

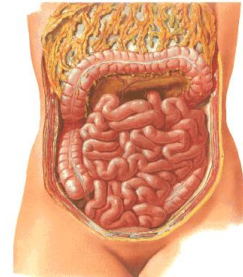
Digestive system – Part II

MUDr. Marek Joukal, Ph.D.

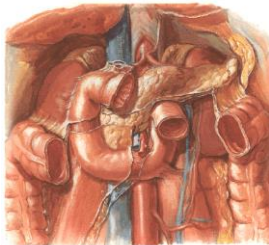
Department of Anatomy

SMALL INTESTINE

SMALL INTESTINE
3–5 m, intestinal loops
DUODENUM
JEJUNUM
ILEUM



DUODENUM



Pars superior
(ampulla, bulbus duodeni)
Flexura duodeni sup.
Pars descendens
Flexura duodeni inf.
Pars horizontalis
Pars dextra et sinistra
Pars ascendens
Flexura duodenojejunalis

12 inches (25-30 cm)-Herofilos, makes a loop around L2

Plica longitudinalis duodeni

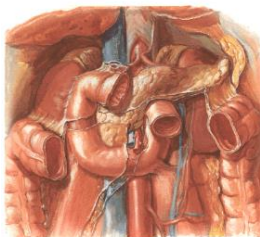
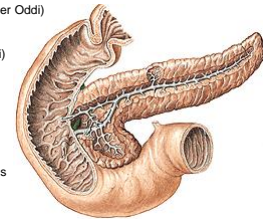
Papilla duodeni major (Vateri)

ampulla hepatopancreatica
(m. sphincter papillae
hepatopancreaticae, m. sphincter Oddi)

ductus choledochus
(m. sphincter ductus choledochi)

ductus pancreaticus major
(m. sphincter ductus pancreatici)

Papilla duodeni minor
ductus pancreaticus accessorius



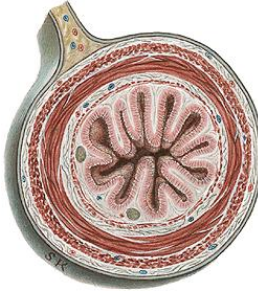
Pars sup. duodeni
- intraperitoneally
(lig. hepatoduodenale)
Other parts - secondary
retroperitoneally

JEJUNOILEUM



Ansae intestinales
Mesenterium
Radix mesenterii (12-15 cm)
Flexura duodenojejunalis
Ostium ileocaecale

Morphology of the jejunouileum



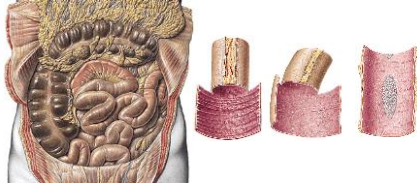
- Mucous membrane:
- Plicae circulares
- Villi intestinales
- GII. Intestinales
- Succus entericus
- Folliculi lymphatici
- Submucosal tissue
- Tissue fibres, neurovascular bundle
- Muscular layer
- Str. longitudinale, circulare
- Serosa (intraperitoneally)

Diverticulum ilei - Meckel

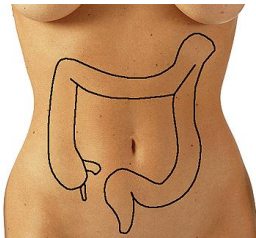
0,5 – 1m from the ostium iliocaecale
(ductus omphaloentericus = yolk stalk)



JEJUNUM	ILEUM
Upper left part of inframesocolic space	Lower right part of inframesocolic space
wider (3- 4 cm), 2/5 of length	narrower (2- 3 cm), 3/5 of length
Numerous circular folds	Less circular folds
1- 2 arterial arcades	2- 3 arterial arcades
folliculi lymphatici solitarii	folliculi lymphatici aggregati

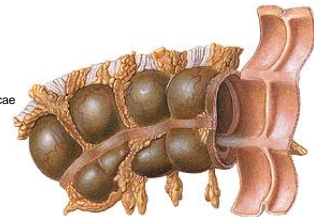


Large intestine

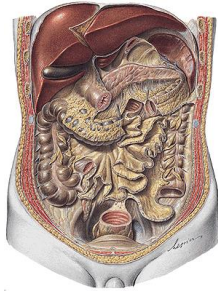


- intestinum caecum
- colon ascendens
- flexura coli dextra (hepatica)
- colon transversum
- flexura coli sinistra (lienalis)
- colon descendens
- colon sigmoideum
- rectum

- Plicae semilunares
- Haustra coli
- Taenia mesocolica
- Taenia omentalis
- Taenia libera
- Appendices epiploicae
- GII. Intestinales
- Folliculi lymphatici



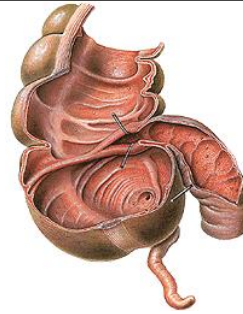
INTESTINUM CAECUM



- Ostium ileocaecale
- Appendix vermiformis
- Mesoappendix
- Recessus retrocaecalis



- Ostium ileocaecale
- Valva ileocaecalis
- Appendix vermiformis
- Tonsilla abdominalis



APPENDIX VERMIFORMIS - POSITION

Positio pelvina (lig. appendiculoovaricum)

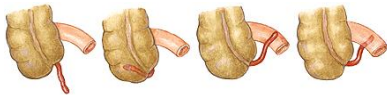
Positio retrocaecalis

Positio ileocaecalis

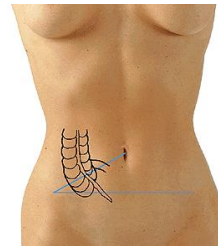
Positio praecaecalis

Positio laterocaecalis

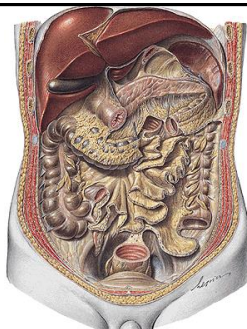
Positio subcaecalis



Monroe's line (linea spinoumbilicalis dextra) – Mac Burney's point
Linea bispinalis – Lanz's point

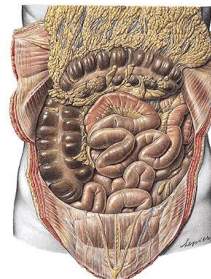


COLON ASCENDENS



- Flexura coli dextra (hepatica)
- cartilage of 10th – 11th rib
- impressio colica
- (lobus hepaticus dx.)
- secondary retroperitoneally

COLON TRANSVERSUM



- Flexura coli sinistra (lienalis)
- cartilage of 8th – 9th rib
- impressio colica
- (facies visceralis lienis)
- lig. phrenicocolicum
- Mesocolon transversum
- Omentum majus
- lig. gastrocolicum

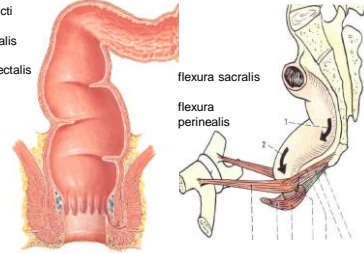
COLON DESCENDENS, SIGMOIDEUM



Mesosigmoideum
Recessus intersigmoideus

RECTUM

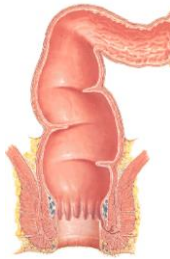
ampulla recti
canalis analis
linea anorectalis



flexura sacralis
flexura perinealis

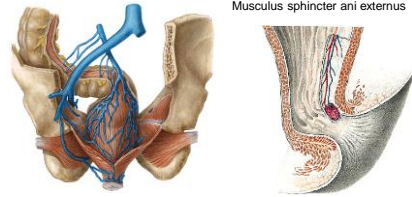
RECTUM

Plicae transversae
Plica transversa media (Kohlrausch) 6 - 7cm
Columnnae anales
Sinus anales
Valvulae anales
Zona haemorrhoidalis
Pecten analis
Linea anocutanea (zona intermedia)
Zona cutanea



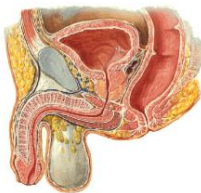
Plexus venosus rectalis
(corpus cavernosum recti)

Musculus sphincter ani internus
Musculus sphincter ani externus

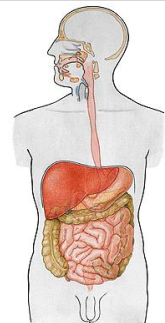


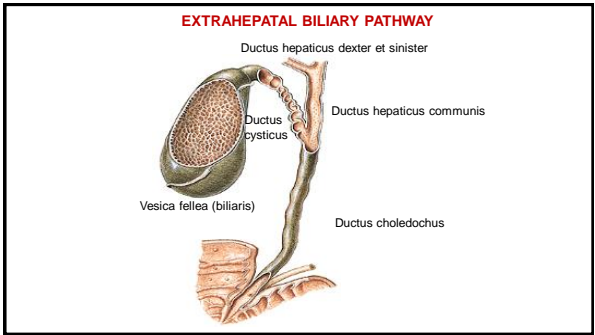
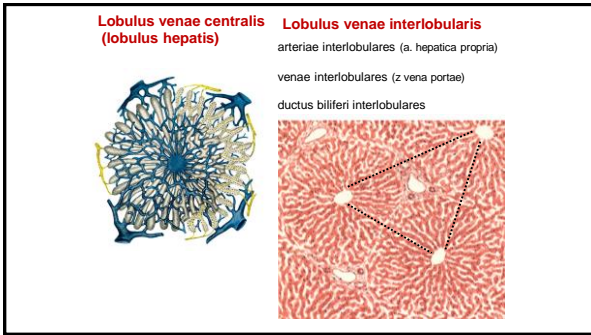
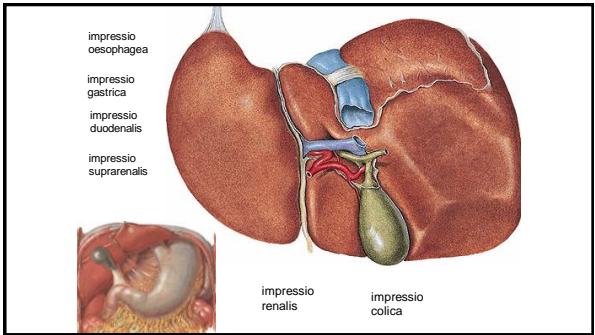
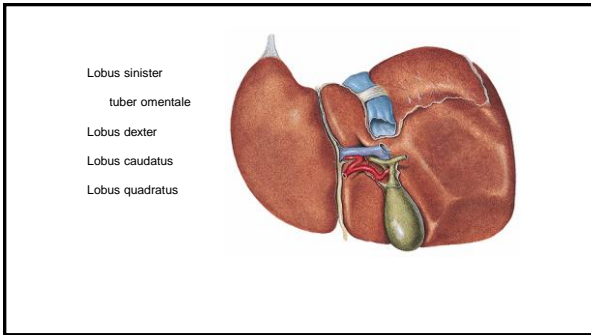
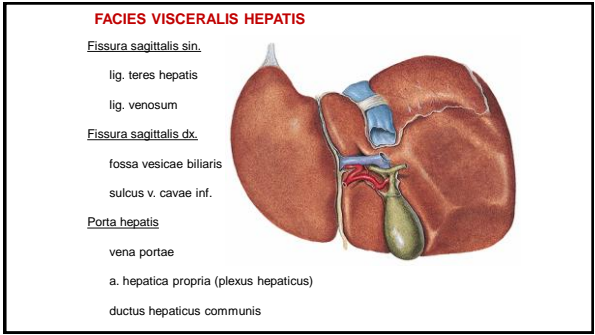
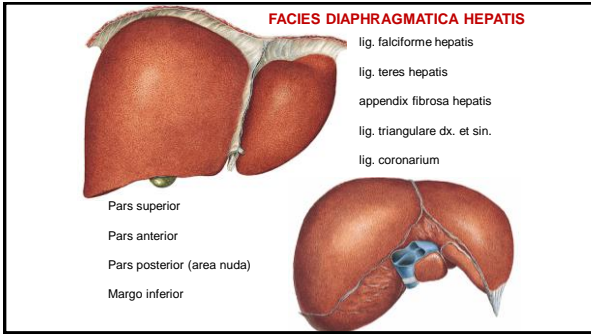
Excavatio rectovesicalis

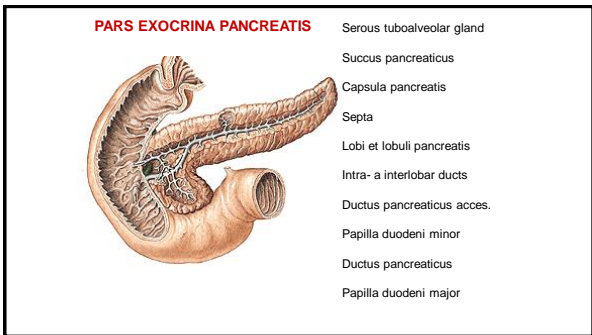
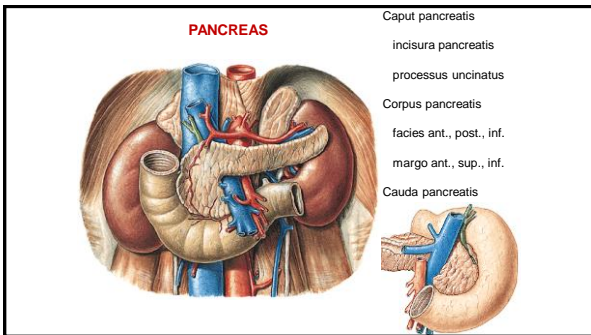
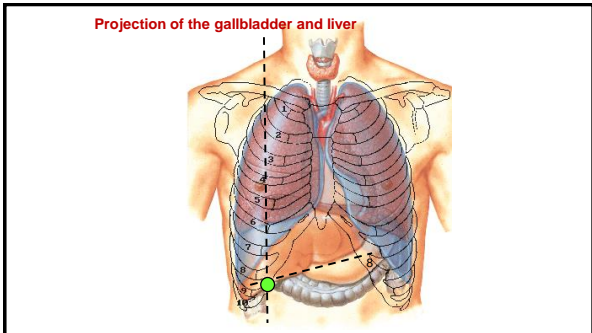
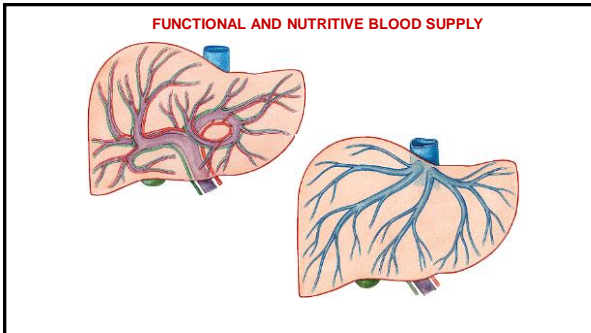
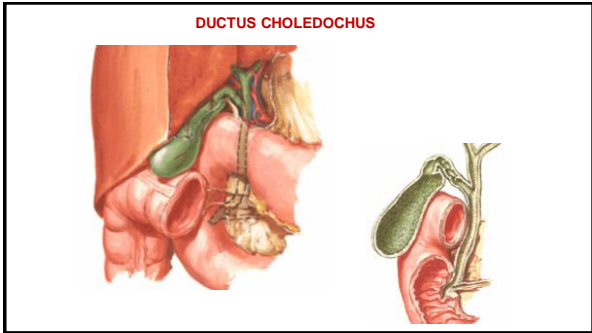
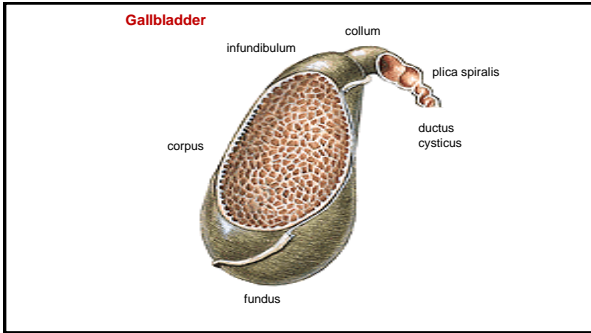
Excavatio rectouterina



Liver (HEPAR)



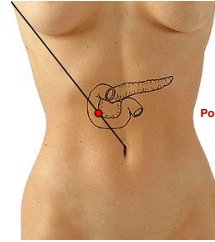
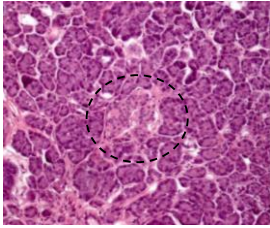




PARS ENDOCRINA PANCREATIS

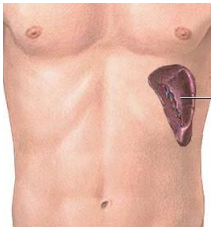
Insulae pancreaticae – Islets of Langerhans

Insulin, glukagon



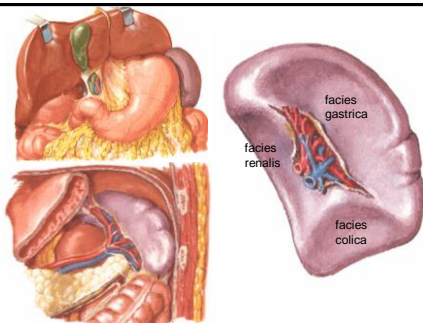
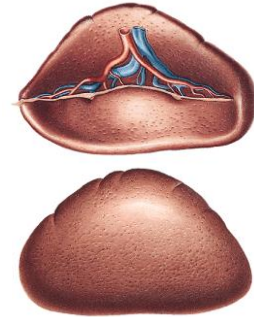
Point of Desjardin (6 cm from navel)

SPLEEN (LIEN)

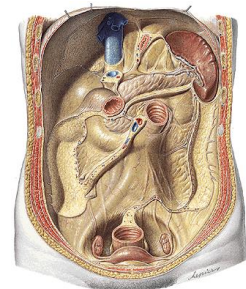
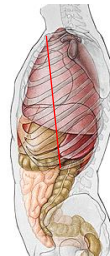


- Supramesocolic part of peritoneal cavity
- Storage of blood
- Erythrocyte degradation
- Production of lymphocytes
- Hematopoiesis (children)

- extremitas anterior
- extremitas posterior
- facies diaphragmatica
- facies visceralis
- hilum lienis
- margo superior (acutus)
- crenae lienis
- margo inferior (obtusus)



Linea costochondralis



PERITONEUM

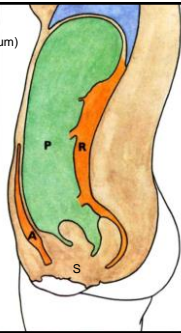
Peritoneum parietale et viscerale (mesenterium)

P – cavitas peritonealis (liguor peritonei)

A – spatium praeperitoneale

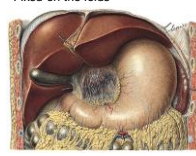
R – spatium retroperitoneale

S – spatium subperitoneale (infra-)



INTRAPERITONEAL ORGANS

Fixed on the folds



liver, spleen, stomach

pars superior duodeni, jejunum, ileum

appendix

colon transversum, colon sigmoideum

RETROPERITONEAL ORGANS

Primary retroperitoneal (kidney, suprarenal glands, genital glands)

Secondary retroperitoneal:

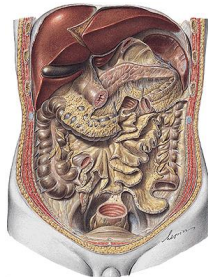
Duodenum (except pars sup.)

Pancreas

Caecum

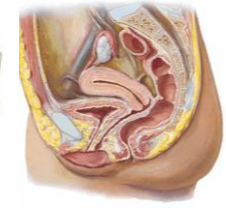
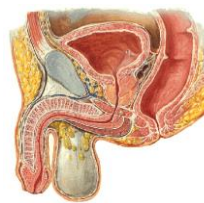
Colon ascendens

Colon descendens



SUBPERITONEAL ORGANS

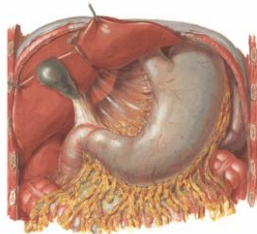
Rectum



Excavatio rectovesicalis

Excavatio rectouterina

PERITONEAL FOLDS OF STOMACH



Omentum minus

lig. hepatoduodenale

lig. hepatogastricum

lig. hepatoesophageum

Omentum majus

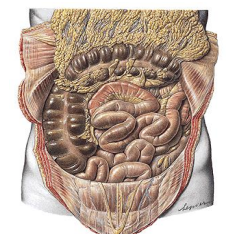
lig. gastrocolicum

Lig. gastrolienale

(lig. gastrosplenicum)

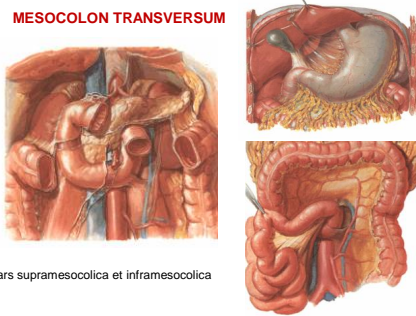


Omentum majus



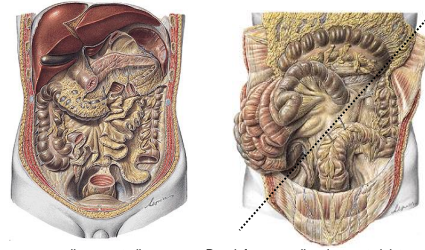
Lig. gastrocolicum

MESOCOLON TRANSVERSUM



pars supramesocolica et inframesocolica

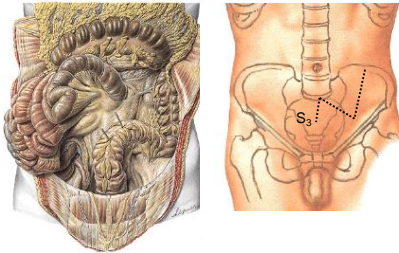
MESENTERIUM



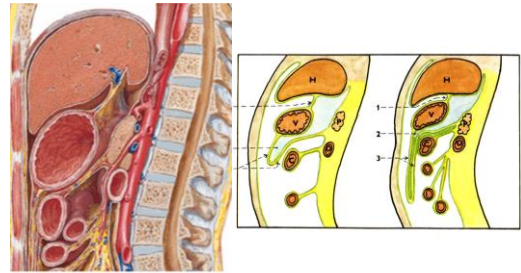
radix mesenterii

Pars inframesocolica dextra et sinistra

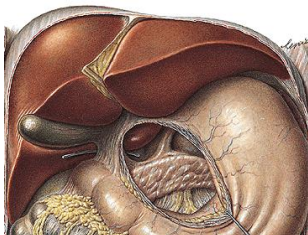
MESOSIGMOIDEUM



BURSA OMENTALIS



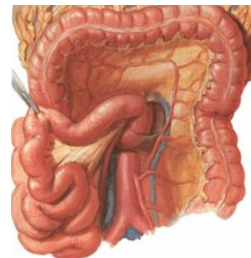
Foramen epiploicum (omentale)

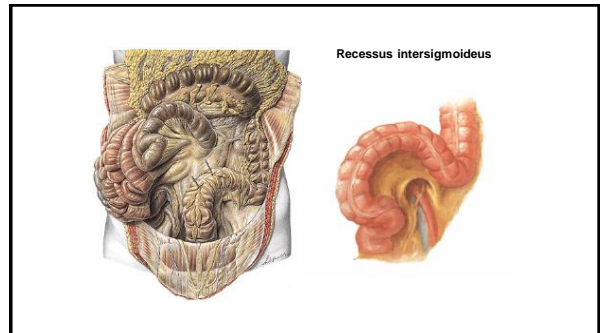
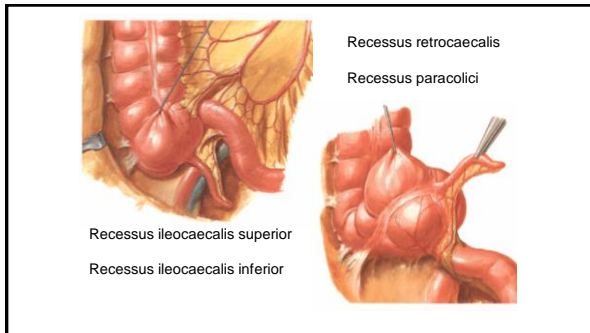


- lig. hepatoduodenale
- plica hepatorenalis
- lobus quadratus
- bulbus duodeni

Recessus duodenales

- Recessus duodenalis superior
- Recessus duodenalis inferior
- Recessus duodenalis sinister (venosus, paraduodenalis)
- Recessus retroduodenalis (m. suspensorius duodeni)





References:

[Putz, R. \(2008\):](#)

Atlas of Human Anatomy Sobotta. Elsevier Books.

[Keith L. Moore, Arthur F. Dalley \(2005\):](#)

Clinically Oriented Anatomy. Williams and Wilkins.

[Platzer, W., Kahle, W., Leonhardt H. \(1992\):](#)

Locomotor system. Georg Thieme Verlag, Stuttgart, New York, 4th edition.

[Čihák, R. \(1987\):](#)

Anatomie 1. Avicenum, Zdravotnické nakladatelství.

[Netter, F. H. \(1997\):](#)

Interactive Atlas of Clinical Anatomy. Novartis, USA.