FPS(I)
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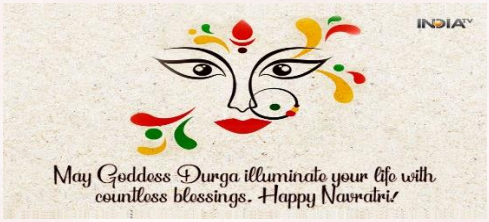
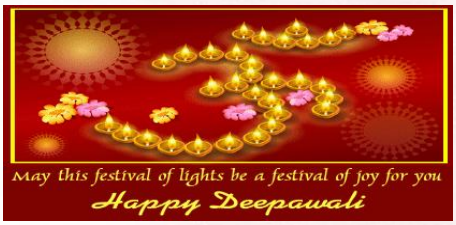
# Newsletter - FSP(I)

September 2022 (Volume 3)

A very good day to all of you reading this E-Newsletter. This is the 3rd E-newsletter in our series this year from the Fertility Preservation Society of India (FPSI).

We have just finished a spate of festivals and wish you all festival greetings for an excellent **Dussehra & Deepavali. Hope this festive season brings a lot of joy to you and your family.**






In the previous newsletter, we have brought out the synopsis on Reproductive outcomes after a Stem Cell Transplant for a Haematological Malignancy in Female Cancer Survivors, two case reports from Gunasheela Surgical & Maternity Hospital and a write up on "What do we need to know about breast lumps".

This time's newsletter features **Doping Scenario in Athletes & its effects on health – Indian Scenario**, complied by Dr. Devika Gunasheela & **Recent Advances: Fertility Preservation And Fertility Restoration Options For Males And Females** – summarised by Dr. Papa Dasari

## FIRST ARTICLE

## DOPING IN SPORTS & ITS CANCEROUS ASSOCIATION

Doping in India : Lure of the Short Cut
www.outlookindia.com
Sep 15, 2022

India's doping scene gets uglier; 15 year-old athlete fails the test now
– www.freepressjournal.in/sports
Sept. 14, 2019

Two Indian athletes fail dope tests, to miss CWG
https://timesofindia.indiatimes.com
Jul 21, 2022

Doping indeed is India's scourge. For a country bidding to become a global superpower in sports, its many doping escapades have already done enough damage. Now that the common wealth games are over, eyes are now turned towards the National Games & Khelo India.

## WHAT IS THE DOPING SCENE IN INDIA?

According to the World Anti-Doping Agency (WADA), India had the third highest number of dope offenders in 2021, moving up from fourth spot a year earlier. Most of the positive dope cases were registered in athletics and weight lifting. A majority of doping offences in India flies under the radar of the media and fans as most of them are committed during domestic meets. The rot runs so deep that syringes lying in the washrooms during even school and university events are a common sight in the country.

Anabolic Androgenic Steroids (AAS) are some of the most common drugs used among athletes. A list of some of the most common anabolic steroids taken today, Anadrol, Oxandrin, Dianabol, Winstrol, Deca-Burabolin, and Equipoise. Other Doping agents are Growth hormone/ Insulin like growth factor I (IGF- 1), erythropoetin and many others. One can get the extensive list of banned substances on the WADA website. But, today we are going to talk about the above mentioned agents and the associated risks of cancer.

## ANABOLIC ANDROGENIC STEROIDS

- Synthetic derivatives of testosterone produced by leydig cells in the testes (Origin from Cholesterol)
- May also derive from direct precursors:
  - Dehydroepiandrosterone (DHEA)
  - Androstenedione – converted to testosterone in liver

  } These are released from gonads & adrenal cortex
- Testostrone binds to Androgen Receptor (AR) directly or indirectly through conversion by the enzyme 5 α-reductase to Dihydrotestosterone (DHT).

As a result, testosterone via DHT is able to exert effects in a variety of tissues expressing 5α-reductase. It also acts via E2 receptors by means of oestradiol produced by CYP-19 aromatase.

High and multi-doses of anabolic steroids used to enhance athletic performance can induce serious and irreversible organ damage. The most common adverse effects are reduced fertility and gynecomastia in males and masculinization in women or children.

Torres-Bugarin et al in a review analyzing androgen effects on cellular functions concluded that a combination of genetic and epigenetic factors is the cause of toxicity, mutagenicity, geno-toxicity, and carcinogenicity of sexual hormones. Epigenetic factors include three molecular mechanisms, controlling genetic transcription: DNA methylation, Histone modifications and chromatin condensation. AAS can elicit profound modifications in genetic sequences by means of alterations in telomerase activity.

Nourbakhsh et al tried to verify the implication of androgens in ovarian carcinogensis. They demonstrated that both testosterone and androstenedione increased ovarian cancer cell viability via the expression, activity, and phosphorylation of telomerase, and by blocking phosphatidylinositol 3-kinase pathway inhibitors.

The results of clinical studies indicate that AS can contribute to the initiation and development of benign and malignant tumours and, in particular, hepatic carcinoma. The association between AS and liver tumours was first noted in patients with Fanconi's anaemia, which is characterized, by genomic instability, and in patients affected by other types of refractory anaemia. In the case of athletes or body builders a number of case reports on liver tumours, or cancers of different tissue origin have been reported, such as prostate, renal, testicular cancers and non-Hodgkin's lymphoma.

There are strong indications that tumours of the liver are caused when the AS contain a 17-alpha-alkyl group, such as danazol, methyltestosterone, nandrolone, oxymetholone and stanozolol. Evaluating the potential cancer risk associated to AS abuse is very difficult since these drugs are often used at very high doses and in combination with other illicit drugs. Another alarming factor is that exposure to AS starts more and more prematurely since it has been shown a continuing and significant increase of their use among adolescent athletes and non-athletes.

The role of androgens in women's health has been generally neglected. Prospectively conducted epidemiologic studies have found that high levels of serum testosterone are associated with an increase in post-menopausal breast cancer risk. It is not yet clear how testosterone might exert these effects in vivo. Also in this case, it would be highly recommended for female athletes who used AS for doping purpose to monitor themselves for breast cancer risk.

## GROWTH HORMONE / IGF-1

It would be highly recommended for female athletes who used AS for doping purpose to monitor, themselves for breast cancer risk. GH, directly regulates muscle protein expression and production, by binding its receptors and also indirectly by activation of the IGF-1 receptor, which can activate the P13K/AKT pathway in order to endorse myocellular proliferation. Overexpression of IGF-1 causes

significant hypertrophy and excessive cellular proliferation. IGF-1 can be considered as a well-known cancer inducer and promoter affecting each stage of tumor development, from cellular proliferation to the metastatic phase. Furthermore, IGF-1 seems to mediate the growth-promoting influences of anabolic steroids. Based on that, AAS and GH or IGF-1 are combinations with a high performance-enhancing potential.

Sirianni et al using a human breast cancer cell line, MCF-7, as an experimental model, demonstrated that stimulating aromatase expression and estrogen production through IGF-1 can promote cell proliferation. High doses of nandrolone (aromatizable) and stanozolol (non-aromatizable) could potentially increase breast cancer risk because in cases of high bioavailability, these compounds can attach to the ER, inducing its nuclear translocation in vivo. It is not yet clear how testosterone might exert these effects in vivo.

AASs promote muscle fiber mass and hypertrophy by augmentation of satellite cell proliferation, myonuclei number and muscle protein synthesis. This combined effect on myocells, should be considered in the light that supra-physiological doses of GH are leading growth hormone / insulin like growth factor (IGF-I) associated with increased incidences of colorectal, thyroid, breast, and prostate cancers.

## TESTICULAR CANCER

Testicular cancer represents 1% of male neoplasms and 5% of urological tumors, with 3-10 new cases occurring per 100,000 males/per year in western society.

Leydig cell tumors are usually benign, but approximately 10% are malignant. The malignant variants occur only in adults.

Leydig cell tumors are associated with cryptorchidism, testicular atrophy, infertility, germline mutations in fumarate hydratase, hereditary leiomyomatosis and renal cell carcinoma. These symptoms are commonly found in AAS abusers. In fact, the testicular atrophy represents one of the most frequent side-effects related to AAS abusers.

AASs abuse induces testicular damage by triggering oxidative stress via inflammatory cytokines, matrix metalloproteinases, cell adhesion inflammatory cytokines, cell adhesion molecules, apoptotic markers, and DNA damage. These mechanisms interfere with testis development, morphology, function, and sperm features.

The paucity of tumour case reports regarding doping which have been published so far should not reassure the athletes who used these substances about the lack of cancer- related risk. Difficulties in the detection of several performance enhancers and the small number of self – admissions by doped athletes have contributed to the lack of retrospective studies.

The potential risk of developing cancer in doped athletes should not be underestimated and should be more deeply evaluated.


## ACKNOWLEDGEMENT

**The first article is a compilation from the below mentioned articles. For further reading kindly refer the below mentioned articles**

- **Lucio Tentori, & Grazia Graziani. Doping with growth hormone/IGF-1, anabolic steroids orerythropoietin: is there a cancer risk?. Pharmacological Research 55 (2007) 359–369.**
- **Monica Salerno, Orazio Cascio, Giuseppe Bertozzi, Francesco Sessa, Antonietta Messina, Vincenzo Monda, Luigi Cipolloni, Altonio Biondi, Aurora Daniele, Cristoforo Pomara. Anabolic androgenic steroids & carcinogenicity focusing on Leydig cell: a literature review. Oncotarget, 2018, Vol. 9, (No. 27), pp: 19415-19426.**


## SECOND ARTICLE

## RECENT ADVANCES: FERTILITY PRESERVATION AND FERTILITY RESTORATION OPTIONS FOR MALES AND FEMALES. CHATCHANAN DOUNGKAMCHAN & KYLE E. ORWIG.


Background: Gonadal cells/tissues have been frozen for several thousands of those patients worldwide with anticipation that new reproductive technologies will be available in the future. Therefore, the fertility preservation medical and research communities are obligated to responsibly develop next-generation reproductive technologies and translate them into clinical practice. This review article briefly describes standard options to preserve and restore fertility.


Patients at risk of infertility should be counselled about their risk and referred to reproductive specialists to discuss options for fertility preservation, which include both standard-of-care and experimental approaches

### OPTIONS FOR MALE FERTILITY PRESERVATION:

Standard of care--------Sperm Cryo preservation ----------for adolescent and adult males
Investigational---------- Testicular tissue cryopreservation—those not producing sperms

## REGENERATION OF SPERMS FROM TESTICULAR TISSUE: CELL BASED THERAPIES

Spermatogonial stem cells (SSCs) from immature testicular tissues : Testicular tissues can be thawed and digested with enzymes to produce *a testicular cell suspension,* which contains SSCs, and subsequently transplanted into the seminiferous tubules of the testes to regenerate spermatogenesis and potentially restore fertility. This technique was first described in mice by Brinster et al.

De novo testicular morphogenesis: Testicular cell suspensions consist of germ cells and somatic cells such as Sertoli cells, Leydig cells, peritubular myoid cells, endothelial cells, immune cells, and fibroblasts. Testicular cell suspensions from neonatal or fetal animals can reorganize to form seminiferous tubule-like structures. Not yet described in humans.

## REGENERATION OF SPERMS FROM TESTICULAR TISSUE: TISSUE BASED THERAPIES

Autologous testicular tissue grafting: SSCs are maintained in their cognate seminiferous tubule niches in intact pieces of testicular tissue. Homologous species testicular tissue grafting was pioneered in mice, demonstrating that immature mouse testicular tissues could be grafted under the back skin of recipient mice and matured to produce complete spermatogenesis. Four studies have reported autologous and/or homologous grafting of immature nonhuman primate testicular tissues, including studies that demonstrated the production of sperm and a healthy baby from cryopreserved tissues. Therefore, autologous grafting of c*ryopreserved prepubertal testicular tissues* is a mature technology that may be ready for translation to the human clinic

Testicular tissue xenografting: Xenograftderived sperm recovered from mouse hosts have been used to fertilize and produce embryos or offspring in rabbits, pigs, and monkeys. Xenografting of immature human testicular tissues has failed to produce sperm to date87–92 and this approach may raise concerns about transmission of xenobiotics if used in the clinic. However, if proven effective, testicular tissue xenografting may be an approach to circumvent cancer contamination problems or for transgender individuals who will not go through male puberty and cannot have mature testicular tissues inside their own bodies.

Testicular organ culture : Fresh or cryopreserved neonatal testicular tissues could be matured in organ culture on an island of agar at the air–liquid interface to produce mature sperm. Sperm from fresh tissues were tested functionally by fertilization and with the production of offspring.

Human testicular tissues have been cultured with results ranging from tissue survival with spermatogonia or spermatocytes or round spermatids as the most advanced stage. Functional validation of haploid germ cells from human tissues is difficult or impossible because of ethical, legal and/or funding restriction.

## FERTILITY PRESERVATION IN FEMALES:

**Standard of Care:**

1. Embryo cryopreservation, (2) Mature oocyte cryopreservation, and (3) ovarian shielding or transposition in patients undergoing radiotherapy
2. Ovarian tissue cryopreservation is an option for prepubertal girls who are not producing mature oocytes or women who cannot undergo controlled ovarian stimulation for oocyte collection because of time constraints or other concerns
3. Investigational methods : in vitro maturation (IVM) of immature oocytes, in vitro growth of primordial/primary follicles, non-antral/small antral follicles, and artificial ovary

## OVARIAN TISSUE CRYOPRESERVATION AND AUTOLOGOUS TISSUE GRAFTING

**Indications:**

Prepubertal female patients with cancer

Adult women with estrogen-sensitive cancer

For those whose cancer treatment cannot be delayed

Cryopreserved ovarian tissues can be reimplanted to the patients, either in the pelvic cavity or on the ovarian medulla (orthotopic transplantation) or outside the peritoneal cavity (heterotopic transplantation), if the risk of transferring cancer is low

Orthotopic reimplantation of cryopreserved ovarian tissues performed in human patients restored ovarian function in more than 90% of cases. The pregnancy rate is 18 to 35% of transplanted cases, and the live birth rate is 13.6 to 25% of transplanted cases.

## IN VITRO MATURATION OF IMMATURE FOLLICLES

IVM may allow maturing of unstimulated or minimally stimulated oocytes from antral/germinal vesicle follicles to fertilization-competent metaphase II oocytes in vitro, hence decreasing the chance of reintroducing cancer. Immature follicles can be collected with minimal or no ovarian stimulation which is beneficial in the cancer patients whose cancer is hormone-sensitive, patients who cannot delay chemotherapy, prepubertal patients who are not sexually mature, and patients with polycystic ovarian syndrome (PCOS) to avoid ovarian hyperstimulation syndrome. 400 live births were reported with no increase in birth anomalies when compared with conventional in vitro fertilization.

## IN VITRO GROWTH OF PRIMORDIAL FOLLICLES BY MULTISTEP CULTURE TECHNIQUE

Dynamic multistep culture mimics follicular development in vivo and is generally composed of three steps: (1) activation of primordial follicles to small preantral follicles, (2) in vitro growth of small preantral follicles to antral follicles where cumulus–oocyte complexes (COCs) can be isolated for (3) IVM

In humans, culturing oocytes in situ with the ovarian tissue was shown to support primordial follicle activation followed by in vitro growth of small preantral follicles to antral follicles in which COCs can be used for IVM, resulting in metaphase II mature oocyte all in vitro

## ARTIFICIAL OVARY IMPLANTATION

Extract primordial follicles from cryopreserved ovarian tissues, put them on a supporting scaffold, and graft back to the patients

This technique is another way of using cryopreserved ovarian tissue without reintroducing the whole tissue and potentially cancerous cells back to patients.

## IN VITRO GAMETES FROM PLURIPOTENT STEM CELLS

Germ cells sometimes spontaneously arise from pluripotent embryonic stem cells (ESCs) or iPSCs in two-dimensional or three-dimensional cultures after removal of leukemia inhibitory factor (LIF) from the culture medium.

ESCs or iPSCs could be differentiated into epiblast-like cells and then to PGCLCs that were transplanted to the ovaries or testes to produce eggs, sperm, and live offspring. Germ cells have also been produced from monkey and human pluripotent stem cells.


## ACKNOWLEDGEMENT

**This article has been summarized from the original paper : "Recent advances: fertility preservation and fertility restoration options for males and females" by Chatchanan Doungkamchan & Kyle E. Orwig. Faculty Reviews 2021 10:(55)**

**We are enclosing the brochures of the forthcoming conferences, which might interest you.**

## 1. WELCOME TO THE 7TH WORLD CONGRESS OF THE INTERNATIONAL SOCIETY FOR FERTILITY PRESERVATION


The 7th World Congress of the International Society for Fertility Preservation (ISFP) which will take place on November 10-12, 2022, in Brussels, Belgium. Indeed, over the last two decades, fertility preservation has gained considerable ground in medical and clinical patient care and is now at the forefront of basic and applied research in human reproduction.

**Congress Venue**
Hotel Le Plaza Brussels
Boulevard Adolphe Max, 118-126
1000 Brussels
www.leplaza.be
Tel: +32 (0)2 278 05 81 – Fax: +32 (0)2 278 01 02
Conference Website : https://isfp2022.cme-congresses.com/
The registration link is : https://isfp2022.cme-congresses.com/registration/

## 2. FERTILITY PRESERVATION SOCIETY (INDIA) - 9th ANNUAL CONFERENCE FERTIPROTECT 2022 ON 16th – 18th DECEMBER 2022 at KOCHI, KERALA

Fertility Preservation Society (India) is conducting the 9th Annual Conference – Fertiprotect from 16th – 18th December 2022 at Marriott Hotel, Kochi, Kerala. This meeting will provide an interactive platform for the reproductive endocrinologist, oncologist and scientist to discuss the various aspects of fertility preservation. Scientific deliberations and experiences shared by experts like you will add immeasurable value to the congress to make it a memorable & meaningful experience for all the participants. The congress aims to present knowledge that can be translated into clinical practice and also provide an insight into future developments in this rapidly evolving discipline of ART.

**Conference Venue–**

**Kochi Marriott Hotel, Lulu International Shopping Mall 34/1111, NH544, Edappally, Kochi, Kerala 682024**

## For any queries you could contact:

**Dr Madhuri Patil @ +919845542819; Ms Rebecca @ +919810317131 or +911141030715**

**The 7th World Congress of the International Society for Fertility Preservation (ISFP)**
**November 10-12,2022**
**November 10, 2022, 13:30-18:00**
**November 11,2022, 09:00-17:50**
**November 12, 08:00-16:00**
**All timings in Central European Time (CET)**

## Thursday, November 10, 2022

**Simultaneous Pre-Congress Workshops-Require separate registration and are not included in the general congress registration fees**

| | | | |
|---|---|---|---|
| **13:30-17:00**<br>**Workshop A**<br>**Cryopreservation of ovarian tissue: Hands-on lab and clinics; tissue collection; lab preparation and tissue freezing; transplantation techniques Marie-Madeleine Dolmans, Belgium; Claus Yding Andersen, Denmark; Debra Gook, Australia; Jacques Donnez, Belgium; Linn Mamsen Denmark; Luciana Cacciottola, Belgium** | 13:30-17:00<br>Workshop B<br>Oocyte Vitrification**: The Theory and Practice of human oocyte vitrification; factors influencing the outcomes in human ART. Hands-on training with animal oocytes.<br>Inge E. Agerholm, Denmark; Martine Nijs, Belgium;<br>Cornelia Meyer, Germany; Aaron Lakmaker, Spain<br><br>** Workshop can be attended only by participants who have experience in handling mammalian oocytes<br><br>Sponsored by CooperSurgical | 15:00-17:00<br>Local session- FertiPROTEKT - Fertility preservation: what else matters?<br>Chairs:<br>Kenny A. Rodriguez-Wallberg, Sweden<br>Ralf Dittrich, Germany | 14:00-18:00<br>Local session - Asian Society for Fertility Preservation (ASFP) & The Fertility Preservation Society India (FPSI)<br>President ASFP - Dr. Nalini Kaul - Mahajan<br>President FPSI – Dr. P M Gopinath |
| **13:30-13:35**<br>**Welcome**<br>**Marie- Madeleine Dolmans, Belgium**<br><br>**13:35-14:30**<br>**Techniques of cryopreservation of ovarian tissue, thawing and transplantation Debra Gook, Australia; Jacques Donnez, Belgium; Claus Yding Andersen, Denmark; Linn Mamsen, Denmark**<br><br>**14:30-17:00**<br>**Freezing of ovarian tissue: Hands-on practice with cow ovaries Debra Gook, Australia; Marie-Madeleine Dolmans, Belgium; Linn Mamsen, Denmark; Luciana Cacciottola, Belgium;**<br>**Paweena Thuwanut, Thailand** | 13:30-13:35<br>Welcome<br>Inge E. Agerholm, Denmark<br><br>13:35-14:30<br>Theory of vitrification and warming of oocytes<br>Cornelia Meyer, Germany; Olga DeSilva,<br>Denmark; Aaron Lakmaker, Spain<br><br>14:30-17:00<br>Hands-on training in vitrification and warming of oocytes<br>Inge E. Agerholm, Denmark; Martine Nijs,<br>Belgium; Olga DeSilva, Denmark; Cornelia<br>Meyer, Germany; Aaron Lakmaker, Spain<br><br>** Workshop can be attended only by participants who have experience in handling mammalian oocytes | Before gonadotoxic therapy: Indications in different diseases<br>Michael Von Wolff, Switzerland<br><br>During gonadotoxic therapy: Heavy uterine bleeding – prevention and treatment<br>Susanna Weidlinger, Switzerland<br><br>After gonadotoxic therapy: Endocrinological care<br>Ariane Germeyer, Germany<br><br>FertiPROTEKT – Data from the network<br>Jana Liebenthron, Germany | 14:00-14:10<br>Welcome<br>Asian Society for Fertility Preservation (ASFP) Session Chairpersons:<br>Dr. Ozgur Oktem, Dr. T.M. Chau Le, Dr. Padma Rekha Jirge<br>14:15-14:30<br>Fertility Preservation in Developing Countries - how far have we come<br>Dr. Virgilo Novero<br>14:30-14:50<br>Application of Ovarian tissue cryopreservation for benign condition<br>Prof. Nao Suzuki<br>14:50-15:00<br>Q & A<br>15:00- 15:15<br>Fertility Preservation in Endometriosis<br>Prof. Budi Wieko<br>15:15 -16:15<br>Fertility Preservation for Benign conditions - Pros & Cons (Panel discussion)<br>Moderator: Dr. Nalini Kaul-Mahajan<br>Panelists: Prof. Nao Suzuki, Prof. Budi Wieko, Dr. Mariam Faruqui (Shati), Dr. Ozgur Oktem. Virgilo Novero, Dr. T.M. Chau Le, Dr. Padma Rekha Jirge<br>The Fertility Preservation Society India (FPSI) Session<br>16:20-17:45<br>FP in oncological conditions - panel discussion (Case based discussion)<br>Moderators: Dr. P.M. Gopinath, Dr. Madhuri Patil.<br>Panelists: Dr. Priya Selvaraj, Dr. Nymphea Valecha, Dr. Tanya Buckshee, Dr. Lavanya Kiran, Dr. Shobhana, Dr. Shreyas Padgaonkar<br>17:45-18:00<br>Concluding Remarks<br>Prof. Nao Suzuki |

| | Friday, November 11, 2022 |
|---|---|
| 09:00-09:05 | Welcome<br>Marie-Madeleine Dolmans, President of ISFP |
| 09:05-09:15 | Wishes: 15 years of ISFP<br>Jacques Donnez, Belgium<br>Sam Kim, USA |
| 09:15-09:45 | Session 1: Opening lecture<br>Chairs: Jacques Donnez, Belgium, Sam Kim, USA, Hamish Wallace, UK |
| 09:15-09:45 | Fertility preservation: the recent changes and expectations Marie- Madeleine Dolmans, Belgium |
| 09:45-10:45 | Cancer patients: what should be the criteria for fertility preservation?<br>Chairs: Herman Tournaye, Belgium; Sasmira Lalwani, USA;<br>Industry-supported symposium by Ferring |
| 09:45-10:15 | Cancer patients: are the Edinburgh criteria for fertility preservation still accurate? Richard Anderson, UK |
| 10:15-10:45 | Fertility preservation: what it is, what it is not and how best to do it Glenn Schattman, USA |
| 10:45-11:10 | Coffee Break |
| 11:10-12:50 | Session 2: Fertility preservation in benign gynecological diseases<br>Chairs: Felice Petraglia, Italy; Bruno Salle, France |
| 11:10-11:30 | Adenomyosis, endometriosis, and fibroids-linked infertility: the mechanisms Felice Petraglia, Italy |
| 11:30-11:50 | How to protect/restore fertility in case of uterine fibroids and adenomyosis? Jacques Donnez, Belgium |
| 11:50-12:10 | How to preserve fertility in case of endometriosis? Ana Cobo, Spain |
| 12:10--12:30 | How to preserve fertility in Turner syndrome patients? Ron Peek, Holland |
| 12:30-12:50 | Uterine transplantation: state of the art Tommaso Falcone, USA/UK |
| 12:50-13:50 | Lunch Break |
| 13:50-15:30 | Session 3: Andrology<br>Chairs: Herman Tournaye, Belgium; Nao Suzuki, Japan |
| 13:50-14:10 | Fertility preservation in boys: recent developments, challenges, and new insights Jan-Bernd Stukenborg, Sweden |
| 14:10-14:30 | Preservation of fertility in transgender people Pasquale Patrizio, USA |
| 14:30-14:50 | Fertility preservation in childhood cancer and prepubertal testicular tissue Rod Mitchell, UK |
| 14:50-15:10 | Spermatogonial stem cells: from research to clinical relevance Joachim Wistuba, Germany |
| 15:10-15:30 | Man-made human sperm: hope or hype Yoni Baert, Belgium |
| 15:30-15:50 | Coffee Break |
| 15:50-17:50 | Session 4: IVM and poor responders<br>Chairs: Zev Rosenwaks, USA<br>Francesca E. Duncan, USA<br>Debra Gook, Australia |
| | IVM: |
| 15:50-16:10 | Do we have arguments in favor of IVM alone in terms of live birth rate? Michel De Vos, Belgium |
| 16:10-16:30 | A new frontier: developing human IVM based on oocytes obtained during fertility preservation procedures - Claus Yding Andersen, Denmark |
| 16:30-16:50 | A critical review of IVM: where are we really? Kenny Rodriguez Wallberg, Sweden |
| | Poor responders: |
| 16:50-17:10 | Is IVA the solution? Review of the literature and questions Stine Gry Kristensen, Denmark |
| 17:10-17:30 | Rejuvenating the ovary by stem cells transplantation<br>Antonio Pellicer, Italy |
| 17:30-17:50 | Rejuvenating the oocyte: is mitochondrial or nucleus transfer the solution Chii-Ruey Tzeng, Taiwan |

| | Saturday, November 12, 2022 | |
|---|---|---|
| 08:00-09:15 | Session 5: Chemotherapy and ovaries<br>Chairs: Claus Yding Andersen, Denmark<br>Michael Von Wolff, Germany<br>Nalini Kaul-Mahajan, India | |
| 08:00-08:25 | Mechanisms of ovarian damage from chemotherapy: apoptosis and/or follicle activation? Dror Meirow, Israel | |
| 08:25-08:55 | Is OTC after chemotherapy efficacious or contra-indicated?<br>The French experience- Catherine Poirot, France The Israeli experience- Moran Shapira, Israel | |
| 08:55-09:15 | How to counteract gonadatoxicity? Isabelle Demeestere, Belgium | |
| 09:15-09:20 | Technical Break | |
| 09:20-10:20 | Updates in cryopreservation strategies<br>Chairman: Jacques Donnez, Belgium<br>Industry-supported symposium by GEDEON RICHTER | |
| 09:20-09:35 | Egg freezing in oncological patients Michel De Vos, Belgium | |
| 09:35-09:50 | Egg freezing for social reasons or age-related fertility decline Elisa Gil, Spain | |
| 09:50-10:05 | Ovarian tissue freezing to delay menopause Marie-Madeleine Dolmans, Belgium | |
| 10:05-10:20 | Concluding remarks Jacques Donnez, Belgium | |
| 10:20-10:40 | Coffee Break | |
| 10:40-11:40 | Session 6A: Six oral communications (Basic science)<br>Chairs: Isabelle Demeestere, Belgium<br>Dror Meirow, Israel | Session 6B: Six oral communications (Clinical science)<br>Chairs: Hamish Wallace, UK; Chii-Ruey Tzeng, Taiwan |
| | | |
| 11:40-13:00 | Session 7: Paving the way to the future<br>Chairs: Michelle Nisolle, Belgium; Antonio Pellicer, Spain | |
| 11:40-12:00 | The gamete microenvironment in iatrogenic and physiologic ovarian aging Francesca Duncan, USA | |
| 12:00-12:20 | Single cell transcriptomics: analysis of human antral follicles TBD | |
| 12:20-12:40 | From primordial follicle to mature oocyte: are we ready? Evelyn Telfer, UK | |
| 12:40-13:00 | How to improve revascularization of the ovarian transplants? Luciana Cacciottola, Belgium | |
| 13:00-14:00 | Lunch Break | |
| 14:00-15:50 | Session 8: Fertility preservation in breast and pelvic cancers<br>Chairs: Jean Squifflet, Belgium; Tommaso Falcone, USA/UK | |
| 14:00-14:40 | Four oral communications, preselected for an award | |
| 14:40-15:10 | Conservative surgery in ovarian cancer and in BOT Catherine Uzan, France | |
| 15:10-15:30 | Fertility-sparing surgery in cervical cancer Geoffroy Canlorbe, France | |
| 15:30-15:50 | Fertility preservation in breast cancer women Michael Von Wolff, Germany | |
| 15:50-16:15 | Closing remarks<br>Zev Rosenwaks, USA and Marie-Madeleine Dolmans, Belgium | |
| | Award and closing ceremony | |

# FERTI PROTECT 2022 PROGRAMME

| Day 1: 16/12/22 | Workshops | | | | |
|---|---|---|---|---|---|
| Time | Workshop 1 | Time | Workshop 2 | Time | Workshop 3 |
| 11.00 am – 3.30 pm | Clinical Aspects of Fertility Preservation Case Presentation & Discussion | | Ovarian tissue cryopreservation | | In-Vitro Maturation of oocytes |
| 11.00 -11.05 am | Lamp lighting | | Lamp lighting | | Lamp lighting |
| 11.05 am – 12.00 noon | Breast Cancer and Fertility Preservation | 11.05 am | Current role & techniques of Ovarian cortex (slow freezing) | 11.05 am | Technical aspects of IVM |
| 12.00 noon – 1.00 pm | Borderline Ovarian tumours | 11.30am | Ovarian Cortex Vitrification - Concept and techniques. | 11.45 am | Clinical Applications of IVM |
| | | | | 12.15 pm | In-vitro follicle growth and oocyte maturation |
| | | | | 12.45 pm | Discussion |
| 1.00pm - 2.00pm | Lunch | | | | |
| 2.00 - 2.45 pm | Endometrial Cancer | 2.00 – 3.30 pm | Hands on ovarian tissue Cryopreservation | 2.00 – 3.30 pm | Discussion |
| 2.45 - 3.30pm | Lymphoma | | | | |
| 4.00 pm onwards | Complimentary Dinner cruise for registered Delegates with Music & Dance | | | | |

| Day 2 : 17/12/22 | Conference Deliberations | |
|---|---|---|
| 8.45 – 9.00am | Welcome | |
| Time | Hall A | Hall B |
| 9.00 – 10.15 am | Session 1 : The Basics of Oncofertility | Session 1 : Fertility Preservation Psychological and Legal Aspects |
| 9.00 am | Gonadotoxicity of newer generation chemotherapeutic agents. | Quality of life and fertility preservation counselling for women with gynaecological cancers. |
| 9.20 am | Fertility preservation. It is all about indications. | Fertility counselling in women with hereditary cancer syndromes. |
| 9.40 am | Clinical Application and interpretation of AMH in Oncofertility. | Ethical \ Legal issues and consent forms in Fertility Preservation. |
| 10.00 am | Discussion | Discussion |
| 10.15 – 11.30am | Session 2 | Session 2 |
| | Fertility Preservation in Breast Cancer | Efficacy of Cryopreserved Gametes & Tissue |
| 10.15 am | Fertility Preservation in Breast Cancer- Counselling, Preservation options & Outcomes. | Reducing damage during ovarian tissue cryopreservation & transplantation- |
| 10.35 am | Impact of BRCA mutations on Ovarian reserve and Fertility preservation in BC patients. | Reproductive outcome with vitrified oocytes in Cancer survivors. |
| 10. 55 am | Current evidence on use of GnRH Analogue in ovarian protection. | Elective Egg Freezing: Clinical outcome, Counselling and Utilization. |
| 11.15 am | Discussion | Discussion |
| 11.30 am | Coffee Break | |
| 12.00 – 1.00pm | Keynote Addresses | |
| 12.00 Noon | Keynote Address 1 Current Status of Oncofertility for Childhood and AYA Cancer Patients in Japan - | |
| 12.30 pm | Keynote Address 2 : Ovarian ageing: does the somatic cell compartment of the follicle age? | |
| 1.00 – 2.00 pm | Lunch | |

# FERTI PROTECT 2022 PROGRAMME

| 2.00 – 3.15 pm | Session 3 Hall A | Session 3 Hall B |
|---|---|---|
| | Ovarian stimulation | Fertility-Sparing Techniques |
| 2.00 pm | Ovarian stimulation protocols in cancer patients. | Fertility sparing surgeries in Gynaecological cancer. |
| 2.20 pm | Application of Duo stim and PPOS protocols in cancer survivors – risks and benefits | Surgical Techniques to prevent loss of ovarian reserve reduction during ovarian surgery |
| 2.40 pm | Risk of malignancy relapse after ovarian stimulation and ovarian tissue transplant. | Fertility sparing treatment for endometrial cancer and atypical endometrial hyperplasia – Role of Metformin and Progesterone's. |
| 3.00 pm | Discussion | Discussion |
| | | |
| 3.15 – 4.45 pm | Session 4 Hall A | Session 4 Hall B |
| | Fertility Preservation – Future Expectations | Miscellaneous |
| 3.15 pm | Transplant of reproductive organs – Is it the future. | Fertility Preservation in transgender individuals. |
| 3.35 pm | Gamete collection in prepubertal and adolescent boys – Bench to bedside. | Fertility Preservation in Turner's syndrome and autoimmune disorders. |
| 3.55 pm | TBD | International guidelines on Fertility Preservation. |
| 4.05 | Discussion | Discussion |
| 4.15 pm - 4.45pm | Free papers | |
| 4.30 pm | EBM | |
| 5.00 pm | GBM with declaration of the election results | |
| 8.00 pm | Installation of New FPSI team<br>Dinner | |

| Day 3: 18/12/22 | Conference Deliberations | |
|---|---|---|
| Time | | |
| 9.00 – 10.15 am | Session 5 Hall A | Session 5 Hall B |
| | New Technologies for Preserving and Restoring fertility | Miscellaneous |
| 9.00 am | The role of stem cells in follicular regeneration. | Quality and Outcome of gametes and gonadal tissue cryopreserved after chemotherapy. |
| 9.20 am | Clinical application of In-vitro follicular activation in POI ? | Impact of COVID- 19 on Fertility Preservation |
| 9.40 am | Bioengineering in reproduction research - | Environmental factors in cancer & infertility |
| 10.00 am | Discussion | Discussion |
| 10.15 – 11.15 am | Keynote Addresses | |
| 10.15 am | Keynote 3 "Mitochondrial replacement therapy is the reality for rejuvenating the compromising oocyte?" | |
| 10.45 am | Keynote 4: Can intraovarian platelet rich plasma improve oocyte number and quality | |
| 11.15 am | Coffee Break | |
| 11.30 – 12.00 pm | Keynote Addresses | |
| 11.30 am | Keynote 5 – Role of FP in Endometriosis & Fibroids - | |
| 12.00 – 1.15 pm | Session 6 Hall A | Session 6 Hall B |
| | Cancer and Pregnancy | Childhood cancer & FP |
| 12.00 Noon | Planning for pregnancy in cancer survivors – when and how? | FP in adolescent females – |
| 12.20 pm | Role of third party Reproduction in oncofertility – | Haematological cancer in children and adolescents when should fertility preservation be offered? |
| 12.40 pm | Antenatal, intra-natal and neonatal complications in female survivors of childhood cancers - | Fertility in Male Cancer Survivors: Can We Identify Boys at Risk? |
| 1.00 pm | Discussion | Discussion |
| 1.15 pm | Valedictory | |
| 1.30 pm | Lunch | |

We do hope you have enjoyed reading this issue and found it useful. We encourage all of you to become members of FPS(I) as cancer is a now a household name and there are not many families who do not have or have heard of someone near or dear who have been afflicted with cancer. So we are going to be confronted with these problems increasingly and we being part of the society will help you to widen your knowledge horizon and also have a healthy discussion when in doubt as to the way forward in any solution…….. So do join us. The membership form can be downloaded by clicking the following link - **Membership Form** - **http://www.FPS(I)nd.com/membership.php**. / a print out of the attached form in the next page can be taken.

We would also like to encourage you to talk about you experience dealing with cancer patients in the form of case reports, case series and review articles and submit them to TOGF on the below link - **https://www.tofjonline.org/**

**Thank you for spending your valuable time reading this newsletter.**
**Last but not least, some food for thought:**

*"When life gives you*
*A hundred reasons to break*
*down and cry, show life that*
*you have a thousand reasons*
*to smile and laugh*
**STAY STRONG"**

## LET THE MEMBERS OF FPS (I) BE ONE OF THEIR REASONS TO LAUGH & SMILE

*- FPS(I) Team*

# FPS (I)

**Preserve-Create-Perpetuate**

## Membership Request Form

Fertility Preservation Society (India)
Registered Office & Secretariat:
D-59, Defence Colony, New Delhi - 110024

Name : _____

Qualification : _____

Designation : _____

Address :

Workplace : _____

Residence : _____

Address to be used for correspondence ☐ Workplace ☐ Residence

Telephone No.: Workplace: _____ Residence : _____

Mobile : _____ Email address : _____

Amount : _____

Cash / Cheque / Demand Draft No / Online Transfer Details :

Date : _____ Bank : _____

Signature : _____ Name : _____

Please make cheque . Draft in favour of
FERTILITY PRESERVATION SOCIETY
A/C No-914020019747855 (Axis Bank)
Please attach two recent passport size photographs

Mailing address
SECRETARIAT
Fertility Preservation Society (India)
D-59, Defence Colony, New Delhi – 110024
Website : www.fpsind.com
Email Address : rebecca@fpsind.com/helpdesk@fpsind.com/
fertilitypreservationsociety@gmail.com

# The Onco Fertility Journal

Offical publication of the Fertility Preservation Society

## Scope of the Journal

*The Onco Fertility Journal* covers technical and clinical studies related to health, ethical and social issues in the field of Fertility preservation, Protection for cancer patients, women with severe endometriosis, Haematological and Immunological Disease. Articles with clinical interest and implications will be given preference.

### Indexing Information

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