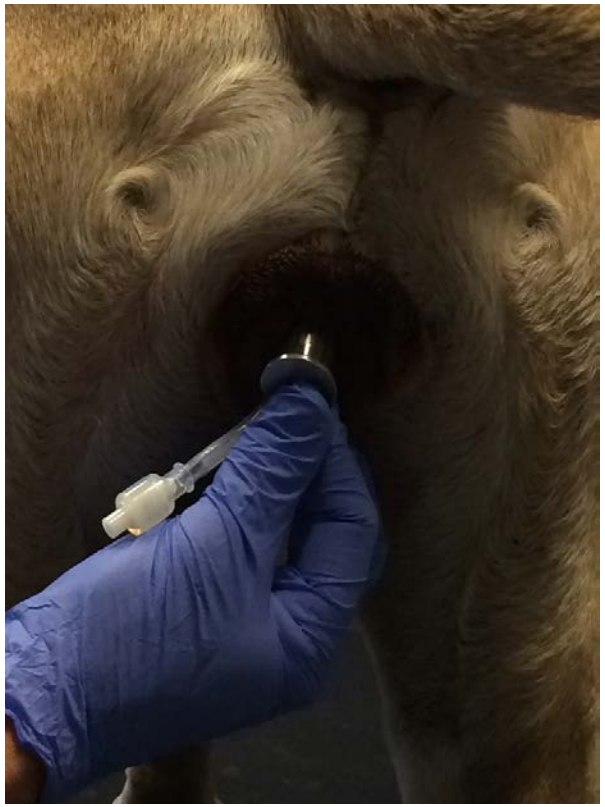
Procedure: bringing the shunt in the vagina





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‘Closure’ of the vagina by inflating the balloon tip of the shunt

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Putting the guided wire flexibel catheter into the endoscope

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Introduction of the endoscope with catheter through the shunt

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Sliding the catheter through the cervix into the uterus

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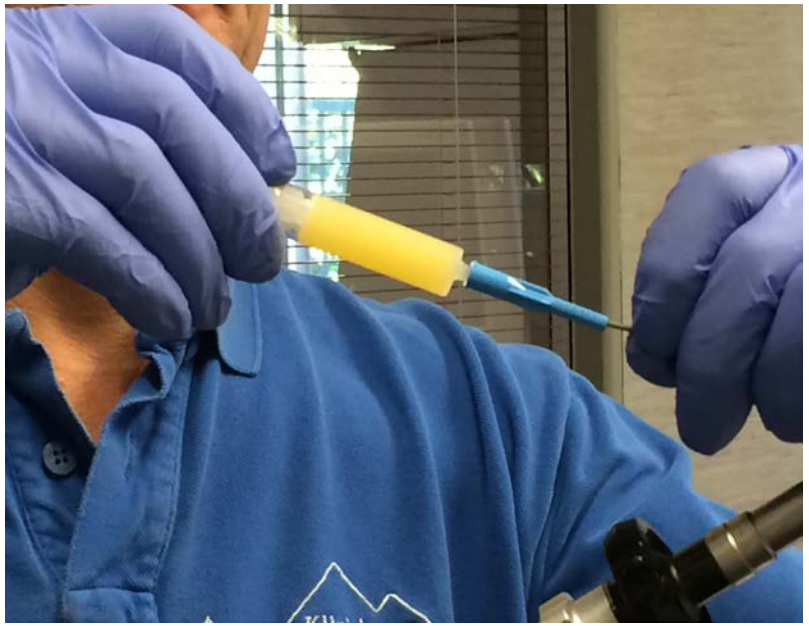
Slowly injecting the semen



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Stimulating Uterine Contractions

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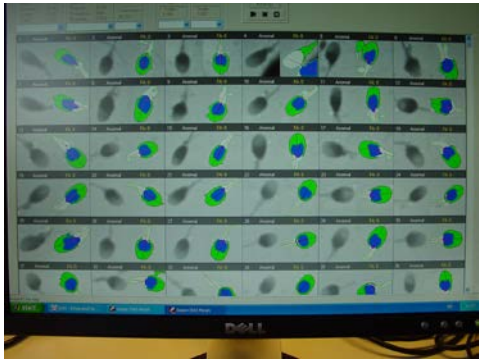
Results TCI Fresh/Chilled/Frozen 2013/2014 KVG Eersel/Cryolab

1 Fresh – direct TCI: 77 % pregnancy rate
2 Frozen semen TCI: 80 % pregnancy rate
3 Chilled TCI: 84 % pregnancy rate

Average **Total Motility** drop by freezing is 30%
Average **VCL** drop by freezing is 42%
Average **Concentration** drop by freezing is 64%



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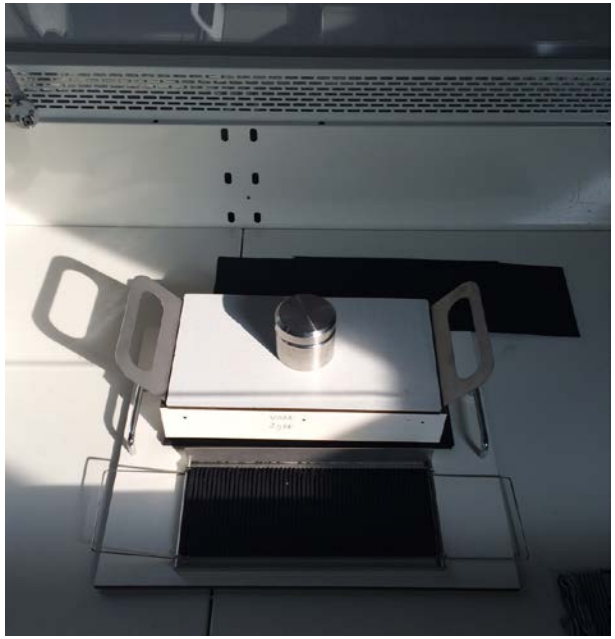
Contact freezer and Frozen Semen after thawing



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Remarks

1. Most females (93%) were in the fertility program (scoping, progesterone, culture, ultrasound ovaries when needed)
2. Many different breeds, 85% > 10 kg BW
3. Majority of the female dogs used for chilled or frozen TCI had proven fertility (75%)

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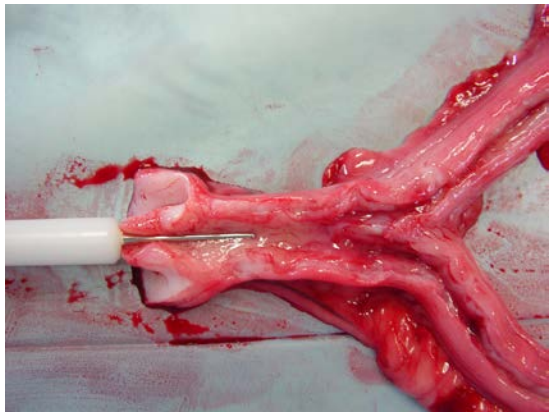
#3 Surgical Insemination is better then TCI

Surgical Insemination:

1 Old School: till recently the only possibility to pass the cervix

2 **Advantage**: easy to do by any regular vet with general surgery

3 **Disadvantages**: Anaesthesia, Surgical trauma and risk, Only once during optimal period, Unethical, Forbidden by law in some European Countries (also Netherlands)



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#3 Surgical Insemination is better then TCI Trans Cervical Insemination:

1 Since 15 years

2 **Advantages**: easy to do and quick procedure when experienced, well tolerated by bitch, no trauma, *repeatable* in same heat (advantage especially with frozen semen)

3 **Disadvantages**: Costs (instruments, tower, disposable catheters), steep learning curve, incidentally can be very difficult

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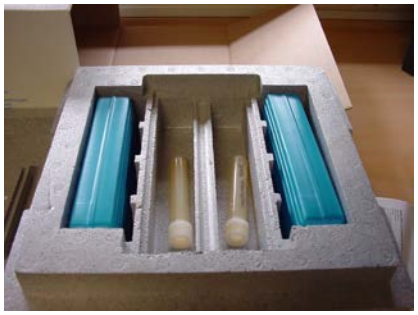
#4 Shipping semen and storing semen both lead to a quality loss

1. Shipping chilled/frozen semen: boxes and containers/ Disposable or Rented
2. Controlled environment for the semen
3. Controlled and warranted
4. timeframe: Fedex/TNTexpress / DHL etc Specialized logistic companies
5. Sanitary and customs Regulations
6. Within optimum timeframe: no quality loss



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#4 Shipping semen and storing semen both lead to a quality loss

1. Storing: liquid nitrogen Dewar / container
2. Controlled Automatic filling
3. Tank tourism kept to minimum
4. Designated types of packaging: straws/ pellets /goblets / triangles
5. No quality loss!

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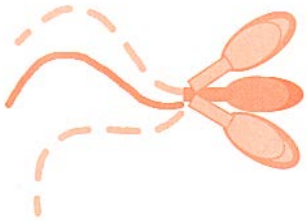
Summary

1. Optimal Repro Techniques can help us getting / staying out of the inbreeding trap
2. No need for travelling long distances with animals for reproduction reasons anymore
3. Preserving valuable genetic material by means of frozen semen for the future is mandatory to preserve certain breeds and / or q...



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Thank you for your attention!

www.dierenkliniekeersel.nl

www.cryolab.nl