MALE INFERTILITY, BASICS

Urology CHEAT SHEETS

INFERTILITY: ≥ 1 year unprotected intercourse with the inability to conceive
15% COUPLES

ETIOLOGY
- FEMALE: 40-50%
- MALE: 20%
- BOTH: 30-40%

COMPLETE SPERMATOGENESIS 74 DAYS
- TESTICLE: 64 DAYS
- EPIDIDYMIS: 10 DAYS
  Maduration (sperm become movile) and storage

SPERMATOGENESIS
- Begin in seminiferous tubules, supported by Sertoly cells
- Temperature dependent: 34-35ºC

SPERMATOGONIUM (2n) mitosis ~ PRIMARY SPERMATOCYTE (2n) meiosis I ~ SECONDARY SPERMATOCYTE (1n) meiosis II ~ SPERMATID (1n) differentiation ~ SPERMATOZOID

ERECTION/EJACULATION PHYSIOLOGY
- TUMESCENCE: PARASYMPATHETIC: S2-S4. CAVERNOSAL NERVES
- EMISSION SEMEN INTO URETHRA: SYMPATHETIC: T10-L2. HYPOGASTRIC NERVE
- EJACULATION: SOMATIC: S2-S4. PUDENDAL NERVE.

Overall semen PH: BASIC (7.2-8)
Vaginal PH acidic (3.8-4.5).
*Sperm CAPACITATION in vaginal vault

SEMEN COMPOSITION
Pre-ejaculate fluid: Cowper`s glands

FLUID	CONTRIBUTION	PH	NOTES
Semen vesicle	60-70%	> 7 (basic)	Fructose
Prostate	20-30%	< 6.5 (acidic)	PSA (liquefaction), Semenogelin (prevents capacitation), Citric Acid, Zinc, Prostatic acid phosphatase
Testis	2-5%		Espermatozoids

SEMEN ANALYSIS
- ABSTINENCE 2-7 DAYS BEFORE
- ANALYZE WITHIN 1 HOUR
- AT LEAST 2 SEPARATED SAMPLES IF ALTERATIONS

PARAMETER	REFERENCE RANGE	ALTERATIONS
Volume	≥ 1.5 mL	
pH	≥7.2	
Sperm Concentration	≥15 million/mL	Oligozoospermia
Total Count	≥39 million	Azoospermia (n=0)
Total Motility	≥40%	
Progressive Motility	≥32%	Asthenozoospermia
Vitality	≥58% alive	Necrozoospermia
Morphology	≥4%	Teratozoosspermia
Leucocytes	< 1 million/mL	Leucocitozoospermia

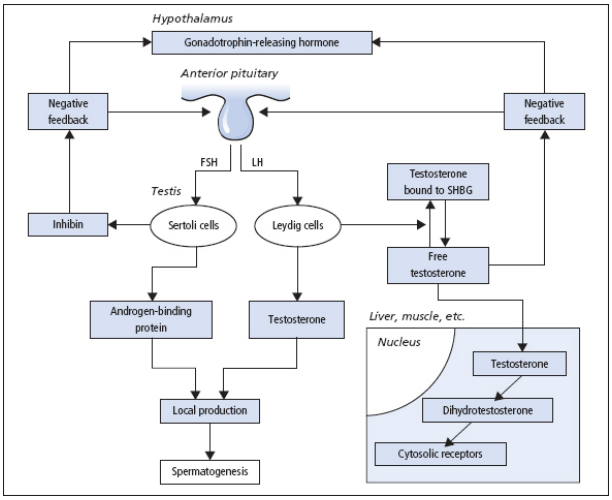
INITIAL MALE INFERTILITY EVALUATION
- Medical history
- Physical exam, Testis US
- Semen analysys
- Blood test (FSH, LH, total testosterone)

PHYSICAL EXAM
Varicocele: 35% infertile men
Majority left (90%). If right check retroperitoneum
- GRADE 1: Palpable with valsalva
- GRADE 2: Palpable without valsalva
- GRADE 3: Visible without Valsalva

REPAIR: Palpable AND oligozoospermia and no other infert. Causes. CHILDREN: + size discrepancy
BEST APPROACH: Microsurgical

OBSTRUCTIVE AZOOSPERMIA: FSH ≤ 7.6, Normal testis size
NON- OBSTRUCTIVE: FSH>7.6 (CAN BE↑or↓), ↓ testis size

BLOOD TEST:



AZOOSPERMIA + HYPO HYPO: PROLACTIN + PITUITARY IMAGING
AZOOSPERMIA + HYPER HIPO: KARIOTYPE + Y CHROM. MICRODELETION

DISORDER	FSH	LH	TESTOSTERONE	PROLACTIN
PRIM TEST. FAILURE (Hipergonadotropic hypogonadism)	↑	↑	↓	NORMAL
SERTOLI CELL ONLY	↑	↑	NORMAL	NORMAL
KLINELFELTER	↑	↑	↓	↑/NORMAL
SECONDARY TEST. FAILURE (Hipogonad. Hypogonadism)	↓	↓	↓	NORMAL
HYPERPROLACTINEMIA	↓	↓	↓	↑

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https://basicmedicalkey.com/investigation-of-gonadal-function-infertility-menstrual-irregularities-and-hirsutism/