



# Comprehensive Fertility Care and Preservation for Male Cancer Survivors

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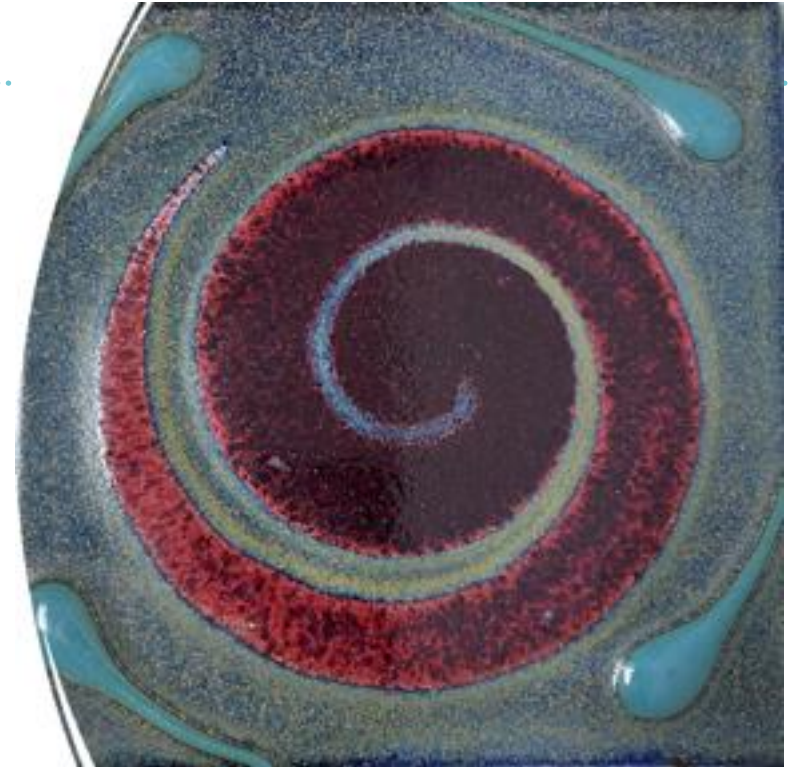
# Disclosure Statement

- We do not have any conflict of interest, nor will we be discussing any off-label product use.
- This class has no commercial support or sponsorship, nor is it co-sponsored

# Survivorship and Fertility

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In a survey questioning the importance of fertility preservation in women of childbearing age recently diagnosed with cancer.



77.6% (66 of 85) reported that the **possibility of preserving their fertility** was **instrumental to coping** before and after treatment

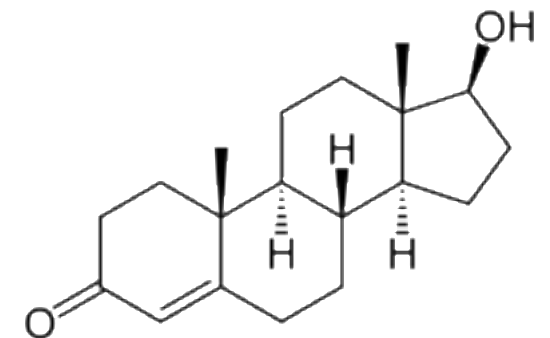
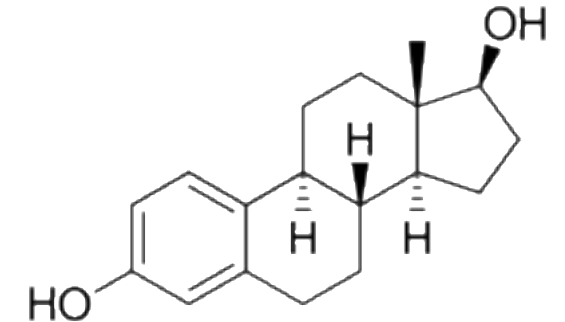
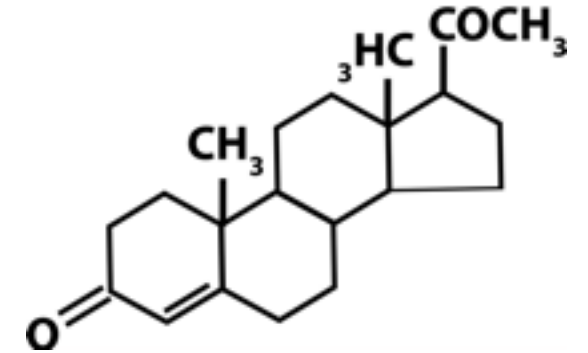
# Testicular tissue serves a role in both hormone production and reproduction

## Ovary

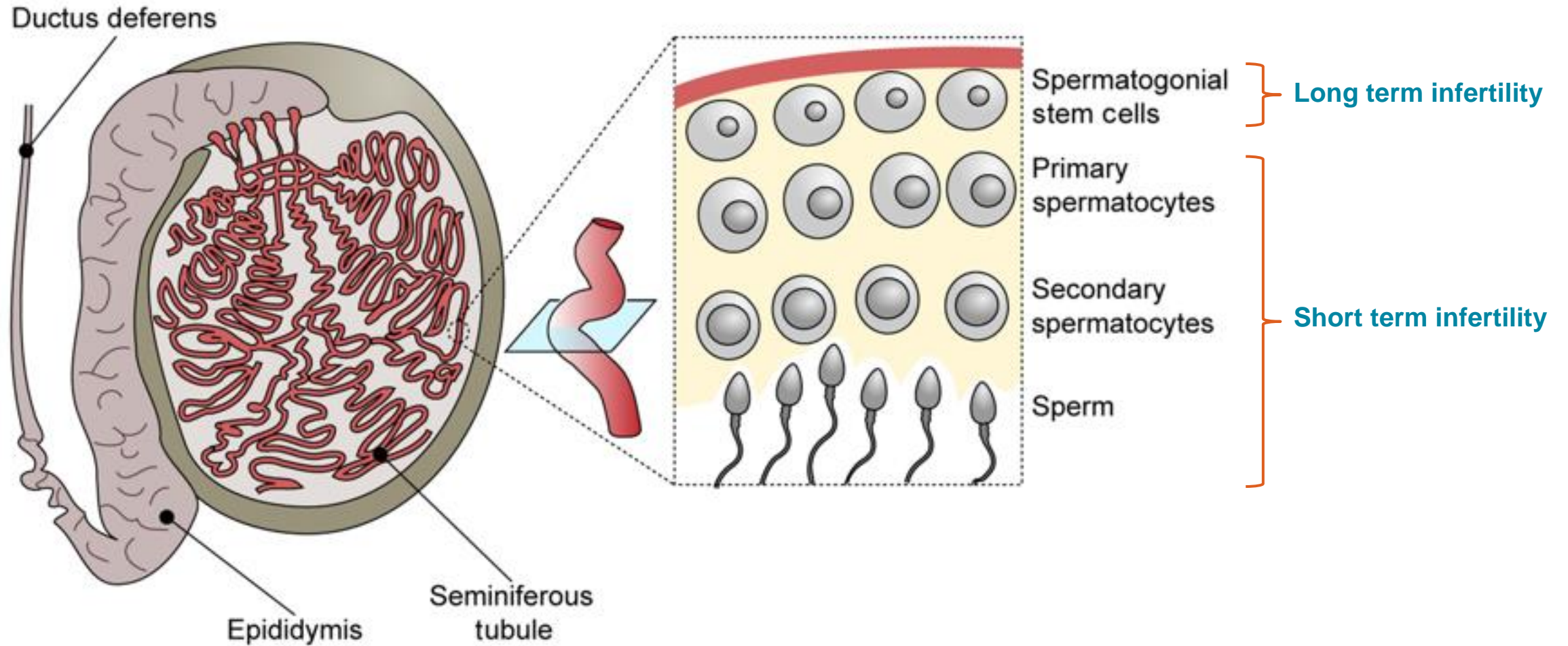
- **Reproduction**
  - Females born with lifetime oocytes
- **Hormones**
  - Progesterone
  - Estrogen (estradiol, estrone, and estriol)

## Testes

- **Reproduction**
  - Ongoing production of sperm after puberty
- **Hormone**
  - Testosterone



# Spermatogenesis

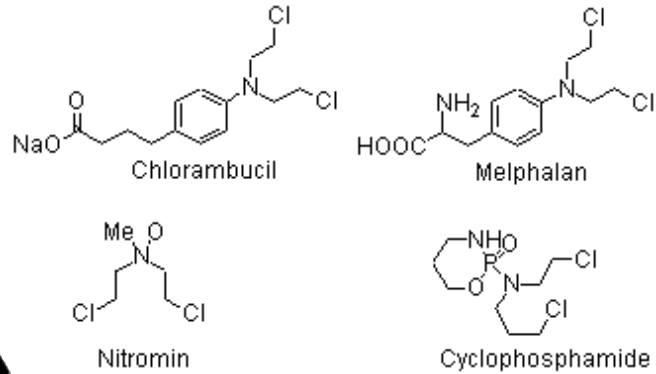


# Risk Quantification and Gonadal Failure

# Gonadotoxic Therapy



RADIATION



ALKYLATING  
CHEMOTHERAPY



CISPLATIN &  
CARBOPLATIN



SURGERY

# Male Risk Stratification

		Minimally Increased Risk	Significantly Increased risk	High level of Increased risk
Alkylators CED* gm/m2		CED < 4		CED ≥ 4
Hematopoietic Stem Cell Transplant				Alkylator +/-Total body irradiation Myeloablative and Reduced intensity regimens
Heavy Metal mg/m2		Cisplatin Carboplatin	Cisplatin > 500	
Radiation Exposure	Testicular	0.2-0.6Gy	0.7-3.9 Gy	≥ 4.0 Gy
	Hypothalamus	26-29.99	> 30-39.9 Gy	> 40 Gy
Surgery			RPLND <sup>^</sup>	

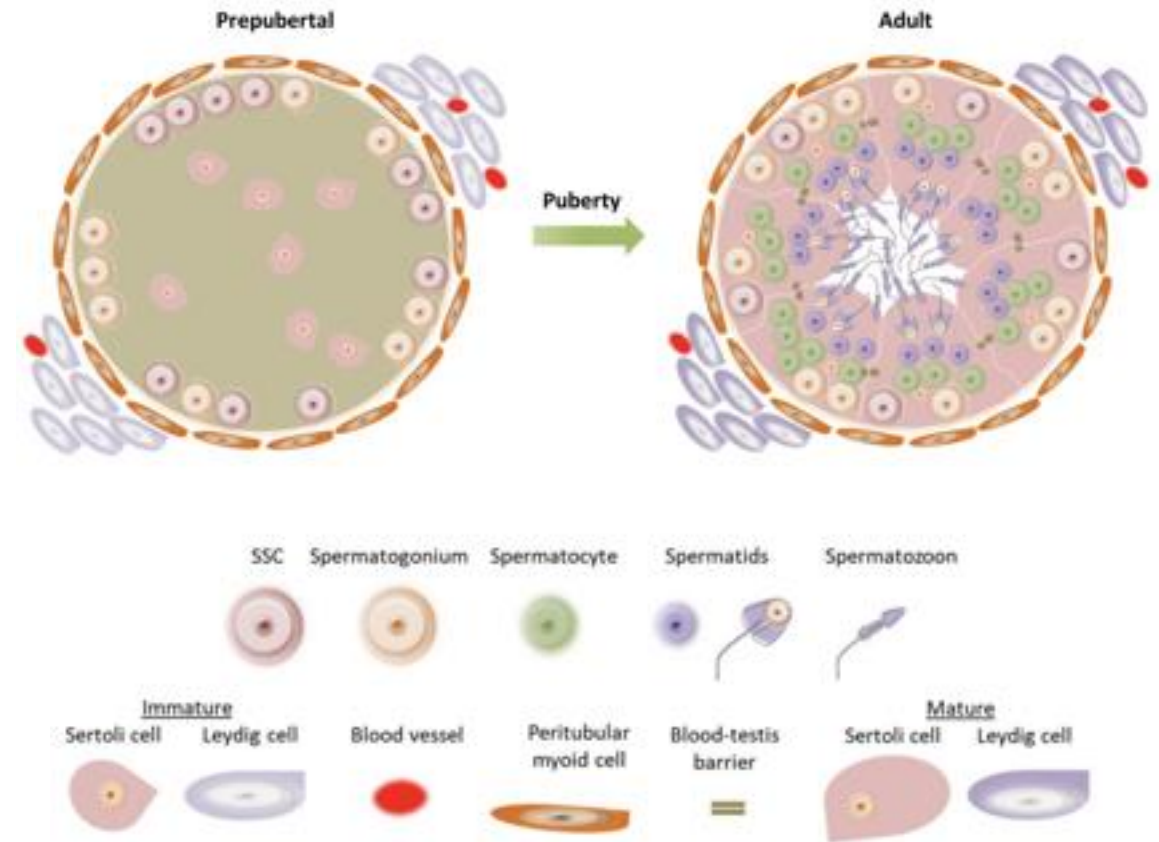


# Cyclophosphamide Equivalent Dose

Cyclophosphamide Equivalent Dose Calculator			
Drug	Dose (mg/m <sup>2</sup> )	Multiplier	Equivalent dose (mg/m <sup>2</sup> )
Cyclophosphamide		1	0
Ifosfamide		0.244	0
Procarbazine		0.857	0
Chlorambucil		14.286	0
BCNU		15	0
CCNU		16	0
Melphalan		40	0
Thio-TEPA		50	0
Nitrogen Mustard		100	0
Busulfan		8.823	0
<b>Total CED</b>			<b>0</b>

# Male Infertility Risk: Principles

- Long term outcomes: mostly binary (fertile vs not fertile)
- Risks do not vary greatly with age
- Temporary azoospermia is of variable length.

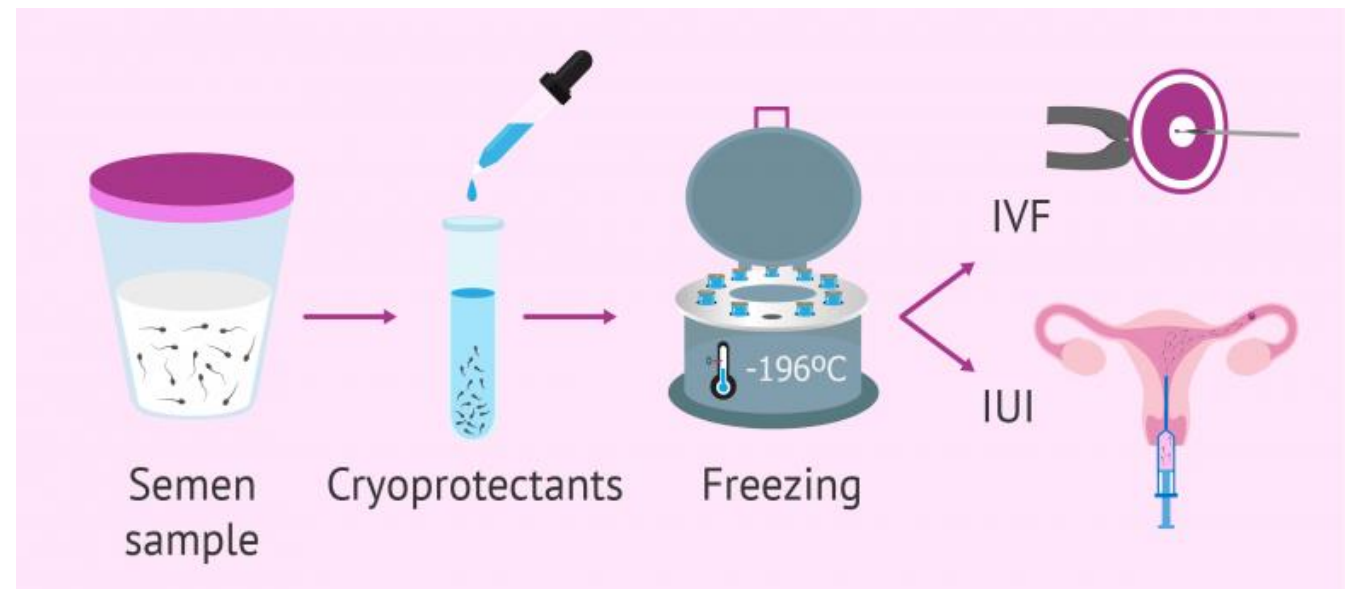


# Options for Males

Before Treatment Options	Potential Use	Dis-advantages	Status
Sperm Freezing (Semen/Testis)	IUI, IVF	Limited Sperm	Standard
Prepub Testicular Tissue Freezing	IVF	Few sperm Surgery	Experimental

After Treatment Options	Fresh Sperm	Frozen Sperm	Status
Diagnostic Semen Analysis	✓		Standard
Natural Conception	✓		Standard
IntraUterine Insemination IUI	✓	✓	Standard
In Vitro Fertilization IVF	✓	✓	Standard
Donor sperm IUI or IVF		✓	Standard
Adoption			Standard

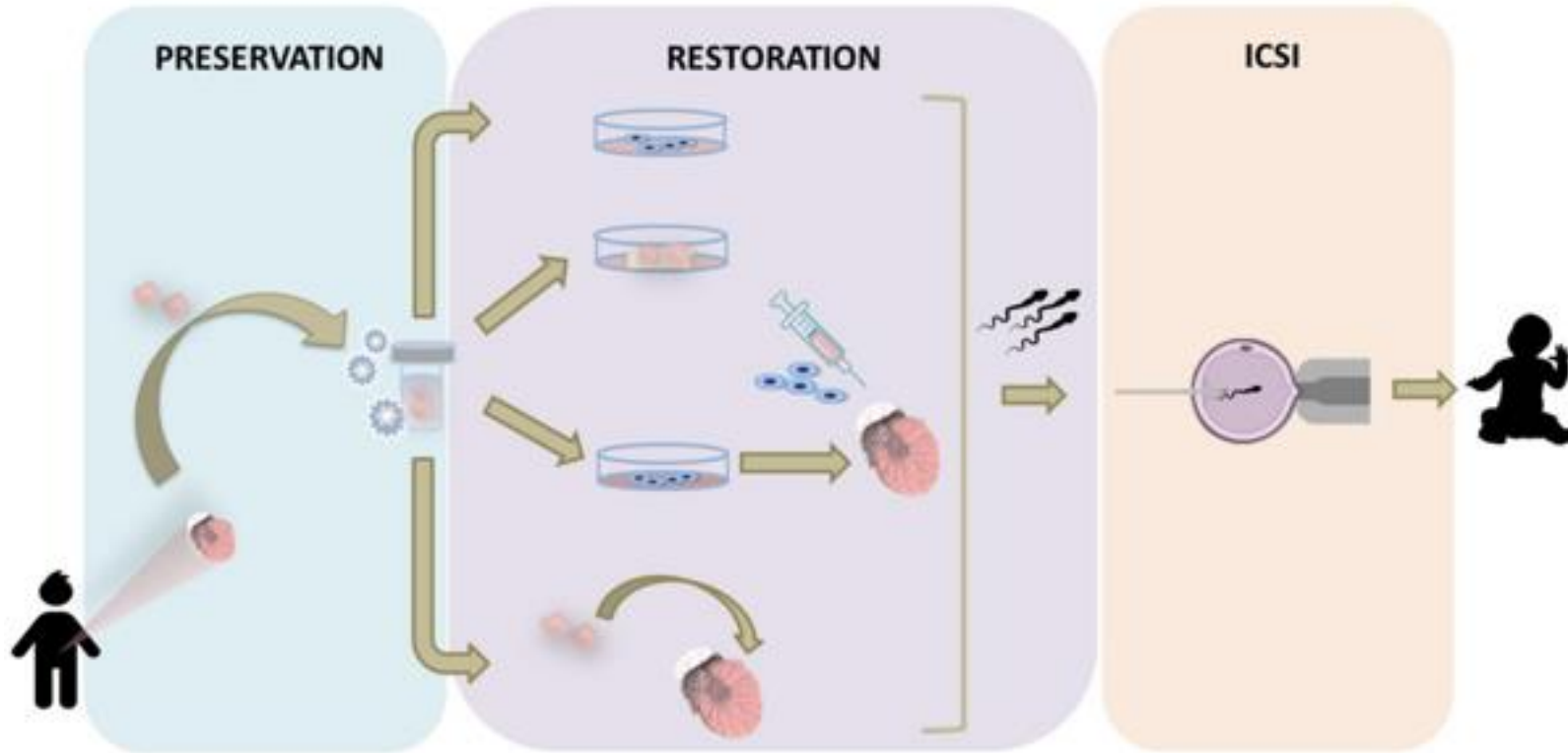
# Sperm cryopreservation



- Must be Tanner Stage 3
- Masturbated previously
- No lubricants or saliva
- Sperm must be collected prior to any chemotherapy

# Testicular Tissue Cryopreservation

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Offered by experimental protocol only  
No human live births to date.

# Comprehensive Fertility Preservation at Seattle Children's Hospital

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## MALE

### Prepubertal

- Testicular Tissue Cryopreservation  
(Experimental - Protocol at SCH)

### Pubertal

- Sperm Cryopreservation
- Testicular Sperm Extraction/Aspiration  
(TESE/TESA)
- Testicular Tissue Cryopreservation  
(Experimental - Protocol at SCH)

Comprehensive evaluation and evaluation of all patients facilitated by Oncofertility team including oncology, general surgery, urology, and reproductive endocrinology.

# Resources

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Seattle Children's Fertility Preservation Team

[FertilityPreservationRN@seattlechildrens.org](mailto:FertilityPreservationRN@seattlechildrens.org)

[Kristin.gard@seattlechildrens.org](mailto:Kristin.gard@seattlechildrens.org)

UW Male Fertility Lab

[www.malefertilitylab.com](http://www.malefertilitylab.com)

Seattle Reproductive Medicine

[www.seattlefertility.com](http://www.seattlefertility.com)



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