

Fertility

Fertility is the natural capability to produce offspring. As a measure, fertility rate is the number of offspring born per mating pair, individual or population. Fertility differs from fecundity, which is defined as the potential for reproduction (influenced by gamete production, fertilization and carrying a pregnancy to term)[citation needed]. A lack of fertility is infertility while a lack of fecundity would be called sterility.

Human fertility depends on factors of nutrition, sexual behavior, consanguinity, culture, instinct, endocrinology, timing, economics, way of life, and emotions.

The [brain](#) is the central controller of [reproduction](#) and the [menstrual cycle](#). Reproductive endocrinologists spend their days treating [patients](#) with perturbations in reproduction as a result of [pituitary](#) diseases and manipulate pituitary [hormones](#) to enhance [fertility](#) and [quality of life](#). Microscopic neuroanatomical images will allow a better understanding of how a [tumor](#) in the pituitary might affect [vision](#), or a mass in the brain might cause [amenorrhea](#). Clinical correlations that are taught every day become much clearer once the anatomical relationships are explored. The objective of a pictorial tour of Vlasak et al., from Gainesville was to elucidate anatomical and clinical relationships while showcasing the [neuroanatomy](#) of reproduction ¹⁾.

33-year-old nulligravid woman with newly diagnosed anaplastic astrocytoma (AA; WHO grade III, IDH1-negative) sought fertility preservation. Prior to chemotherapy and radiation for AA, the patient underwent in vitro fertilization (IVF) for fertility preservation, resulting in 8 vitrified embryos. Following chemo-radiation, the patient underwent two rounds of frozen embryo transfers (FET), each resulting in a successful singleton pregnancy.

This case illustrates the realistic possibility, in carefully selected patients with brain tumors, of oocyte or embryo cryo-preservation prior to chemo-radiation and subsequent pregnancies ²⁾.

The influence of adrenergic activity over ovarian function, and thus fertility, has begun to gain importance. Previous studies have shown that adrenergic activity through norepinephrine (NE) participates in the control of follicular development and steroidal secretion from the ovary, among other functions. To examine this phenomenon, the denervation of the gonad has been widely used to observe changes in the ovary's performance. Nevertheless, the effect of the absence of adrenergic nerves in the ovary has only been studied in short times periods. In the present work, we used guanethidine (a drug that produces an irreversible sympathectomy) during the infantile period of rats, and we observed its effects in the adult rat (6 months old). Our results indicate that ovarian NE content is recovered at 6 months old, alongside with an increase of the adrenal content of NE and a dysfunctional celiac ganglion. Together, these results suggest that the recovery of ovarian NE does not come from a neural origin. In addition, ovarian performance was impaired because the changes in follicular development and steroidal secretion are not recovered despite the recovery of ovarian NE content. In conclusion, these results suggest that the nerve-ovarian connections, which are established during infantile development, are necessary for the accurate response of the ovary to

sympathetic stimulation ³⁾.

Bromocriptine can restore fertility. Continued therapy during **pregnancy** is associated with a 3.3% **incidence** of congenital anomalies and 11% spontaneous **abortion** rate which is the same as for the general population. **Estrogen** elevation during **pregnancy** stimulates hyperplasia of lactotrophs and some **prolactinomas**, but the risk of symptomatic enlargement of **microadenomas** and totally intrasellar **macroadenomas** is <3%, vs. 30% risk for macroadenomas ⁴⁾.

References

¹⁾

Vlasak AL, Schaub A, Barry MER, Rhoton-Vlasak AS. The Neuroanatomy of Reproduction: Seeing Is Believing. Semin Reprod Med. 2019 Jan 3. doi: 10.1055/s-0038-1675585. [Epub ahead of print] PubMed PMID: 30605926.

²⁾

Peyser A, Bristow SL, Hershlag A. Two successful pregnancies following fertility preservation in a patient with anaplastic astrocytoma: a case report. BMC Cancer. 2018 May 9;18(1):544. doi: 10.1186/s12885-018-4472-9. PubMed PMID: 29739361; PubMed Central PMCID: PMC5941593.

³⁾

Garrido MP, Fernandois D, Venegas M, Paredes AH. Effects of sympathectomy on ovarian follicular development and steroid secretion. Reproduction. 2018 Feb;155(2):173-181. doi: 10.1530/REP-17-0318. Epub 2017 Nov 21. PubMed PMID: 29162649.

⁴⁾

Molitch ME. Pregnancy and the hyperprolactinemic woman. N Engl JMed. 1985; 312:1364-1370

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

<https://neurosurgerywiki.com/wiki/doku.php?id=fertility>

Last update: **2024/06/07 02:52**

