Male reproductive system “anatomy and biology”

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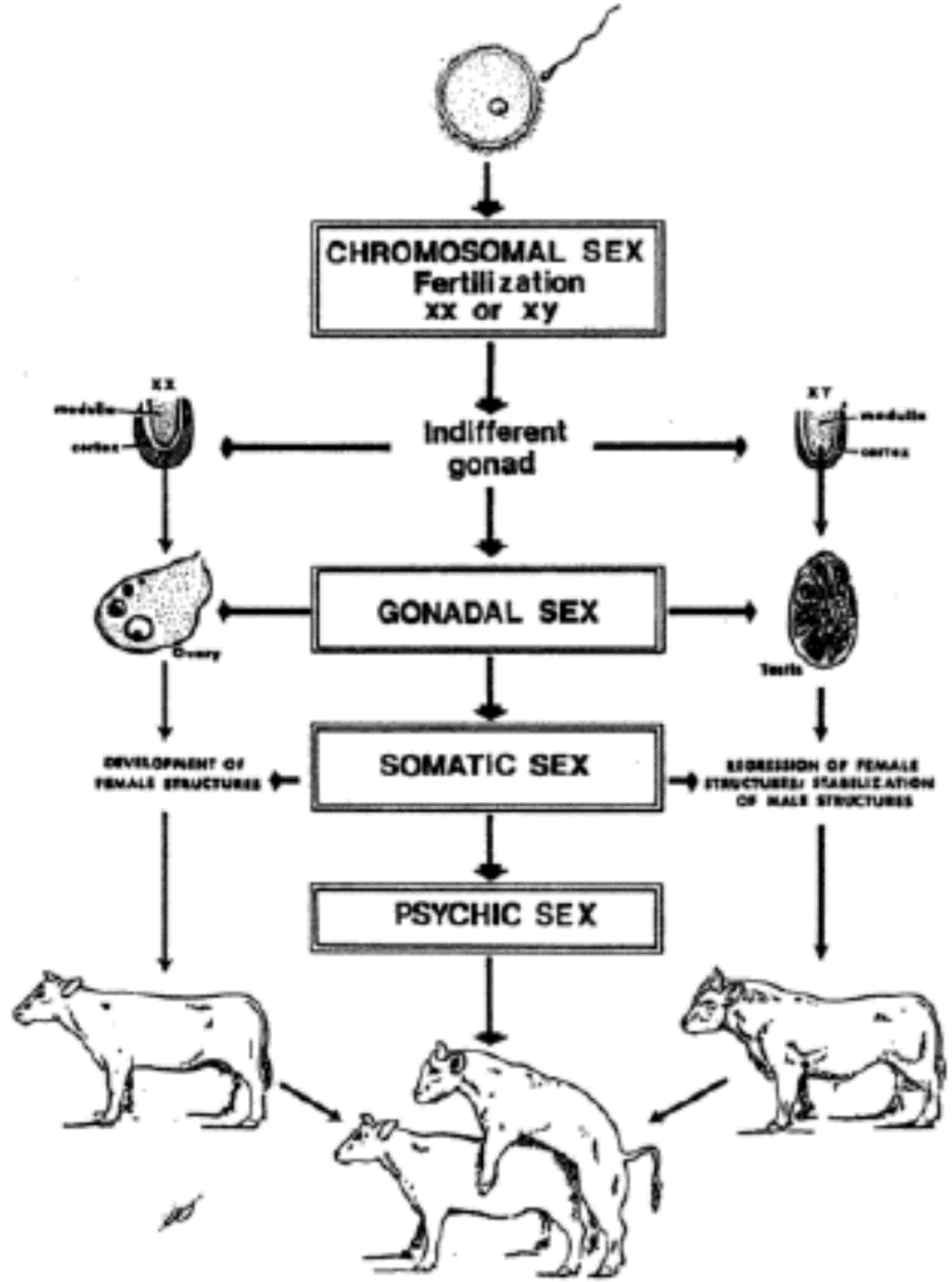
Animals	Diploid number
Human	46
Cat	74
Dog	78
Cattle	60
Horse	64
Donkey	62
Mule	**63**
Hinny	**63**
Sheep	54
Goat	60

			Oocyte		
			Normal X	Non-disjunctive	
				XX	O
Sperm	Normal	X	XX (normal female)	XXX	XO
		Y	XY (normal male)	XXY	YO
	Non-disjunctive	XY	XXY		
		O	XO		

O: spermatozoon or oocyte is one that carries neither X nor Y chromosome. **Non-disjunctive** gametes arise through faulty sharing out of the sex chromosomes. **YO**: individuals are probably not viable; **XXX** individual is a sterile female. **XO**: Turner's syndrome.


CHROMOSOMAL SEX
Fertilization
xx or xy
Indifferent gonad
GONADAL SEX
SOMATIC SEX
PSYCHIC SEX
DEVELOPMENT OF FEMALE STRUCTURES
REGRESSION OF FEMALE STRUCTURES/ STABILIZATION OF MALE STRUCTURES

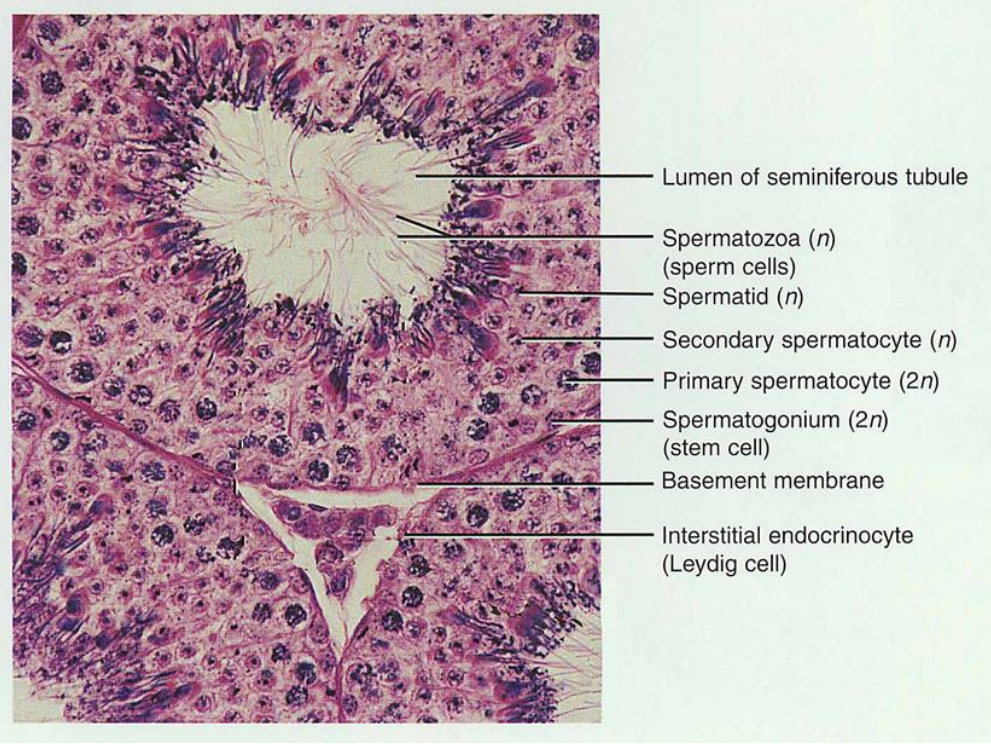
Terminology:

- Male bovine is BULL.
- Male swine is BOAR.
- Male ovine is RAM.
- Male equine is STALLION (stud if used for breeding or gelding if castrated stallion). Jack is male donkey.
- Male canine is DOG or stud.
- Buck: male caprine, male deer and male rabbit.
- Tomcat or tom: male feline.
- Hormone: is a chemical substance secreted by an organ of the body. When released into the bloodstream, it triggers a specific response in another organ. Reproductive hormones affect the activity of the parts of the reproductive system.

Anatomy of the male reproductive system

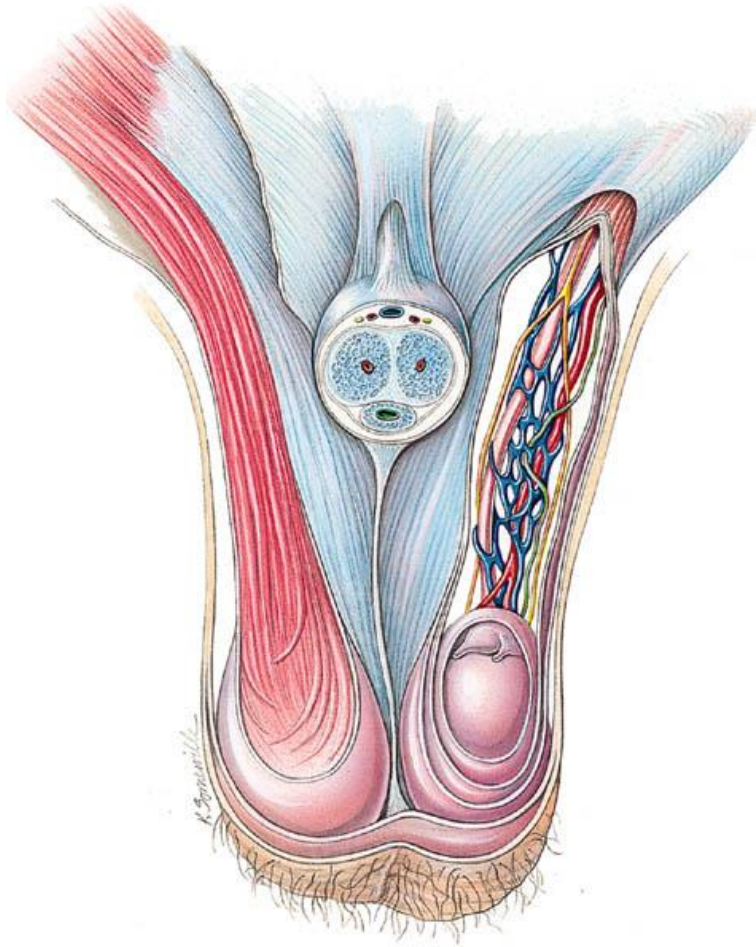
- Each part has a specific function in the reproductive system. If any of the parts do not function correctly, the animal may have difficulty with reproduction or be unable to reproduce. In order for a species to thrive, it must be able to reproduce itself. Producing offspring requires the proper functioning of both the male and female reproductive systems.

Testicles: these are the primary reproductive part. They produce hormones associated with reproduction as well as the male gametes, or sex cells called sperms. The testicles are made up of seminiferous tubules, which are tiny coiled tubes that produce the sperm, as well as interstitial cells located between the tubules that secrete reproductive hormones (androgens).



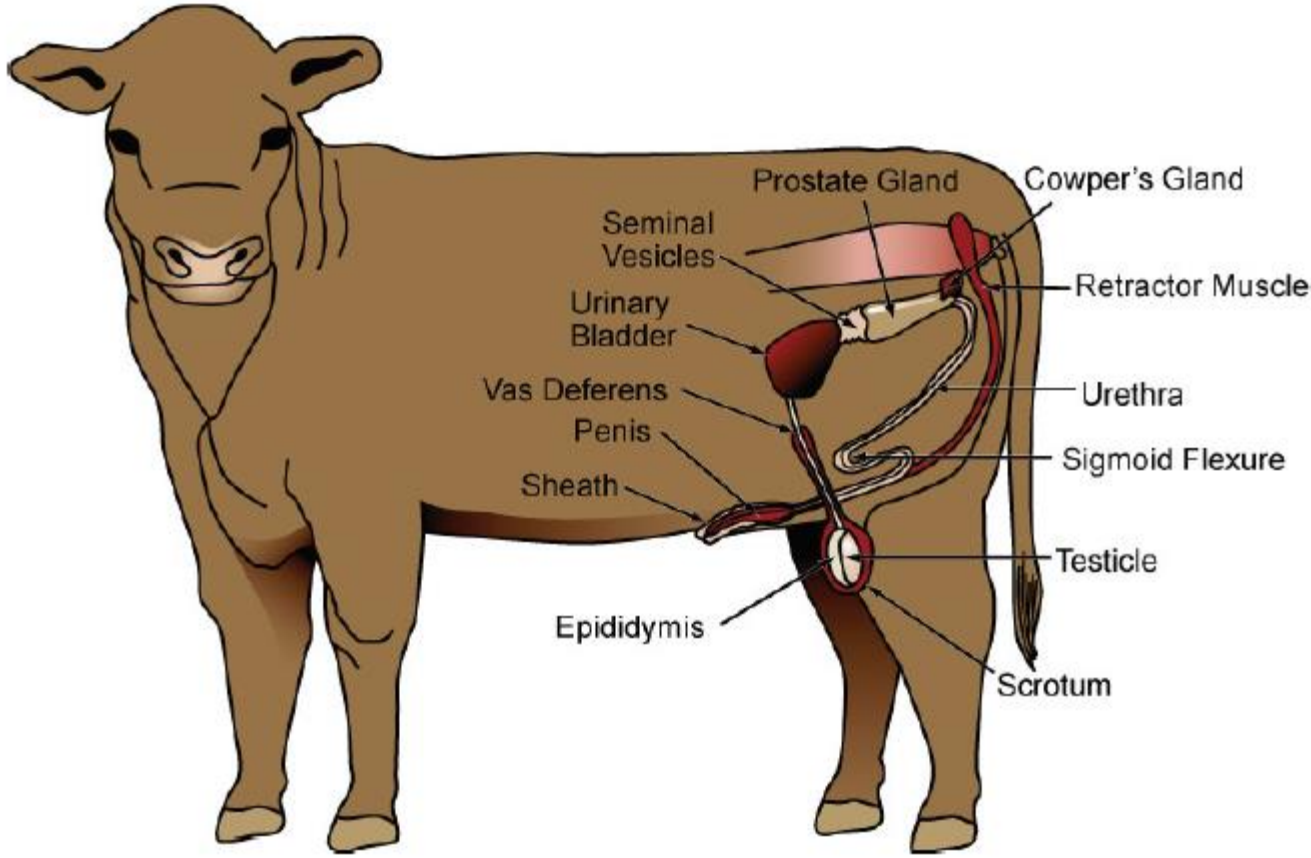
Scrotum: is a sac or pouch of skin that carries the testicles and regulates their temperature. When cold, the testicles are drawn close to the body for warmth. In hot weather, the testicles hang away from the body.

- Sac of loose skin, fascia & smooth muscle divided into two pouches by a septum
- Temperature regulation of testes
  - Sperm survival requires 2-3 degrees lower temperature than core body temperature
  - Muscle in scrotum
    - Elevates testes on exposure to cold & during arousal
    - Warmth reverses the process



Epididymis: the epididymis is a tube with three parts; a head, body and tail. Sperm is stored in the epididymis for maturation. It also concentrates the sperm and transports it from the testicles to the vas deferens.

- Vas deferens: is a tube that transports sperm from the epididymis to the urethra
- Urethra: carries sperm and urine to the penis.
- **Accessory sex glands:**
- Prostate gland: releases fluid that mixes with seminal fluid and nourishes the sperm.
- Seminal vesicles: produces the seminal fluid that transport and protect the sperm.
- Cowper's (bulbourethral) gland: this gland releases fluid to the urethra that cleanses and neutralizes it to allow sperm to survive the passage to the penis. The secretions pass through urethra prior to the semen.



Another anatomical compartments:

- Sigmoid flexure: this S-curved muscle extends the penis outside the body during mating.
- Retractor muscle: this muscle pulls the penis back into the body.
- Penis: the penis is an organ that deposits semen into the female reproductive tract. It also excretes urine from the body.
- Sheath: the sheath is a fold of skin that covers and protects the penis when it is relaxed.
- Urinary bladder: stores urine and has no reproductive function.