

Nidacon News

The news letter from your ART supplier • No 2 • 2021

Contents

Movember _____	1
Probiotics in obstetrics and gynecology – Where is the future? _____	2
Nidacon's aid in saving the white Rhinoceros _____	3
Basic Semen examination ISO 23162:2021 _____	3
PureSperm – one of its kind _____	4
Coming up _____	4
Who to contact _____	4



MOVEMBER

In all shipped orders from Nidacon during November, you will find our Movember mustasch campaign.

The blue sperm magnet is to remind us of this group and at the same time we make a donation to the Cancer organisation with the hopes that they will continue the research on the links between prostate cancer and ART and above all find better treatments

Prostate cancer and male infertility are both very common disorders, affecting approximately 10% and 8%, respectively, of all men in Western societies. As prostate cancer and many forms of infertility are androgen related, the possible link between these disorders has been investigated previously. Three American studies have reported an increased risk of pro-

state cancer in men with impaired semen quality, whereas three Scandinavian studies and one American study indicated a lower risk of prostate cancer in childless men. This finding was recently confirmed in a meta-analysis summarising 10 individual studies.

In Sweden, a study using compulsory national registries containing information on prostate cancer diagnoses and infertility treatments has been performed in order to investigate whether the risk of prostate cancer in men who became fathers through IVF or ICSI, reflecting the grade of hampered spermatogenesis, differed in terms of incidence, age at onset, and, where applicable, severity from men who achieved fatherhood naturally. Such information could be important for defining clinical routines for follow-up of men undergoing fertility treatment.



Data was retrieved on all children born alive in Sweden during the period 1994-2014 (n=2 108 569), as well as their fathers, from the Swedish Medical Birth Register and the Swedish Multi-generation Register.

Looking at 1.181.490 men which had children, 20.618 had undergone IVF, 14.882 had undergone ICSI treatment and 1.145.990 had children through natural conception. When comparing the three groups, the men that were treated with IVF had 30% higher risk of getting prostate cancer and the ICSI patients had 60% higher risk compared to the men that had children naturally. In other words, there is a clear link, low sperm quality can be a marker for higher risk of prostate cancer.

Risk of prostate cancer for men fathering through assisted reproduction: nationwide population-based register study.

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EDITORIAL

Probiotics in obstetrics and gynecology – Where is the future?

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Microbiome refers to the collective genomes of the microorganisms in a particular environment, and microbiota is the community of microorganisms themselves.

Approximately 100 trillion microorganisms exist in the human gastrointestinal tract, and the microbiome is now best thought of as a virtual organ of the body. The human genome consists of about 23 000 genes, but the microbiome encodes over 3 million genes producing thousands of metabolites, which replace many of the functions of the host, consequently influencing the host's fitness, phenotype, and health. Some studies also strongly suggest that gut microbiota contributes to complications related to high-fat diet feeding and metabolic disorders.

Probiotics are live microorganisms that supposedly have health benefits when consumed. For humans, they can be found in yoghurt and other fermented foods or as dietary supplements. Different advantages of probiotic supplements have previously been reported. In recent years, the health-promoting effects of probiotics have become increasingly evident, supported by numerous high-quality systematic reviews, meta-analyses, and randomized controlled trials.¹ Probiotics have been attributed with a potential therapeutic effect in several areas, including atopic dermatitis, type 2 diabetes, obesity, and gastrointestinal tract disorders such as irritable bowel syndrome.

A majority of studies have focused on the direct effect of probiotics exerted through physical presence in a localized area, such as the gastrointestinal tract, where they have been shown to alleviate inflammatory conditions including lactose intolerance and peptic ulcers,

prevent colorectal cancer, and even treat irritable bowel syndrome. Strain-specific probiotic therapy seems to be a natural and practical approach to restore eubiosis and the integrity of the small intestine barrier, to reduce the incidence and severity of intestinal diseases, and to



improve nutrient absorption leading to overall better health.

In gynaecology, probiotics have been assessed for a variety of conditions. For example, topical treatment of bacterial vaginosis with probiotics combined with estrogen has been observed to normalize the vaginal ecosystem in postmenopausal women. Probiotics have also been suggested as adjuvant therapy for vaginal infections.

In reproductive medicine, consumption of probiotics has been shown to mimic the critical aspects of microbial symbiosis, enhancing reproductive fitness in male mammalian hosts by improving sperm motility and kinematic parameters as markers of sperm quality. Preliminary evidence also suggests that 6 weeks of supplementation with oral probiotics (*Lactobacillus rhamnosus* CECT8361 and *Bifidobacterium longum* CECT7347) can signifi-

cantly improve motility and decrease DNA fragmentation and reactive oxygen species levels in asthenozoospermic men.

Considering that no real treatment of poor sperm quality, irrespective of definition, is available, it makes perfect sense to investigate if something as simple and inexpensive as probiotics could improve sperm parameters. Ongoing clinical studies currently investigate these aspects further.

More recently, endometriosis has been associated with changes in the genital microbiome, which communicates with the intestinal area. Evidence from animal models suggests that the faecal microbiome may play a causative

role in developing neuronal sensitization, which could indicate a target for therapeutic intervention. Evidence from studies on vaginal dysbiosis showed promising effects of *L. rhamnosus* for maintaining the normal microbiome and use of probiotics could represent an attractive novel therapeutic approach in endometriosis treatment.

In gynaecology, probiotics have been assessed for a variety of conditions.

The prevalence of probiotic supplementation is generally high in Europe, where for example 13.7% of mothers in the Netherlands use

probiotics during pregnancy. Previous studies have demonstrated supplementation with probiotics to be safe for women.

From our perspective, there is no doubt that probiotics, safe as they are, will prove to have a place in the treatment of various obstetric and gynaecological conditions. Upcoming studies will help guide us on where to use them.

Nidacon's aid in saving the white Rhinoceros

At times when rhinoceros are fiercely poached, when some rhinoceros species are closer than ever to extinction, and when the scientific community is in debate over the use of advanced cell technologies as a remaining resort it is time to simplify and improve existing assisted reproduction techniques to enhance breeding and genetic diversity in the living populations under our care. Semen cryopreservation has been performed in all captive rhinoceros species with limited degree of success.

Nidacon takes pride in being a part of this very important project

At the Leibniz institute for wildlife research in Berlin, Germany, an attempt was made to cryo preserve rhinoceros sperm with different techniques and media [1]. Nidacon's "BotuCrio", a freezing medium for equine sperm, proved to be the optimal solution, and in the process a baby rhinoceros was born!

In light of the ongoing global poaching crisis and overall dismal outlook on

the conservation status of all rhinoceros' species, the value of captive assisted breeding programs is becoming increasingly important. The northern white rhinoceros is one such example, with only three living but infertile individuals left on

the planet. This shows how earlier, improved systematic collection and cryopreservation of male and female gametes could have contributed to the current efforts to use IVF and embryo production to prevent this species from going extinct [2].

The new protocol for improved cryopreservation of rhinoceros' sperm suggested in the study, helps by improving the quality of male rhinoceros' gametes for long-term preservation, thus better preserving genetic diversity for the species and preventing future disasters.

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1. Hermes R, Hildebrandt TB, Goëritz F (2018) Cryopreservation in rhinoceros -Setting a new benchmark for sperm cryosurvival. *PLoS ONE* 13(7): e0200154.
2. Saragusty J, Diecke S, Drukker M, Durrant B, Friedrich Ben-Nun I, Galli C et al. (2016) Rewinding the Process of Mammalian Extinction. *Zoo Biology* 35: 280±292. <https://doi.org/10.1002/zoo.21284> PMID. 27142508



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Basic Semen examination ISO 23162:2021

Results from semen examinations are all too often wrong, which leads to delays in infertility investigations and probably also that men who should be given an andrological examination do not get it.

For the first time, a standard has been developed for how a semen examination for reliable results should be performed.

The work has been led by Lars Björndahl, head of the andrology laboratory at the ANOVA clinic, Karolinska University Hospital, Sweden.

This document was developed in response to global demand for standards for reliable examination of

human ejaculates. The five editions of a laboratory manual for human semen examination published by the WHO between 1980 and 2010 have provided general recommendations for suitable laboratory procedures, but even the latest edition does not constitute a Technical Standard adequate for use under ISO 15189.



A Technical Standard based on best available evidence and global consensus regarding laboratory procedures most

likely to give reliable results will facilitate any laboratory seeking accreditation for human sperm examination. Clinically, this would support improved diagnoses as well as provide more objective grounds for choosing between possible management strategies

or alternative treatment modalities. Furthermore, to support the evaluation and validation of new methods to improve diagnosis and treatment of infertility, these standardized techniques can serve as reference methods.

The standard is now adopted as an International standard (ISO standard ISO 23162: 2021).

– This is a tool for customers to be able to make demands on the laboratories they use. I hope that accreditations according to the standard will start as soon as possible, says Lars Björndahl.

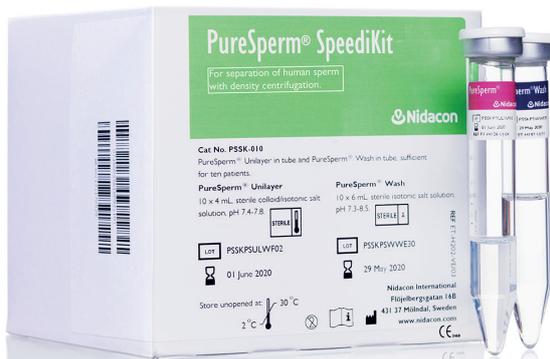
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References:
Sweden: <https://www.sis.se/produkter/halso-och-sjukvard/laboratoriemedicin/allmant/ss-en-iso-231622021/>
Europe: https://standards.cencenelec.eu/dyn/www/?p=CEN:110:0:::FSP_PRO-JECT,FSP_ORG_ID:68065,6122&cs=116F3B-628F42863E0F95BBFE53AABE636
Internationally: <https://www.iso.org/standard/74800.html>

PureSperm – one of its kind

All Nidacon gradient products include a colloid which is produced with our own unique silane-coated silica.



It is manufactured through a rather complex industrial process which ensures that it meets all our requirements and specifications.

Having control of this process gives us the possibility to improve all steps of the production and having a product that is performing exactly as wanted.

**“I look at people
sometimes and think
...really?
That’s the sperm
that won?”**



Coming up

■ **Swedish fertility meeting SSRM**
Gothenburg, Sweden 31/3-1/4 2022

SSRM

Svenska Sällskapet för
Reproduktionsmedicin
Swedish Society for Reproductive Medicine

■ **European Practitioner Symposium
on Equine Reproduction**
10 - 11 February 2022, Ghent, Belgium



■ **ESHRE 38th Annual Meeting**
Milan, Italy 2022



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