

الله أكبر



میرزا...

Fertility preservation among male survivors of childhood cancer

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Oncofertility is a subfield that bridges oncology and reproductive research to explore and expand options for the reproductive future of cancer survivors.

The name was coined in
2006 by
Teresa K. Woodruff
at the
Oncofertility Consortium



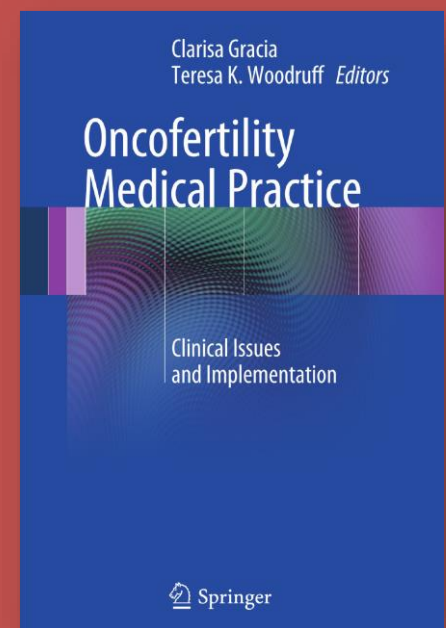
پسر ۱۶ ساله ای بدنبال کانسر بیضه ارکیکتومی شده و جهت اقدامات حفظ باروری ارجاع شده است بیمار بالغ است و اظهار میدارد که خروج سیمن دارد. وی آگاهیهای لازم برای تهیه نمونه را دارد و از نظر فرهنگی نیز مشکلی ندارد.

سوال

آیا نسبت به sperm banking اقدام کنیم؟

Chapter 9
**Addressing the Three Most Frequently
Asked Questions of a Bioethicist
in an Oncofertility Setting**

Lisa Campo-Engelstein



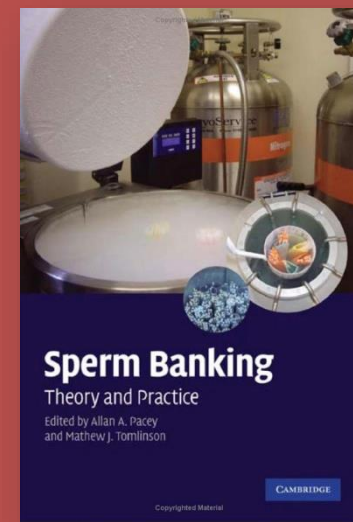
If a boy has reached puberty, then sperm banking is a relatively easy and established method of fertility preservation

Chapter

1

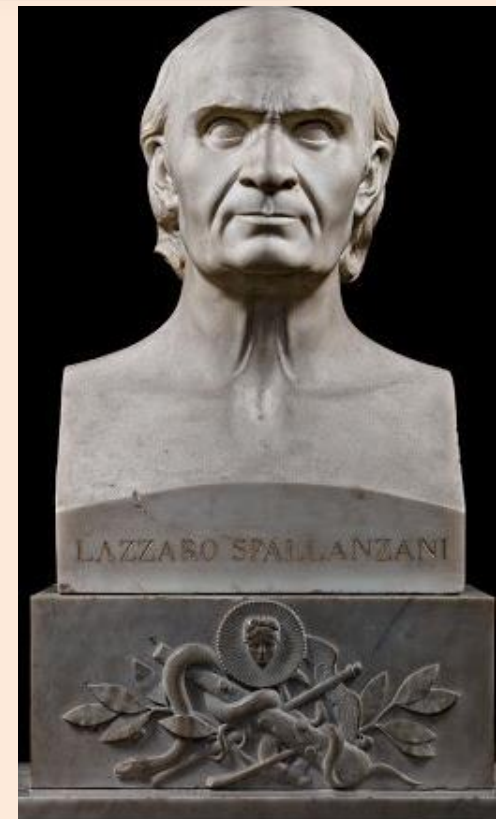
The history of sperm cryopreservation

Eric M. Walters, James D. Benson, Erik J. Woods, and John K. Critser



It is believed that Lazzaro Spallanzani performed the first successful cryopreservation 1776.

At that time Lazzaro Spallanzani first reported that sperm cooled by snow became motionless.

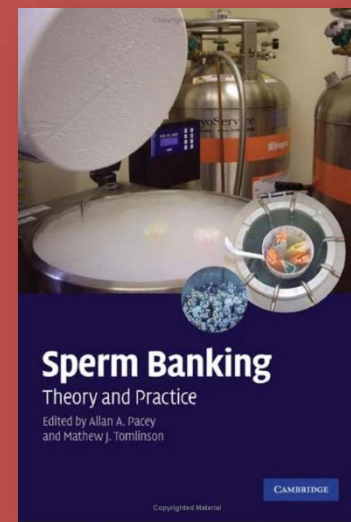


Chapter

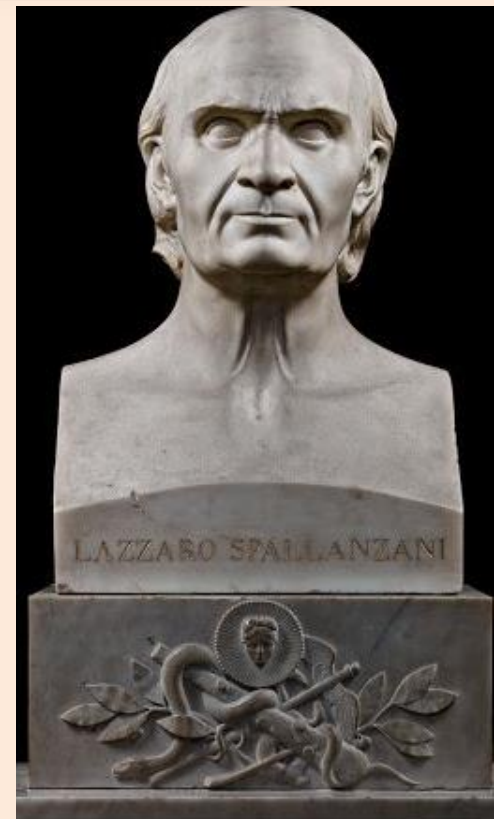
1

The history of sperm cryopreservation

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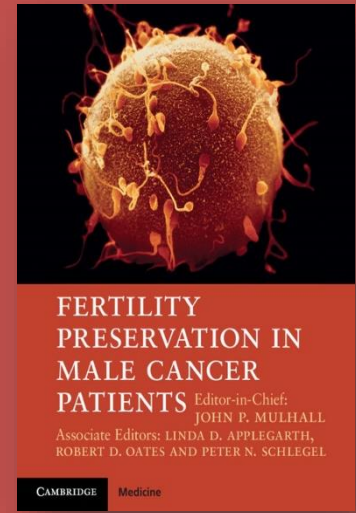
Spallanzani inseminated a confined bitch in heat by depositing semen in the uterus with a syringe. This resulted in the birth of three pups 62 days later



Chapter 8

Sperm Cryopreservation

Takeshi Shin, Mai Fukushima, Akane Miyata, and Hiroshi Okada



The first human pregnancies with frozen sperm were reported in 1953, when Bunge and Sherman froze human sperm and reported three pregnancies following with the thawed sperm



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**What should be done in terms of fertility preservation
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Nathalie Rives, Blandine Courbière, Thierry Almont, Diana Kassab, Claire
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**Sperm cryopreservation must be
systematically offered to any male who
has reached puberty who is to undergo
cancer treatment, regardless of toxicity
(Grade A)**

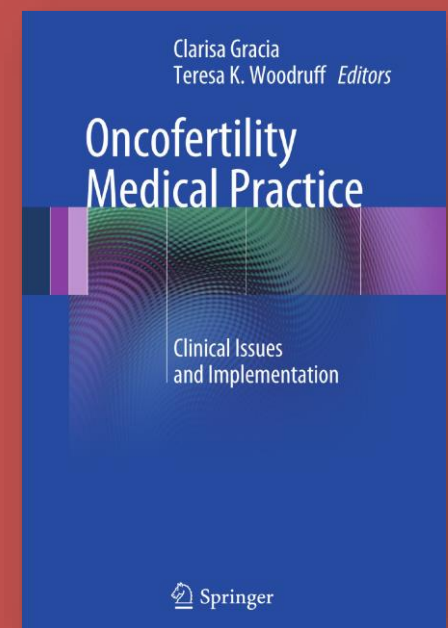
پسر ۱۶ ساله ای بدنبال کانسر بیضه ارکیکتومی شده و جهت اقدامات حفظ باروری ارجاع شده است.
بیمار بالغ است ولی اظهار میدارد که خروج سیمن نداشته است.
وی آگاهیهای لازم برای تهیه نمونه را ندارد و از نظر فرهنگی نیز
برای تهیه نمونه و انجام masturbation آمادگی لازم را ندارد.

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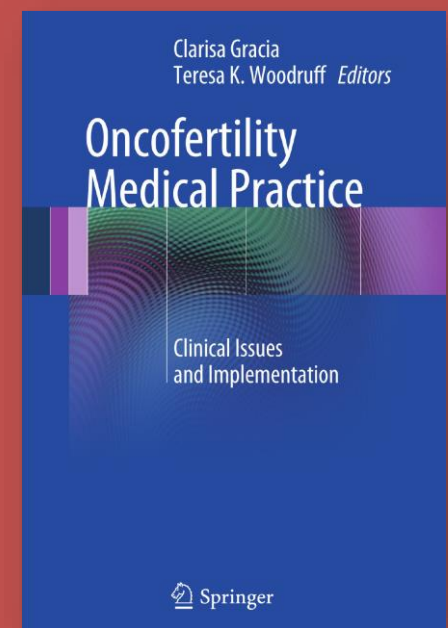


Discussing masturbation can be difficult and awkward, as most boys will probably be embarrassed.

Parents too can often feel embarrassed and may not be comfortable discussing their son's sexuality.

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Depending on their cultural and religious beliefs, the parents may believe masturbation is a sin or that sexual behavior in teenagers and/or unmarried individuals should not be encouraged.



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**All adolescent patients with cancer
referred for sperm cryopreservation
must be seen alone and accompanied
by their legal representative.**



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**The practical sperm collection and
cryopreservation procedures are specified
to the patient.**

**It should be taken into consideration that
the patient may not have any experience
with masturbation.**

پسر ۱۳ ساله ای بدنبال لو کمی حاد کاندید کموتراپی است و جهت اقدامات اندروولوژی ارجاع شده است.

بیمار علایم اولیه بلوغ را دارد است ولی تابحال خروج سیمن نداشته است.

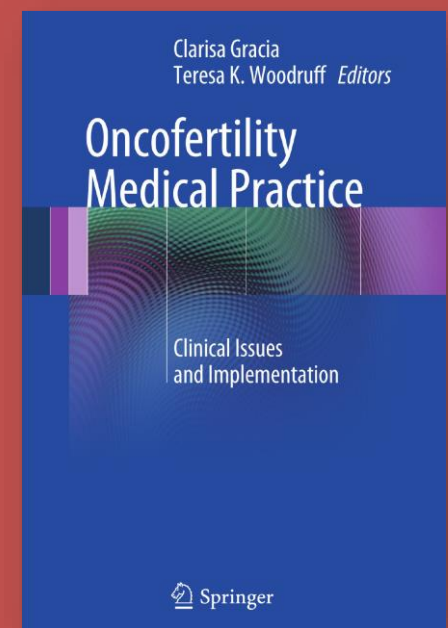
وی آگاهیهای لازم برای تهیه نمونه را ندارد ولی از نظر فرهنگی مشکلی ندارد.

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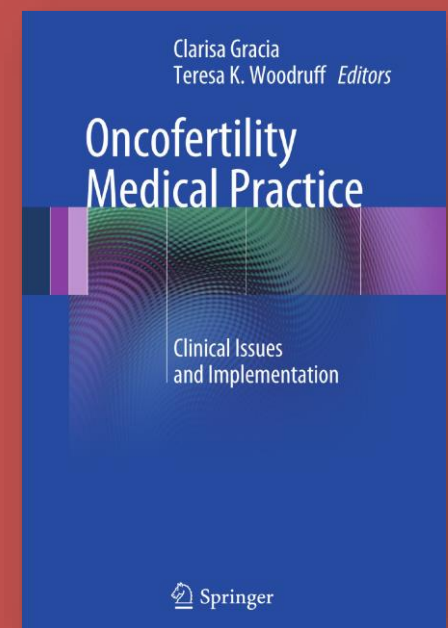
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Since sperm production begins around the age of 12–13, adolescent boys who are unable to produce a specimen via ejaculation can undergo electroejaculation or testicular sperm extraction under anesthesia

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Although surgical removal of the gonads are a low-risk procedure, some may be concerned about exposing children with cancer to yet another treatment, especially one that addresses with a quality of life issue that probably will not affect the children for at least a decade.

Spanish Star Ana Obregon's New Baby at 68— Conceived with Her Dead Son's Sperm

She says she is completing her dying son's last wish

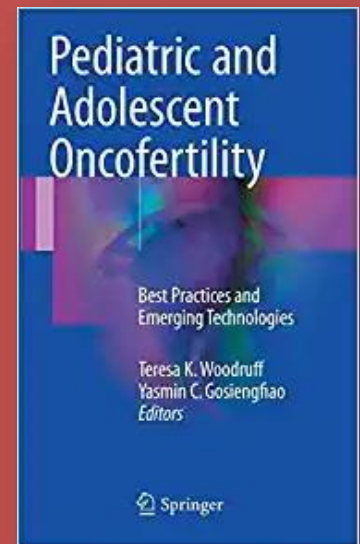


Some opponents are concerned about the misuse of parents or others about these sperms in the case of treatment failure and child death.

Although this issue is so important but it not only for children.

CHAPTER 18

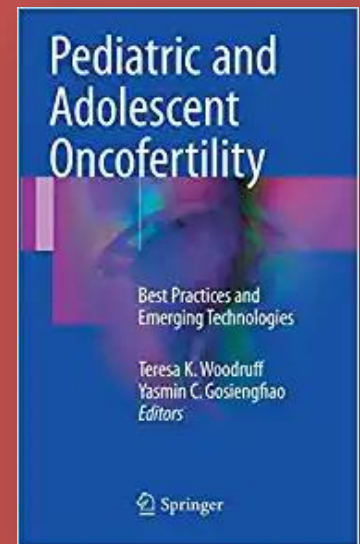
Ethical Issues in Pediatric and Adolescent Fertility Preservation



With the increase in successful treatment of cancer patients, medical teams must now focus not only on the short-term treatments, but also anticipate long-term quality of life issues for their patients in the world beyond the “cure.”

CHAPTER 18

Ethical Issues in Pediatric and Adolescent Fertility Preservation



While it is understood that it is important to protect children from excessive risks in research, it is also important to consider that an overestimation of the risks will prevent important advances in pediatric treatments



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In adolescents, sperm cryopreservation must be proposed from 11 years of age after conducting a physical examination checking that the pubertal development corresponds to at least Tanner stage III or is accompanied by a testicular volume greater than 5 ml. However, it is necessary to conduct a prior assessment of psychosexual maturity (Grade C).



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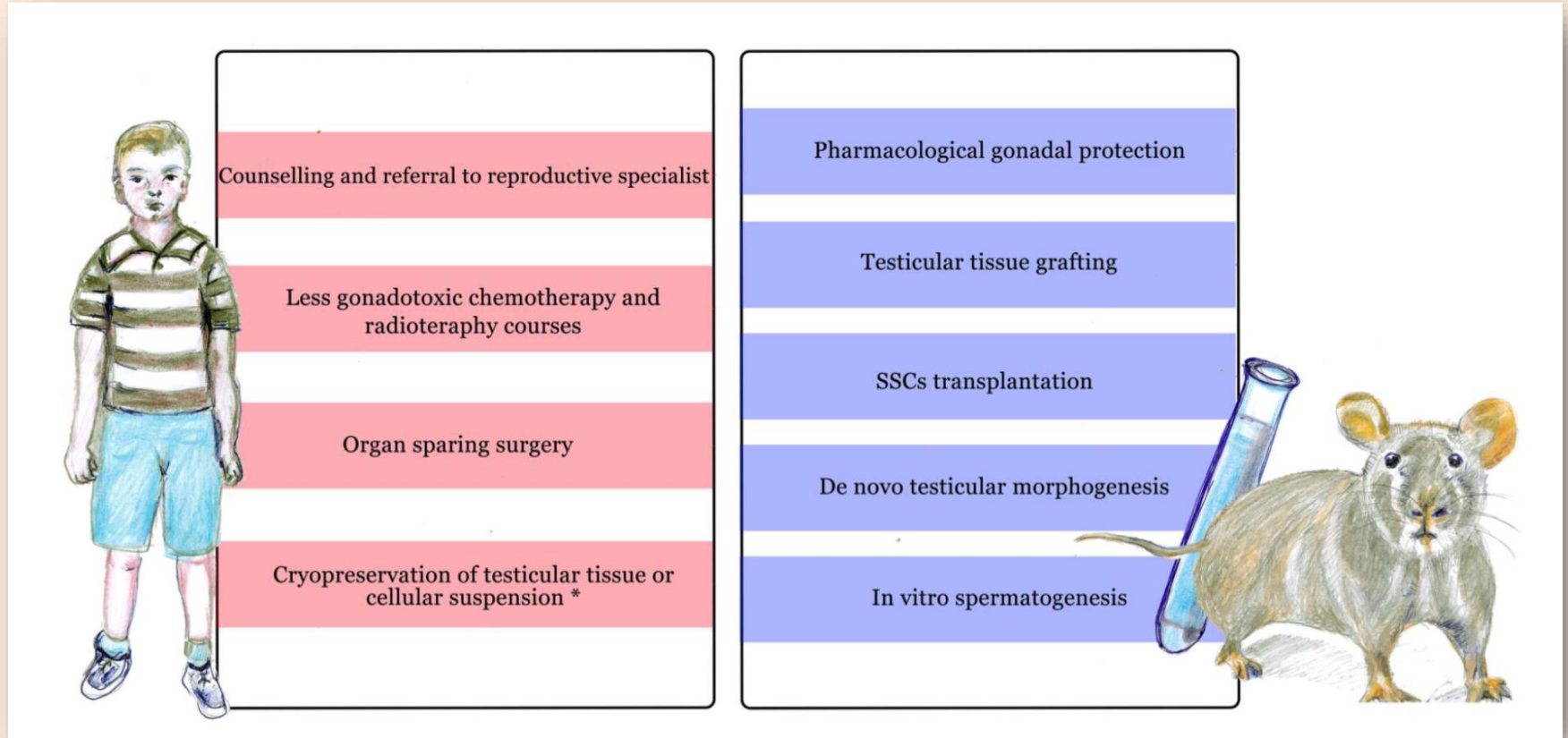
**Testicular biopsy, penile vibratory stimulation or
endorectal electrostimulation are a possible
alternative to failure to ejaculate by masturbation or
in cases of patient's inability (Grade C).**

کودک ۸ ساله ای بعلت کانسر هماتولوژیک کاندید
کموترایی است. وی برای مشاوره حفظ باروری ارجاع
شده است. هیچ علامتی از بلوغ در معاینه وی وجود
ندارد.

سوال بیمار:

برای این بیمار چه اقدامی توصیه میشود؟

Fertility Preservation and Restoration Options for Pre-Pubertal Male Cancer Patients: Current Approaches



HOW I APPROACH

Fertility preservation in pediatric leukemia and lymphoma: A report from the Children's Oncology Group

For prepubertal boys, the only option for fertility preservation is testicular tissue cryopreservation (TTC).

With TTC, a wedge biopsy of testicular tissue is obtained under general anesthesia and then cryopreserved for future reimplantation or maturation *in vitro*.



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**It is recommended to perform bilateral testicular
biopsy for testicular tissue preservation.
(Grade B)**

Fertility preservation in pediatric leukemia and lymphoma: A report from the Children's Oncology Group

At this time, TTC is considered an experimental method of fertility preservation and ought to be performed under Institutional Review Board (IRB) approval.

COMMENTARY

A fertile future: Fertility preservation special series

Although cryopreservation of testicular tissue or cell suspension is offered in the context of experimental protocols in several centers around the world, however there is still no certainty about which are the best methods and the potential damage to sperm quality.

HOW I APPROACH

Fertility preservation in pediatric leukemia and lymphoma: A report from the Children's Oncology Group

TTC should only be offered to high-risk patients, and families must be fully aware of the experimental nature of this procedure.

Additionally, for patients with hematologic malignancies, there is a risk that reimplanted tissue may be contaminated with cancer cells.

HOW I APPROACH

Fertility preservation in pediatric leukemia and lymphoma: A report from the Children's Oncology Group

Performing TTC once the patient has achieved a minimal residual disease (MRD) state may limit this risk; however, at this time there is no widely accepted way to screen the testicular tissue for malignancy prior to reimplantation, and thus the risk persists.

Childhood cancer and hematological disorders negatively affect spermatogonial quantity at diagnosis: a retrospective study of a male fertility preservation cohort

At this time there have been no human births from this method so, we still await the first report of successful restoration of fertility and livebirth in humans using these cryopreserved tissues.

however, there have been many promising animal models including non-human primates.



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**The patient and his legal representative must be
informed that subsequent use of cryopreserved
testicular tissue is currently under research.**

(Grade A)



والدین پسر بچه ۸ ساله فوق سوال میکنند:

آیا برداشتن قسمتی از بیضه در آینده باعث عدم
رشد بیضه نخواهد شد؟

Development of the testis in pre-pubertal boys with cancer after biopsy for fertility preservation

M. Uijldert^{1,2}, A. Meißner^{1,2}, A.A. de Melker¹, A.M.M. van Pelt¹,
M.D. van de Wetering³, R.R. van Rijn⁴, M. van Wely¹,
F. van der Veen¹, and S. Repping^{1,*}

In this study 73 boys underwent testicular tissue cryopreservation.

During follow-up period after biopsy, testicular growth was not impeded due to the biopsy.

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Acute adverse effects occurred in 3.9% of the boys and all were temporary.

Only 6% of the patients had intratesticular fibrotic lesions attributable to surgery after 1 year.

Development of the testis in pre-pubertal boys with cancer after biopsy for fertility preservation

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Thus it can be concluded that testicular biopsy for fertility preservation of pre-pubertal boys with cancer is a safe procedure with no consequences for the further development of the biopsied testis.

