

REPRODUCTIVE MODULE

PHASE I



FACULTY OF MEDICAL SCIENCES
UNIVERSITY OF SRI JAYEWARDENEPURA



Introduction

The reproductive system is a unique system in three aspects.

1. The reproductive system is specialized to perpetuate the species and transfer genetic material from generation to generation whereas the functions of the other systems are to sustain the individual.
2. The structure and the functions of the reproductive organs differ significantly in males and females.
3. The reproductive system is not functional at birth but matures only at a certain period in life in contrast to the other systems which are functional at birth or shortly thereafter.

The sexual reproduction requires the production of two types of gametes or sex cells, the species has a male and female forms, each with its own unique reproductive system. The functions of the female reproductive system are more complex than the functions of the male reproductive system. The functions of male reproductive system are to produce the male gametes, spermatozoa and to transfer them to the female through the process of coitus (sexual intercourse). The female not only produces her own gametes called ova and receives the sperms from the male, but her reproductive organs are specialized to provide a site for fertilization, development of the embryo and foetus and delivery of a baby.

The reproductive system of the female also provides a means of nourishing the baby through the secretion of the mammary glands in the breast. This is a very exciting module where you would learn not only about your own sex but about the opposite sex which will be very important to your future work as doctors.

In order to facilitate you to learn the reproductive system case scenarios are given based on problems you are likely to encounter as a medical student. The worksheet will help you understand the relevance and the importance of what you will learn within the module. During this module a wide variety of teaching/learning methods will be used i.e. lectures, small group discussions, tutorials, audiovisual presentation, practicals, cadaver dissections, prosected specimens, models, IT laboratory based activities, language and communication skills laboratory based activities.

Good luck and all the best for you and hope you would enjoy learning this module!

Reproductive module committee

Overall Aim

The overall aim of this module is to help you to acquire the necessary knowledge on structure and function of the human reproductive system in order to understand the normal conditions and the abnormalities associated with it.

Objectives of the module on Reproductive system

Upon completion of this module, you should be able to:

1. Describe the normal structure, function and regulation of the female and male reproductive systems, the process of fertilization, pregnancy, partus, puerperium and lactation by learning and applying the basic sciences.
2. Apply the above knowledge to a few common clinical situations (subfertility, labour) to explain how the anatomy physiology and biochemistry are altered in the given situations.

In order to do the above, you should be able to:

1. Describe the arrangement of male and female reproductive organs in the pelvis and perineum with your knowledge of the
 - a) Bones forming the pelvic girdle, vertebropelvic ligaments and levator ani muscles.
 - b) Urogenital diaphragm, superficial and deep perineal muscles.
 - c) Pelvic viscera
2. Explain how the female or male reproductive systems are developed in a normal healthy foetus with your knowledge of the,
 - a) Process of sexual differentiation
 - b) Embryology of the male and female reproductive systems.
3. Explain the causes of subfertility with the knowledge on the,
 - a) Physiology of puberty
 - b) Macroscopic and microscopic structure of the female and male reproductive systems
 - c) Functions of the female and male reproductive systems.
 - d) Regulation of the female and male reproductive systems.
4. Explain the spread of carcinoma in the reproductive organs including breast with the knowledge on,
 - a) Histology
 - b) Anatomical relations
 - c) Blood supply
 - d) Lymphatic drainage
5. Describe the process of fertilization, Pregnancy, Partus and lactation.

Main content areas

1. Sexual differentiation and development of the female and male reproductive systems.
2. External genitalia
3. Puberty
4. The breast
5. Pelvis and Perineum
6. Structure, function of the female reproductive system and its regulation
7. Structure, function of the male reproductive system and its regulation
8. Fertilization, pregnancy, partus, puerperium and lactation.

Members of the module committee

Name	Department
Chairperson - Dr. S. G. Yasawardene	- Anatomy
Convener - Dr. D. M. S. Fernando	- Physiology
Member - Prof. Jayantha Jayawardana	- Gyn & Obs
- Dr. K. Ruberu	- Physiology
- Dr. P. P. R. Perera	- Bio Chemistry
- Dr K. M. N. Kumarasinghe	- Anatomy
- Dr R. Pathiraja	- Gyn & Obs
- Dr S. Dissanayake	- Anatomy

Cover page by Dr. M. H. P Dissanayake – Demonstrator, Dept of Anatomy.

Intermediate objectives	Detailed Contents	Learning strategy		Duration	Department
		Teaching technique	Learning material		
1. Describe the process of Sexual differentiation	<ul style="list-style-type: none"> * Define genetic male and genetic female (A) * The process and the regulation of development of internal genitalia(A) * Cells that secrete Testosterone, MIS, and explain how they regulate the development of internal genitalia. (A) * Development of internal genitalia(A) * Abnormalities of sexual differentiation. (A) 	Lecture	Langmann Cha. 15 Ganong “Sex differentiation & development”	1 hour	Physiology
2. Describe the development of female and male reproductive systems.	<ul style="list-style-type: none"> *Embryology- external and internal genitalia (A) *Explain the embryological basis for the following common congenital anomalies – Hypospadia, Epispadia, bicornuate uterus, Atresia of the genital organs (A) 	Lecture	Langmann Cha. 15	2 hours	Anatomy
		Lecture	Ganong “Aberrant sexual differentiation”	1hour	Physiology

<p>3. Describe female and male external genitalia and outline the blood supply and the lymph drainage</p>	<ul style="list-style-type: none"> * Penis – root(crura and bulb), Body(corpus cavernosum and spongiosum), glans, prepuce (A) * Vulva- Labia majora and minora, vestibule of vagina, openings of urethra vagina & vestibular glands, Clitoris (A) * Nerve supply- ilioinguinal nerve, Pudendal nerve, posterior femoral cutaneous nerve (A) * Arterial supply (A) * Venous drainage (A) 	<p>Dissection/ Demonstrations</p>	<p>Dissection manual</p> <p>Cunningham Vol 2, “Male external genital organs”</p>	<p>1 session (3 hours)</p>	<p>Anatomy</p>
<p>4. Describe the physiology of Puberty</p>	<ul style="list-style-type: none"> * Define puberty and adolescence (A) * Male and Female secondary sexual characteristics (A) * Describe the other physiological changes that occur during puberty (A) * Define Thelarche, Adrenarche, Pubarche and menarche. (A) * Factors that affect menarche. (A) * Explain the mechanisms that control the onset of puberty (A) 	<p>Lecture</p>	<p>Ganong Cha. 23 “Puberty”</p>	<p>1 hour</p>	<p>Physiology</p>

<p>5. Describe the macroscopic and microscopic structure of the Breast</p>	<p>* Situation, Extent, Deep relations, Structure of the breast, Blood supply and the lymphatic drainage (A)</p>	<p>Lecture Demonstrations Tutorials</p>	<p>Cunningham, Vol 1 “Breast” Prosected specimens</p>	<p>1 hour 1 hour 2 hours</p>	<p>Anatomy Anatomy</p>
<p>6. Describe the structures which form the pelvic walls the floor and the general arrangement of pelvic viscera.</p>					
<p>7. Describe the general arrangement of the perineum.</p>	<p>* Urogenital diaphragm - Superficial perineal pouch, superficial perineal muscles, Root of penis and bulb of urethra, Bulb of vestibular glands, deep perineal pouch, Apex of ischio rectal fossa (A)</p>	<p>Lecture Demonstrations / Dissections Tutorials</p>	<p>Cunningham, Vol 2, “The Perineum” Prosected specimens CD ROM Dissection manual</p>	<p>1 hour 3 sessions 2 hours</p>	<p>Anatomy</p>

	hypogastric plexus Pelvic splanchnic nerves parasympathetic fibres from S2,3,4				
10. Recall the knowledge on the Anal triangle	Boundaries, Anus, external anal sphincter, ischioanal fossa, Pudendal canal(with nerve and vessels) (A)	Recall	Cunningham, Vol 2, The Anal region”		Anatomy
11. Recall the knowledge on attachments of the following muscles	Obturator internus, Piriformis, Levator ani, Coccygeus (A)	Recall	Cunningham, Vol 2. “Muscles of the lesser pelvis”		Anatomy

12. Female Reproductive system

Intermediate objectives	Detailed Contents	Learning strategy		Duration	Department
		Teaching technique	Learning material		
12. Describe the structure, relations, function and regulation of female reproductive system	Introduction to the female reproductive system	Lecture	Cunningham Vol 2	1 hour	Anatomy
		Tutorial	“ The pelvic viscera”	1 hour	Anatomy
12.1 Describe the uterus with its relations to the surrounding structures	* Parts (A)- fundus, body, isthmus and cervix * Cavity of the uterus (A) – triangular, internal and external os Peritoneal relations (A) –	AVP	CD ROM	1 hour	Anatomy
		Dissections	Dissection manual	½ hour	Anatomy
		Demonstrations	Prosected specimens	½ hour	

	<p>* Broad ligament - Anteverted and anteflexed, Uterine tube lies in its free border. Parts- Infundibulopelvic or suspensory ligament, mesosalpinx and mesovarium Contents- Ligament of the ovary, round ligament, Vestigeal structures</p> <p>*Uterovesical reflection</p> <p>*Anteversion, Anteflexion</p> <p>* Supports (A) -Transverse cervical ligament, Uterosacral ligaments, round ligament of the uterus, broad ligament, anteversion and anteflexion. Basis for uterine prolapse</p>		Cunningham Vol 2 “ The pelvic viscera”		
12.2 Describe the blood supply and the lymphatic drainage of the uterus.	<p>* Arteries (A) –course and branches of the Uterine artery.</p> <p>* Veins (A)- uterine vein forms a wide plexus across the pelvic wall and communicates with the rectal and vesical plexus.</p> <p>*Lymph (A) - Upper part of the body and the fundus – paraaortic nodes, external illiac nodes, superficial inguinal nodes. Lower part of the uterus – external iliac nodes. Cervix –external, internal iliac and sacral nodes.</p>	Dissections Demonstrations	Dissection manual Prosected specimens Cunningham, Vol 2, “The pelvic viscera”	½ hour ½ hour	Anatomy

	Clinical significance -Lymphatic spread in cervical and endometrial carcinoma.				
12.3 Describe the structure of the uterine tube.	* Different parts of the uterine tube (A) (interstitial part, ampulla, isthmus and the infundibulum) and their microscopic differences (B).	Dissections Demonstrations	Dissection manual Prosected specimens Cunningham, Vol 2, "The pelvic viscera"	1 hour 1 hour	Anatomy
12.4 Describe the relations, blood supply and the lymphatic drainage of the ovary .	* mesovarium, pelvic wall(internal and external iliac vessels, ureter, obturator nerve) and fimbria of the uterine tube (A) * Ovarian artery and its course (A) * Ovarian vein forming plexus (A) *Lymphatic drainage to the paraaortic nodes (A)	Dissections	Dissection manual Cunningham, Vol 2, "The pelvic viscera"	3 hours 1 hour	Anatomy
12.5 Describe the structure, blood supply and the lymphatic drainage of the vagina.	* Fornices- anterior, posterior and lateral (A) * Related structures (A) - Pouch of douglas Base of the bladder Ureters	Dissections Demonstrations	Dissection manual Prosected specimens CD ROM Cunningham,	1 hour 1 hour	Anatomy

	<ul style="list-style-type: none"> * Supports of vagina, mechanisms and effects of Cystocoele, Urethrocoele, Rectocoele, Enterocoele (A) *Arterial supply (A). * Venous drainage (A). * Structures palpated in a vaginal examination (A) 		Vol 2, “The pelvic viscera”		
12.6 Describe the histology of the female reproductive system	<ul style="list-style-type: none"> * Histology of the ovary, uterine tube, uterus, cervix and vagina. (A) * Changes that occur in the endometrium , cervical mucus, vagina, during menstrual cycle (A). 	Lecture Practical	Wheaters Cha. 19 “The female reproductive system”	1 hour 3 hours	Anatomy
12.7 Describe the function and the regulation of the female reproductive system	<ul style="list-style-type: none"> * Menstruation (A) * The length of a menstrual cycle, and the phases (A). *Cervical smear test (A) *The changes in the ovary during a normal menstrual cycle and its regulation by hypothalamic and pituitary hormones (A). * Functions of the ovary (A) 	Lectures SGD Seminar	Ganong Cha. 23, “The female reproductive system”	2 hours 2 hours 2 hours	Physiology Physiology Physiology

	<ul style="list-style-type: none"> * Hormones that are produced in the ovary (A) * Synthesis, regulation and transport of oestrogen and progesterone (A). * Changes that occur in the endometrium, cervical mucus, vagina, breasts and basal body temperature during menstrual cycle and the physiological basis of these changes (A). * The pattern of secretion of GnRH, LH, FSH, Oestrogen and Progesterone in a normal menstrual cycle with no conception (A). * Menopause and climacteric (A). * Changes in reproductive hormones, reproductive organs and other systems in the body during and after menopause (A). 				
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13. Male Reproductive system

Intermediate objectives	Detailed Contents	Learning strategy		Duration	Department
		Teaching technique	Learning material		
13.0 Describe the structure, function of the male reproductive system and its regulation		Lecture AVP Tutorial	Cunningham, Vol 2, "The pelvic viscera" "The male external genital organs" CD ROM	1 hour 1 hour 2 hours	
13.01 Describe the course of the Ductus deferens from its commencement to the formation of the ejaculatory duct.	* Course and the contents of the Spermatic cord (A)	Dissections	Dissection manual Cunningham, Vol 2, "The pelvic viscera" "The male external genital organs"	2 hours	Anatomy
13.02 Name the anatomical relations of the Seminal vesicles.	* Anterior (B) –base of the bladder *Posterior (B) - rectovesical fascia, *superior (B) – rectovesical pouch, *medial (B)- ampulla of the ductus deference	Dissections Demonstrations	Dissection manual Prosected specimens Cunningham, Vol 2, "The pelvic viscera"	15 min 15 min	Anatomy

<p>13.03 Describe the structure and relations of the prostate gland.</p>	<ul style="list-style-type: none"> * Capsule (A) - True and false capsules * Different lobes of the Prostate (A) *Central and peripheral arrangement of glands in the lobes and its clinical significance. Central zone- BPH, peripheral zone - carcinoma (A) *Relations (A) – base – neck of the bladder, apex- membranous urethra, anterior- retropubic space and puboprostatic ligaments, inferolateral – levator ani, posterior – rectovesical fascia * Basis of different surgical approaches (A) – Transurethral, Transvesicle and Retropubic 	<p>Dissections</p> <p>Demonstrations</p>	<p>Dissection manual</p> <p>Prosected specimens CD ROM</p> <p>Cunningham, Vol 2, “The pelvic viscera”</p>	<p>1 hour & 15 min</p> <p>1 hour & 15 min</p>	<p>Anatomy</p>
<p>13.04 Describe the blood supply of the prostate gland, arrangement of the venous plexus, the lymphatic drainage and its clinical significance in prostatic carcinoma.</p>	<ul style="list-style-type: none"> * Venous plexus (A) - between the true and the false capsules, then it drains to the vesicoprostatic plexus and flows backwards in to the internal iliac vein * lymphatic drainage (A)- internal iliac nodes * Spread of prostatic carcinoma (A) 	<p>Dissections</p> <p>Demonstrations</p>	<p>Dissection manual</p> <p>Prosected specimens CD ROM</p> <p>Cunningham, Vol 2, “The pelvic viscera”</p>	<p>½ hour</p> <p>½ hour</p>	<p>Anatomy</p>

<p>13.05 Describe the microscopic structure of the Ductus deferens, Seminal vesicle and the prostate.</p>	<p>* Functions of Ductus deferens, Seminal vesicle and the prostate (A). * Functional adaptations (A).</p>	<p>Lecture Practical</p>	<p>Wheaters Cha. 18, “The male reproductive system”</p>	<p>½ hour 1½ hours</p>	<p>Anatomy</p>
<p>13.06 Describe the structure of the testis including its coverings.</p>	<p>* Tunica vaginalis, tunica albuginea, Tunica vasculosa Septula testis, seminiferous tubules, Mediastinum testis, Rete testis (A) * Coverings of the testis (A) - Skin, Dartos muscle, superficial perineal fascia, external spermatic fascia, cremasteric fascia, internal spermatic fascia, Tunica vaginalis, albuginea and vasculosa. *Different types of Hydrocoeles and the layers cut during a Hydrocoelectomy (A)</p>	<p>Dissections Demonstrations</p>	<p>Dissection manual Prosected specimens CD ROM Cunningham, Vol 2, “Male external genitalia”</p>	<p>1 hour ½ hour</p>	<p>Anatomy</p>
<p>13.07 Describe briefly on the blood supply, lymphatic drainage and nerve supply to the testis.</p>	<p>* Testicular arteries (A) –origin from the aorta Mechanism and effects of the torsion of the testis. * Testicular veins (A) – right to the IVC and left to the renal vein Varicocoele and its clinical</p>	<p>Dissection Demonstrations</p>	<p>Dissection manual Prosected manual CD ROM Cunningham,</p>	<p>1 hour ½ hour</p>	<p>Anatomy</p>

	<p>significance when it occur on the left side.</p> <p>* Nerve supply (A)</p> <p>* Lymph drainage of the testis and scrotum (A) – clinical relevance in different surgical approaches</p> <p>* Surgical approaches (A) – transinguinal and transscrotal</p>		Vol 2, “Male external genitalia”		
13.08 Describe the microscopic structure of the testis.	Histology of the testis (A)	Lecture Practical	Wheaters Cha. 18 “The male reproductive system”	½ hour 1½ hours	Anatomy
13.09 Describe the descent of the testis	* Embryology (A) – Gubernaculum * Mechanism and clinical significance of undescended testis and the ectopic testis (A).	Lecture	Langmann Cha. 15, “Urogenital system”	1 hour	
13.10 Describe the function and the regulation of the male reproductive system.	* Cross section of the testis indicating the functionally important cells (A). * The functions of the testis (A). * Spermiogenesis and Spermatogenesis (A). * The changes that occur during passage of sperm through the epididymis (A).	Lecture SGD	Ganong Cha. 23 “The male reproductive system”	2 hours 2 hours	Physiology

	<ul style="list-style-type: none"> * A labeled diagram of the components of a mature human spermatozoon and the functions of each component (A). * The blood testis barrier and its functional importance (A). * The functions of the sertoli and the leydig cells (A) * The composition of seminal fluid and the characteristics of the normal semen (A) * The neuroendocrine regulation of male reproductive function (A) * The androgens produced in a male (A) * The synthesis transport and metabolism of testosterone and dihydrotestosterone (A). * The actions of above hormones (A) 				
13.11 Seminal Fluid Analysis (SFA) &	Constituents of the semen(A)	Practical/ demonstration	Practical schedule	1½ hours	Physiology

14. Fertilization, Pregnancy, Partus, Puerperium and Lactation.					
Intermediate objectives	Detailed Contents	Learning strategy		Duration	Department
		Teaching technique	Learning material		
14.0 Describe the process of fertilization, pregnancy, partus, puerperium and lactation.		Lecture		3 hours	Physiology/Anatomy
		SGD		2 hours	
14.1 Fertilization	* Fertile peiriod, capacitation and acrosome reaction of the sperm, fertilization process of the human sperm and ovum, formation of blastocyst, syncytiotrophoblast and cytotrophoblast, process of implantation. (A)		Langman Cha. 2, “Ovulation to implantation”		
14.2 Pregnancy	* Formation of the corpus luteum and its role in maintaining a pregnancy (A) * The hormones that are important in maintaining a pregnancy up to term (A) * The site of production, structure, function and the pattern of secretion of hCG, hPL, Oestrogen and progesterone during a normal pregnancy (A).		Ganong Cha. 23, “Pregnancy”		

<p>14.3 Partus</p> <p>14.4 Puerperium</p> <p>14.5 Lactation</p>	<ul style="list-style-type: none"> * The physiological changes that occur in the body during pregnancy including breasts (A). * The signs and symptoms of pregnancy (A). * The physiological basis of the pregnancy test (A) * The functions of the placenta (A). * The exchange of substances across the placenta (A). * The composition of amniotic fluid and its functions (A) * The foetal circulation (A) * Labour and the factors responsible for the onset of labour (A) * The hormonal regulation of labour and factors responsible for partus and its relation to the structure (A) * Puerperium and the physiological changes that occur during puerperium(A). * The neuroendocrine regulation of milk production and milk ejection (A). 	<p>Slide show/ Video</p>	<p>Ganong Cha. 23, “Parturition”</p> <p>Ganong Cha. 23, “Lactation”</p>	<p>1 hour</p>	
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14.6 Pregnancy testing and Hormonal assay	* Physiological basis of lactational amenorrhoea (A).	Practical (combined with SFA)		1½ hours	Physiology/Biochemistry
15. Human Sexuality		Lecture		1 hour	Physiology
16. Contraception		FLM			Physiology

Case Scenario 02

You receive a letter from your school principal inviting you for a discussion with the year 9 students on puberty and related issues. You begin to think on how to prepare for this session.

Questions in the students mind	Objectives
What is puberty?	<ul style="list-style-type: none">• Define puberty and adolescence
What changes occur in the male and female around puberty? Why do they occur?	<ul style="list-style-type: none">• Describe the male and female secondary sexual characteristics• Describe the other physiological changes that occur during pregnancy
What are the commonly encountered problems during this period?	<ul style="list-style-type: none">• List the common psychological and physical problems that occur during puberty
What are the abnormalities?	<ul style="list-style-type: none">• Precocious puberty• Delayed puberty

Case Scenario 03

You overheard a conversation between two senior colleagues who have been in the labour room. They were discussing about labour, the incision that was made in the perineum by the nurse and the delivery of a baby. The patient had bled from the incision and one of their colleagues had to suture it after giving a local anesthetic.

Discussion went on to ambiguous genitalia as the doctor was not sure of the sex of the new born and your senior colleague inquired from you.

Questions in the students mind	Objectives
Where is the uterus in the pelvis? What are the surrounding structures?	<ul style="list-style-type: none"> • Describe the structures which form the pelvic walls and the floor • Describe the general arrangement of pelvic viscera.
What is labour? How is it brought about?	<ul style="list-style-type: none"> • Define labour • Explain the hormonal regulation of labour and factors responsible for partus.
Why is the incision made in the perineum? What is it called? What perineal structures would probably be cut during this procedure? How is it sutured?	<ul style="list-style-type: none"> • Describe the general arrangement of the perineum. • List the structures cut during an episiotomy.
What are the blood vessels in this area?	<ul style="list-style-type: none"> • Describe the blood supply of the pelvis and perineum
What are the nerves innervating this area? How can we block these nerves?	<ul style="list-style-type: none"> • Describe the main nerve plexuses in the pelvis, • Describe the course of main nerves in the perineum and list the structures supplied by them.
What is ambiguous genitalia? How is normal genitalia formed? How does it defer?	<ul style="list-style-type: none"> • Describe the process of sexual differentiation • Describe the development of female internal and external genitalia. • Describe the development of male internal and external genitalia.

Case Scenario 04

You accompanied your mother to see one of her friends in the hospital. She is 57 years old and was hospitalized following a fall and a fracture of the neck of the femur. The doctor has told her that menopause leads to osteoporosis and therefore has a higher risk of fracture. The doctor has also mentioned that she can have other problems like heart diseases, prolapse of the uterus....etc

She mentioned to your mother that she was advised to get some tests done when she recover from the fracture. You remember them as lipid profile, E.C.G., Mammogram and a gynaecological examination including a cervical smear.

Your mother has also reached menopause 5 years back so you become anxious and decide to read about it

Questions in the students mind	Objectives
What is menopause ?	<ul style="list-style-type: none">• Define menopause and climacteric
What are the changes that occur in the body?	<ul style="list-style-type: none">• Describe the changes in reproductive hormones, reproductive organs, and other systems in the body during and after menopause.
Why are women more prone to osteoporosis and fractures?	
What is the relevance of the investigations that the doctor advised to get done?	
What is prolapse of the uterus?	<ul style="list-style-type: none">• Describe the uterus with its relations to the surrounding structures• Describe the supports of the uterus
What is a mammogram? Why is it done? What is the normal structure of the breast?	<ul style="list-style-type: none">• Describe the macroscopic and microscopic structure of the breast.

Case Scenario 05

A 70 year old man who had Prostate cancer and a prostatectomy 2 years ago complained of pain in his back. Radiograph revealed a secondary deposit in his lumbar vertebrae.

Questions in the students mind	Objectives
Where is the prostate gland? What are the important relations? What is the structure of the prostate gland?	<ul style="list-style-type: none">• Describe the structure and the relations of the prostate gland.
How can the cancer cells reach his back?	<ul style="list-style-type: none">• Describe the blood supply of the prostate gland, arrangement of the venous plexus and the lymphatic drainage
What are the types of cells that can give rise to cancer?	<ul style="list-style-type: none">• Describe the histology of the prostate gland
Can a person live without the prostate gland.?	<ul style="list-style-type: none">• Explain the functions of the prostate gland

