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Which cryoprotectant is most effective?

A study investigated how the cooling rate and cryoprotectant concentration affect the cryopreservation of stallion sperm.



Five cryoprotective agents (CPAs)—glycerol (GLY), ethylene glycol (EG), dimethylformamide (DMF), propylene glycol (PG), and dimethyl sulfoxide (DMSO)—were tested in concentrations up to 1500 mM, with cooling rates ranging from 5°C to 55°C per minute.

In summary, DMF was found to be the most effective cryoprotective agent for stallion sperm across a range of conditions.

Key findings from the study include:

- **Cryoprotective Agents (CPAs):** DMF provided the highest cryosurvival rates, followed by GLY and EG, while PG and DMSO showed poor cryosurvival.
- **Concentration and Cryosurvival:** Sperm could tolerate up to 1500 mM concentrations of all CPAs before freezing. DMF's cryosurvival increased with concentration up to 500 mM, after which it plateaued. For GLY and EG, optimal survival was achieved between 250 mM and 500 mM.
- **Cooling Rate and Cryosurvival:** Optimal cooling rates were identified only at low CPA concentrations. At higher concentrations, the cooling rate did not significantly affect cryosurvival. DMF provided high survival rates across various concentrations and cooling rates, whereas GLY and EG required more precise combinations for optimal cryosurvival.
- **Motility and Other Effects:** Sperm preserved with DMF showed signs of hyper-

activation in motility, a phenomenon not observed with GLY or EG.

- **Modeling vs. Experimental Results:** The study also found discrepancies between the predicted optimal cooling rates based on modeling and the actual rates determined experimentally.

In summary, DMF was found to be the most effective cryoprotective agent for stallion sperm across a range of conditions, while the other agents required more specific conditions to achieve optimal results.

Ref: Holden Hof H et al, Stallion Sperm Cryopreservation using various permeating agents: Interplay between concentration and cooling rates Biopreservation and Biobanking, vol 15 No 5 2017



ESER, Ghent, Belgium – 2024

The 4th European Practitioners Symposium on Equine Reproduction (ESER – 2024), held from October 10-11 in Ghent, Belgium, was an outstanding event, surpassing expectations with its scale and quality.

With over 700 delegates in attendance, this year's symposium was the largest yet, drawing professionals from across Europe and beyond.

Attendees were treated to a series of insightful lectures that showcased the latest advancements and practices in equine reproduction. The engaging presentations created an intellectually stimulating atmosphere that enriched the overall experience.



Jannie Spanner Kristiansen, VetEmbryo, Anna Niläng, Nidacon, and Emma Lorenzen, VetEmbryo.

the event's professional organization ensured smooth proceedings, making life easier for all involved.



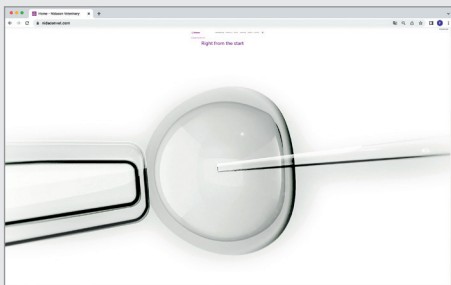
We are already looking forward to the 5th edition of this ESER, which will take place in Bruges, Belgium, in 2026. See you all there!

In addition to academic excellence, the event had a welcoming and positive atmosphere, with participants enjoying opportunities to network and exchange knowledge in a relaxed and supportive environment. As always,



Denis Necchi and Anna Niläng.

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BotuEmbryo UP



BotuEmbryo will soon be available in a new version: BotuEmbryo UP.

The most significant difference from BotuEmbryo is that BotuEmbryo UP contains hyaluronic acid instead of Bovine Serum Albumin and is specifically useful in ICSI and produces higher pregnancy rates.

The solution designed for handling, transporting, and transferring horse embryos and its formula offers high antioxidant protection and buffering agents that improve the viability of embryos produced both in vitro (ICSI) and in vivo, as well as for cryopreserved embryos.

BotuEMBRYO® UP is highly stable and allows for the transportation of embryos at room temperature or chilled in appropriate containers.

Nidacon Veterinary now in LinkedIn

We are pleased to announce an enhancement to our communication channels: our official presence on LinkedIn with the veterinary part of Nidacon.



This platform will serve as a valuable resource for updates, tips, and insights that can significantly benefit our work.

We invite you to connect with us on LinkedIn – Nidacon Veterinary – where you can engage with relevant content and foster professional relationships within our community.

We look forward to your participation and to sharing information that will enhance our collaborative efforts.

Microplastic pollution

Plastic waste has led to microplastic pollution, affecting environment from Mount Everest to deep oceans.

People ingest these particles through food, water and air, potentially causing inflammation or harm through the chemicals in plastics. Warnings have been issued regarding increased risk of stroke, heart attack, and early death linked to micro-plastic-contaminate blood vessels.

Men's sperm counts have been decreasing for decades, with chemical pollution like pesticides being a known factor. Microplastics have also been found in human blood, placenta, and breast milk, indicating a wide spread contamination.

Microplastics have been detected in human testicle, raising concerns about their potential link to declining sperm counts. University in New Mexico published results in 2024 where they have examined both human and canine testes and found microplastics in all samples. The human tested were preserved

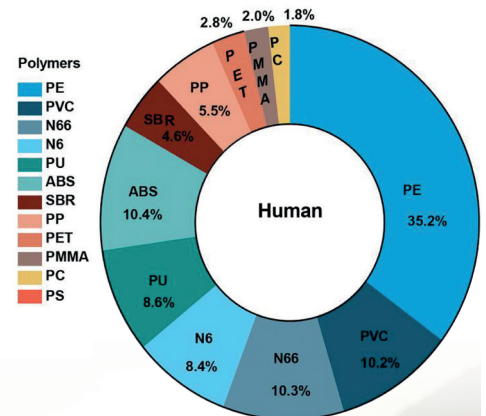
and could not be measured for sperm counts, canine testes showed a correlation between higher PVC contamination and lower sperm counts. The average abundance of total microplastics was 3 times higher in human compared to canine testes. Both human and canine exhibit relatively similar proportions of the major polymer types, predominated with PE, followed by PVC.

Limited data exists on microplastics within the human reproductive system and their potential consequences on sperm quality. Further studies are definitely needed.

Microplastic presence in dog and human testis and its potential association with sperm count and weights of testis and epididymis.

Chelin Jamie Hu et al University of New Mexico Toxicological Science 2024 200(2)

Relative composition of different microplastic types in human testicular tissue.



Why is October the pink month?

By now you are all aware that October is Breast Cancer Awareness Month, sometimes known as the “pink month.”



It is a yearly initiative that is quite significant and contributes to raising awareness of breast cancer. So, let’s learn more about the subject and the background and significance of this month.

An international campaign to raise awareness on breast cancer was started by breast cancer charities in October. The campaign’s objectives are to generate money for research into the causes, prevention, diagnosis, treatment, and cure of breast cancer and to raise

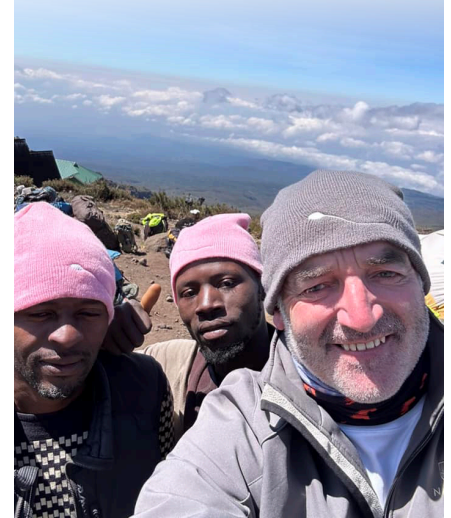
awareness about breast cancer. The American Cancer Society and the pharmaceutical division of Imperial Chemical Industries collaborated to launch the pink month in 1985 with the intention of promoting mammography as a means of identifying and preventing breast cancer.

Among both the “developed” and “under developed countries,” breast cancer is the most prevalent form of cancer in women, according to the World Health Organization. Worldwide, breast cancer claimed the lives of about 508 000 people in 2011.

As a proud corporate friend of the Swedish Cancer Society, Nidacon is committed to the fight against cancer.

Our involvement in the Swedish Cancer Society is part of our CSR work. We strive to contribute to a better future by supporting research, spreading knowledge and raising

Tullis Matson, Nature’s Safe, climbing the Kilimanjaro.



awareness about cancer. Through our joint efforts, we can create a positive impact on society and help save lives.

We are convinced that every contribution counts, together we make a difference.



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