
Unterlagen zum Teil Anatomie der Vorlesung

Anatomie und Physiologie II

ETH 557-0152-00, UZH 3293 / BIO144

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Bei den Zeichenvorlagen handelt es sich zum Teil um modifizierte Abbildungen aus verschiedenen Lehrbüchern. Sie dürfen deshalb nur zur Mitarbeit in der Vorlesung verwendet werden. Es ist nicht gestattet, die Vorlagen zu vervielfältigen.

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- G6 Trachea
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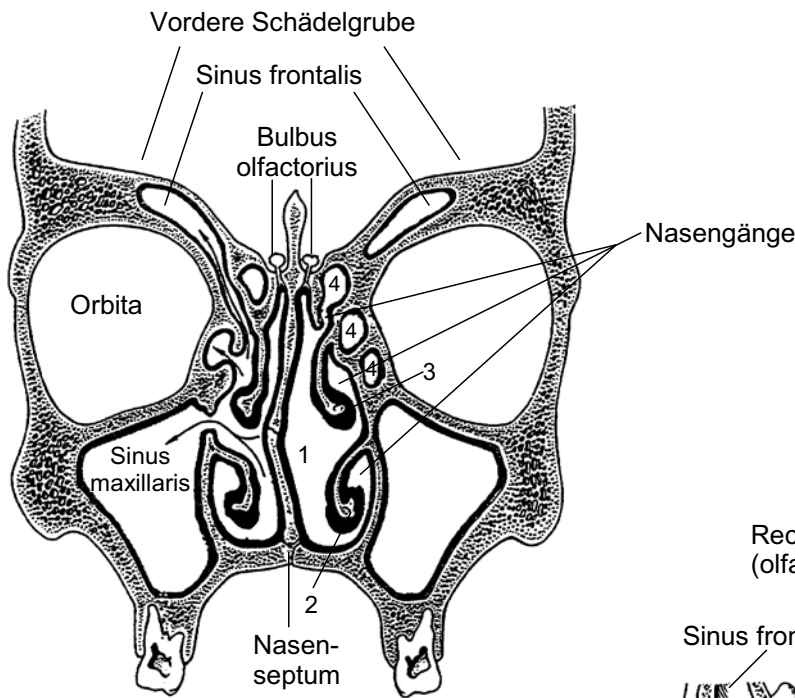
K. Sinnesorgane

K1	Augapfel
K2	Retina
K3	Ohr
K4	Cochlea
K5	Corti-Organ
K6	Gleichgewichtsorgan

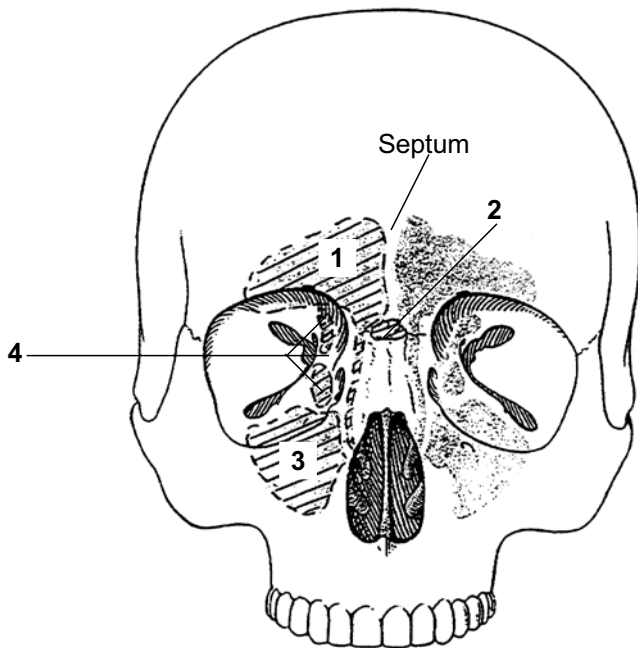
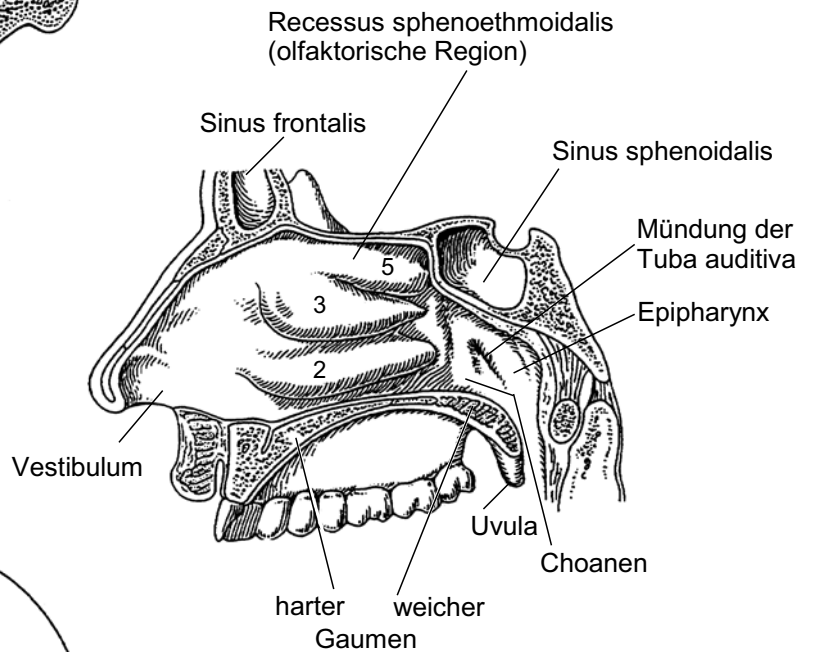
L. Reproduktionsorgane

L1	Uterus
L2	Ovar
L3	Endometrium
L4	Tuba uterina
L5	Männliche Reproduktionsorgane Übersicht I
L6	Männliche Reproduktionsorgane Übersicht II
L7	Spermatogenese
L8	Nebenhoden

Nasenhöhle und Nasennebenhöhlen



- 1 Nasenhöhle
- 2 Untere Nasenmuschel (Concha nasalis inferior)
- 3 Mittlere Nasenmuschel (Concha nasalis media)
- 4 Sinus ethmoidalis
- 5 Obere Nasenmuschel (Concha nasalis superior)

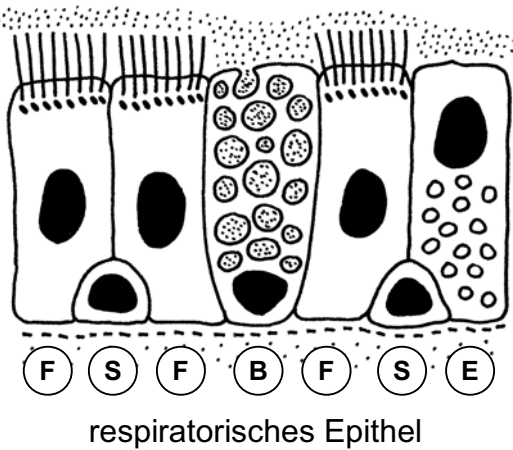


- 1 Sinus frontalis
- 2 Sinus sphenoidalis
- 3 Sinus maxillaris
- 4 Sinus ethmoidalis

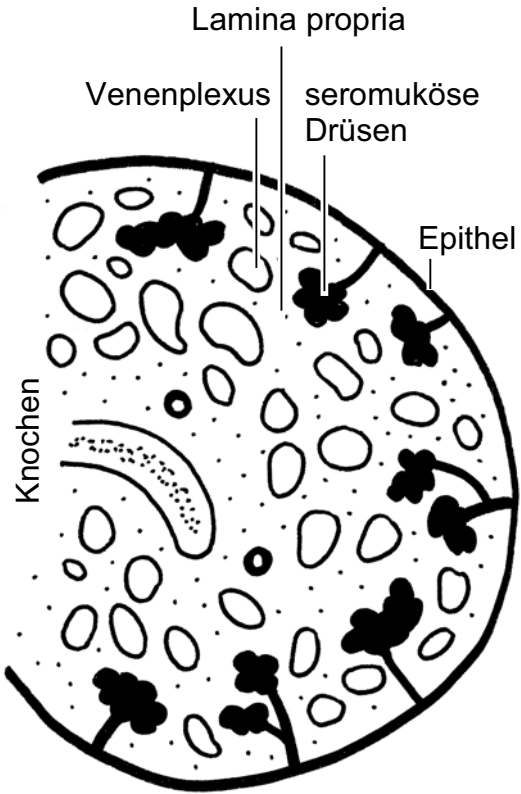
Os frontale = Stirnbein
 Os sphenoidale = Keilbein
 Maxilla = Oberkieferknochen
 Os ethmoidale = Siebbein

Nasenschleimhaut

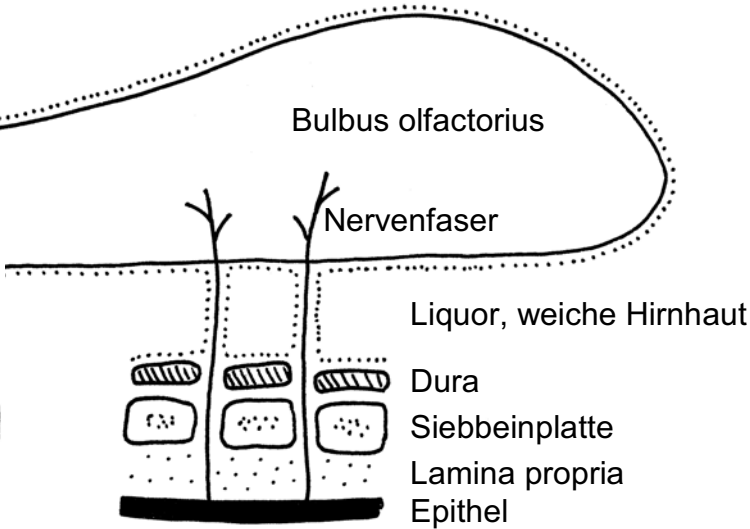
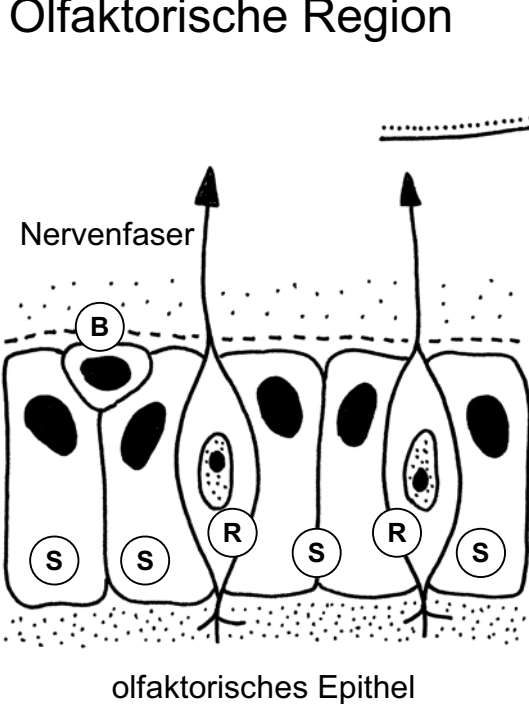
Respiratorische Region



- Schleim
- F Flimmerzelle
- S Stammzelle
- B Becherzelle
- E endokrine Zelle
- Basallamina

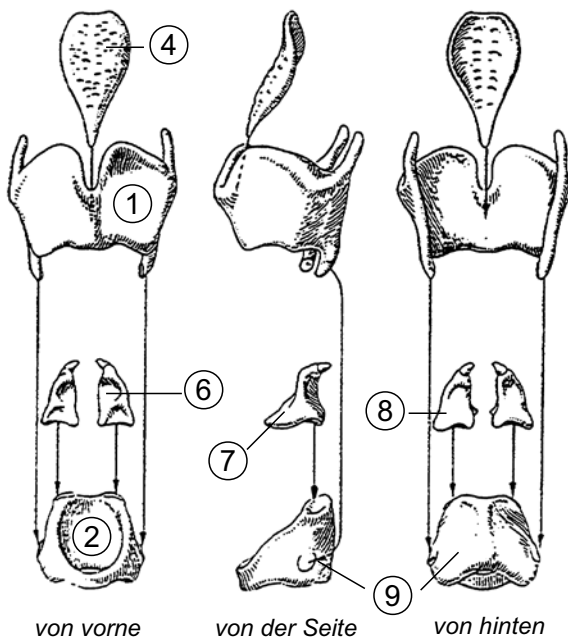
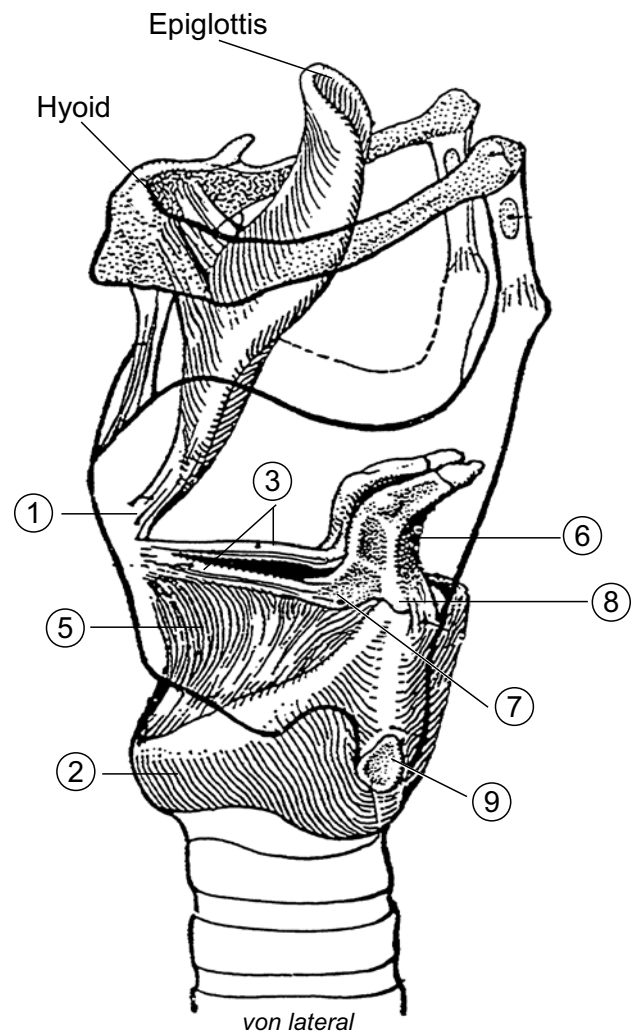
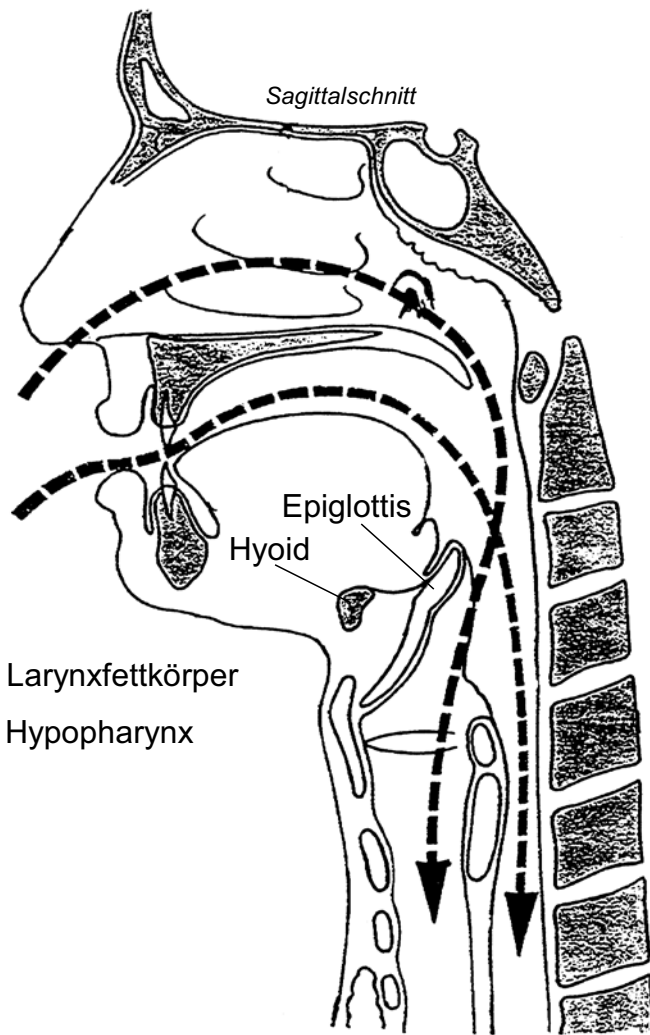


Olfaktorische Region



- Schleim
- R Rezeptorzelle (Neuron)
- S Stützzelle
- B Basalzelle (Stammzelle)
- Basallamina

Kehlkopf (Larynx) 1



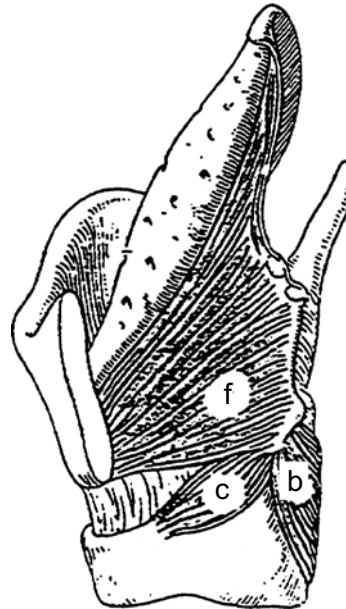
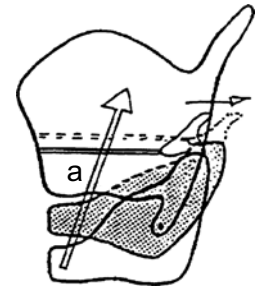
- 1 Schildknorpel (Cartilago thyroidea)
- 2 Ringknorpel (Cartilago cricoidea)
- 3 Lig. vocale (Stimmband)
- 4 Epiglottis
- 5 Conus elasticus
- 6 Stellknorpel (Cartilago arytenoidea)
- 7 Processus vocalis
- 8 Processus muscularis
- 9 Gelenk zwischen Schild- und Ringknorpel

Adamsapfel
 Membrana thyrohyoidea
 Koniotomie

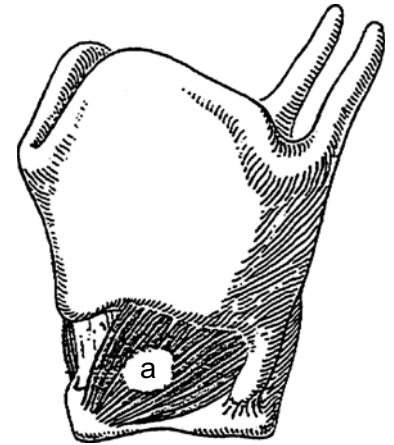
Kehlkopf (Larynx) 2

- 1 Schildknorpel
(Cartilago thyroidea)
- 2 Ringknorpel
(Cartilago cricoidea)
- 3 Plica vocalis
(Stimmfalte)
- 4 Plica vestibularis
- 5 Epiglottis
- 6 Conus elasticus
- 7 M. vocalis, Stimmband
- 8 Hyoid

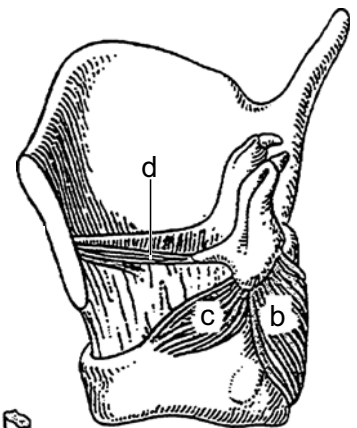
- 9 Pfeil im Recessus
piriformis



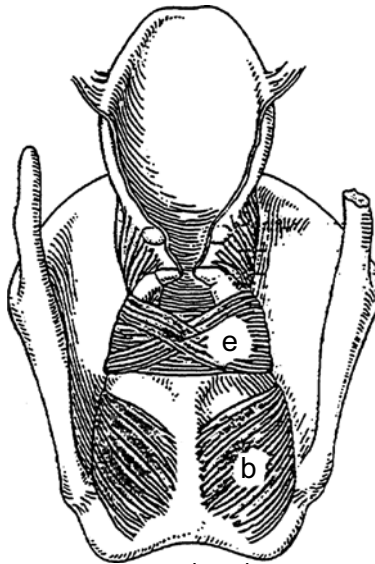
von lateral



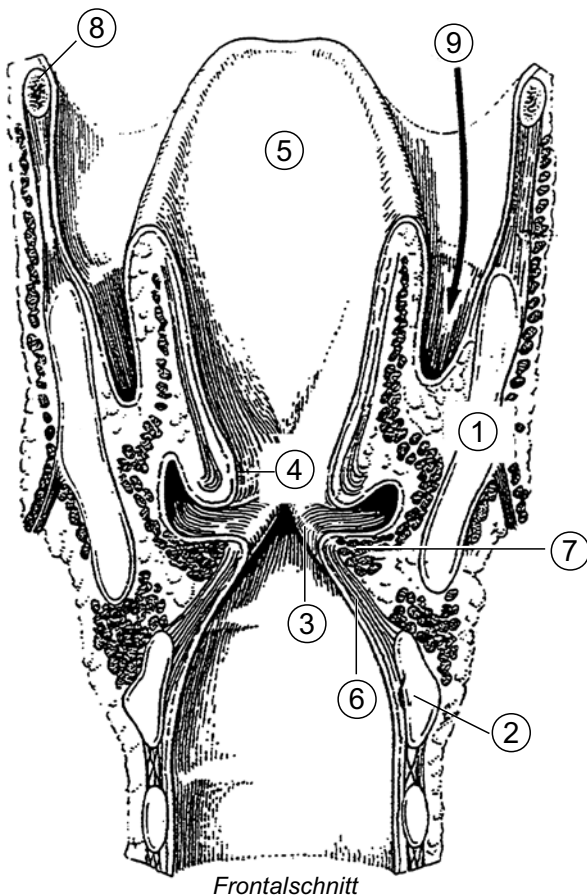
von lateral



von lateral



von dorsal



Frontalschnitt

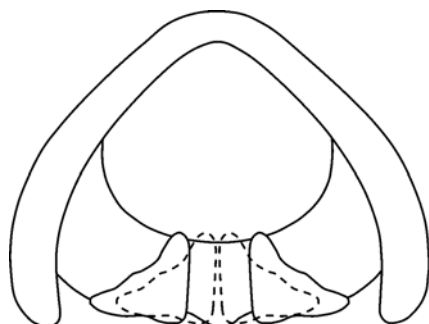
M. cricothyroideus (a)
 M. cricoarytaenoideus posterior (b)
 M. cricoarytaenoideus lateralis (c)
 M. vocalis (d)

Mm. arytaenoidei (e)
 M. thyroarytaenoideus (f)

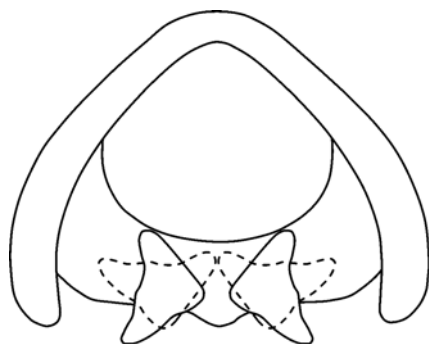
Trachealzug (g)

Stimmbandstellungen

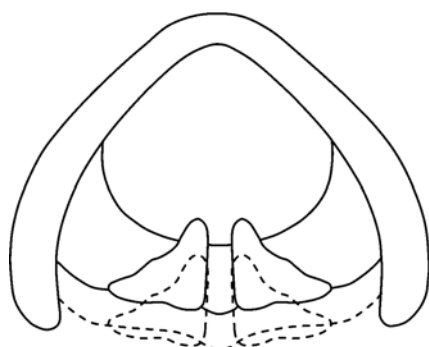
Bewegungen



Verschiebung Aryknorpel:
nach medial
nach lateral



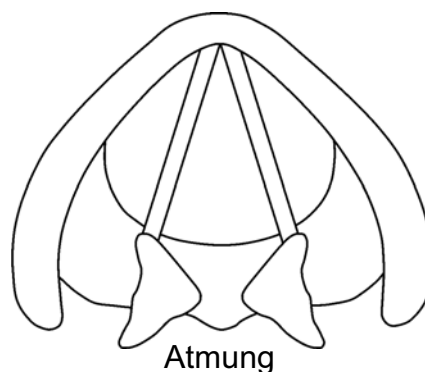
Rotation Aryknorpel:
nach innen
nach aussen



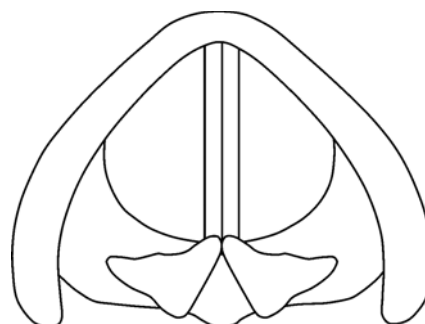
Stimmband:
Grobspannung
Feinregulierung

Entspannung

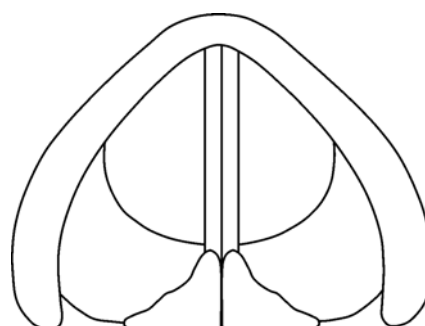
Normal



Atmung

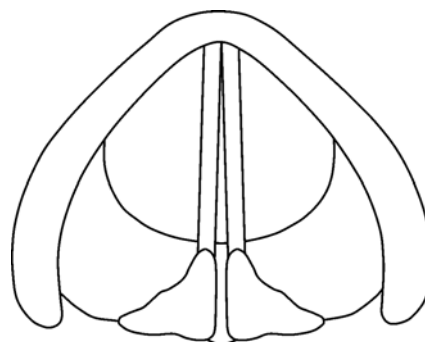


Flüstern



Phonation

Rekurrensparese



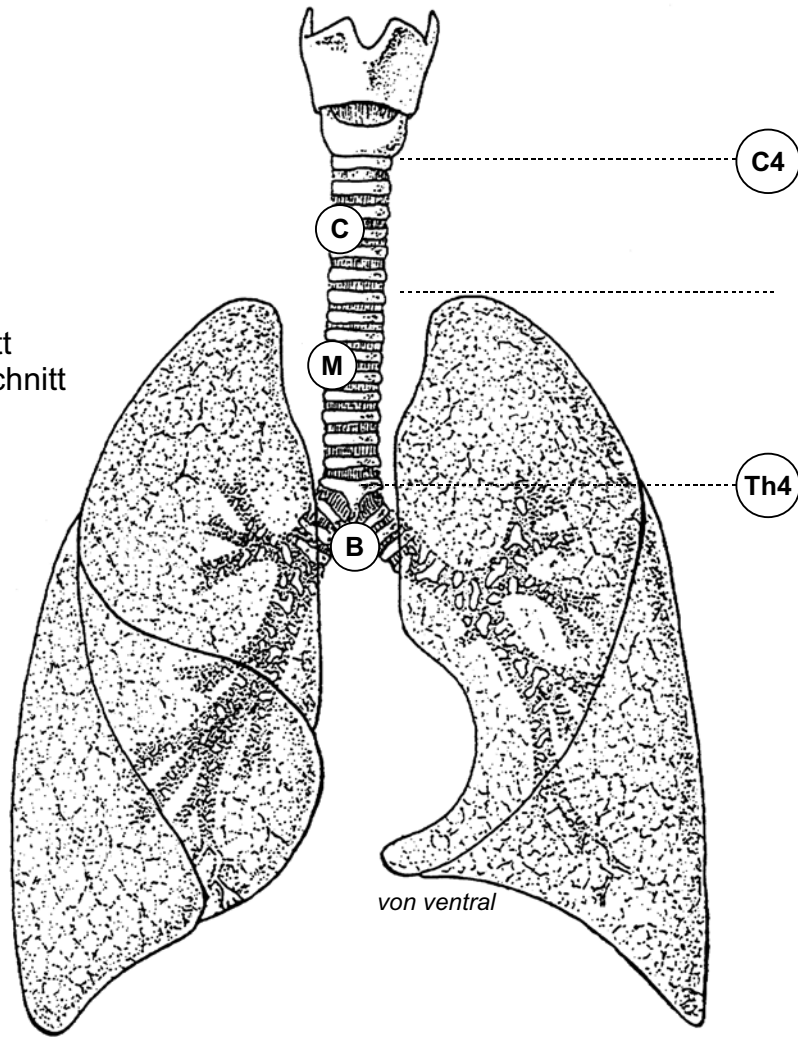
Paramedianstellung

Heiserkeit
Stridor

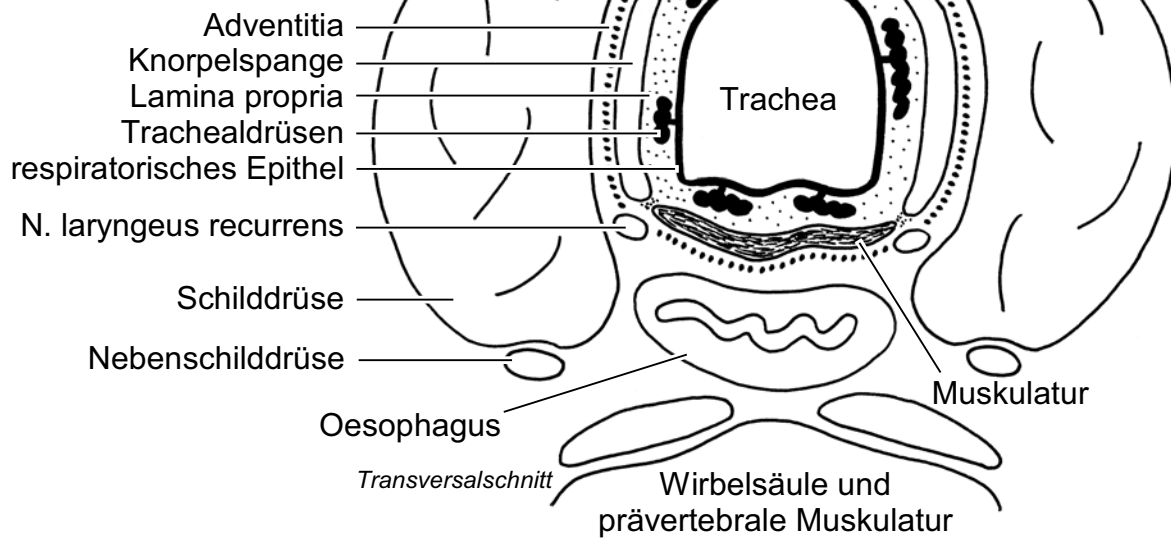
Stimmverlust
Atemnot

Trachea

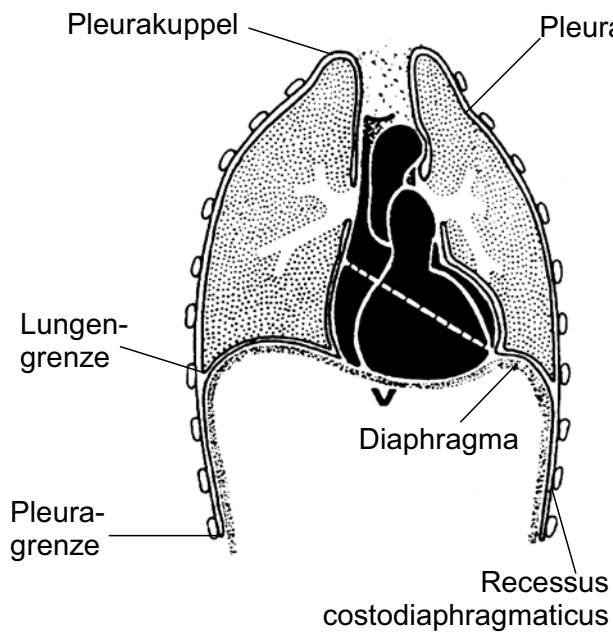
- C4 Wirbel C4
- C zervikaler Abschnitt
- M mediastinaler Abschnitt
- B Tracheabifurkation
- Th4 Wirbel Th4



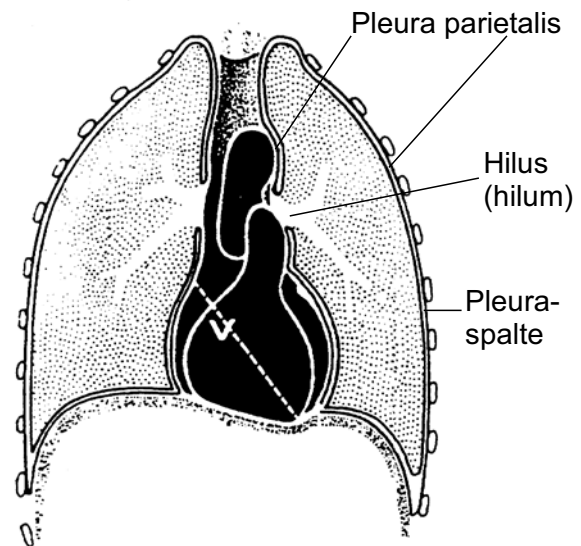
Zervikaler Abschnitt



Pleura und Atemmechanik



Maximale Expiration



Maximale Inspiration

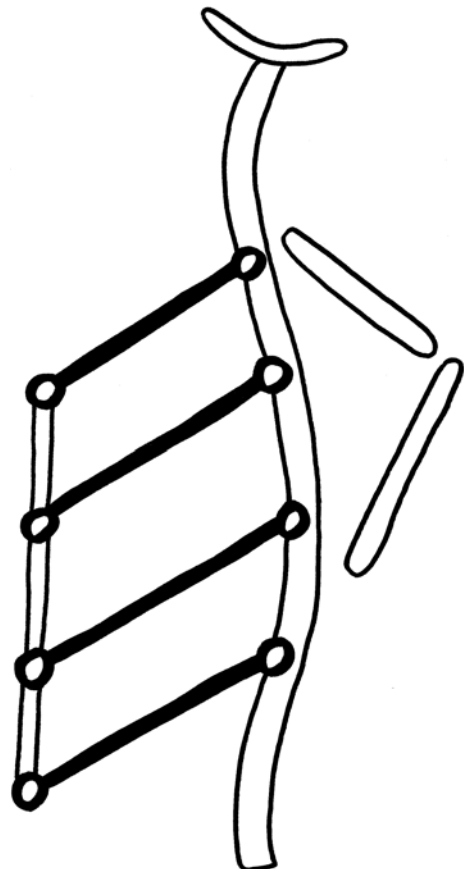
- Zwerchfellatmung
- Rippenatmung
- Atemhilfsmuskeln

Inspiration

- Diaphragma
- äussere Zwischenrippenmuskeln
- Kopfwender
- Treppenmuskeln
- kleiner / grosser Brustmuskel

Expiration

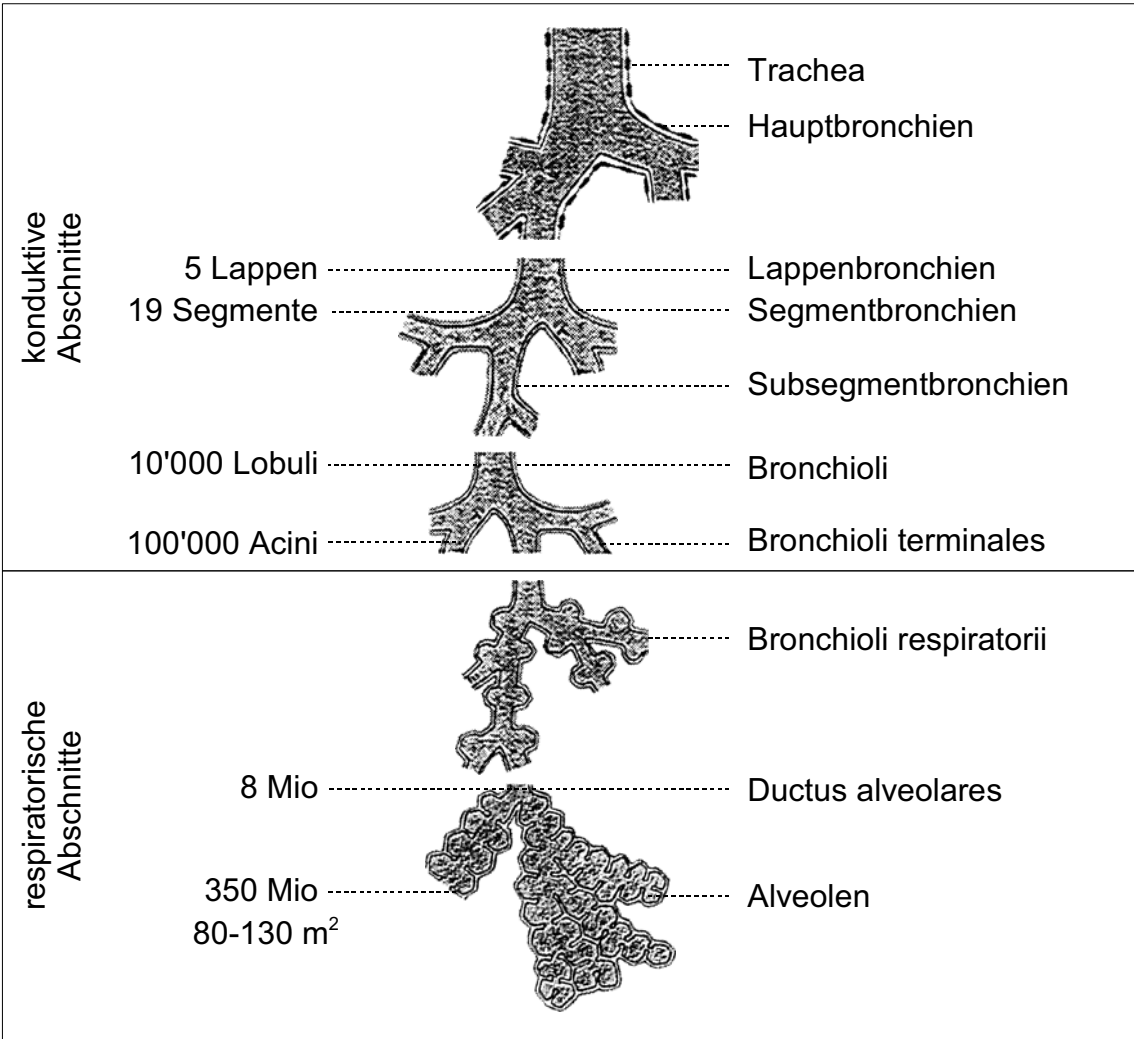
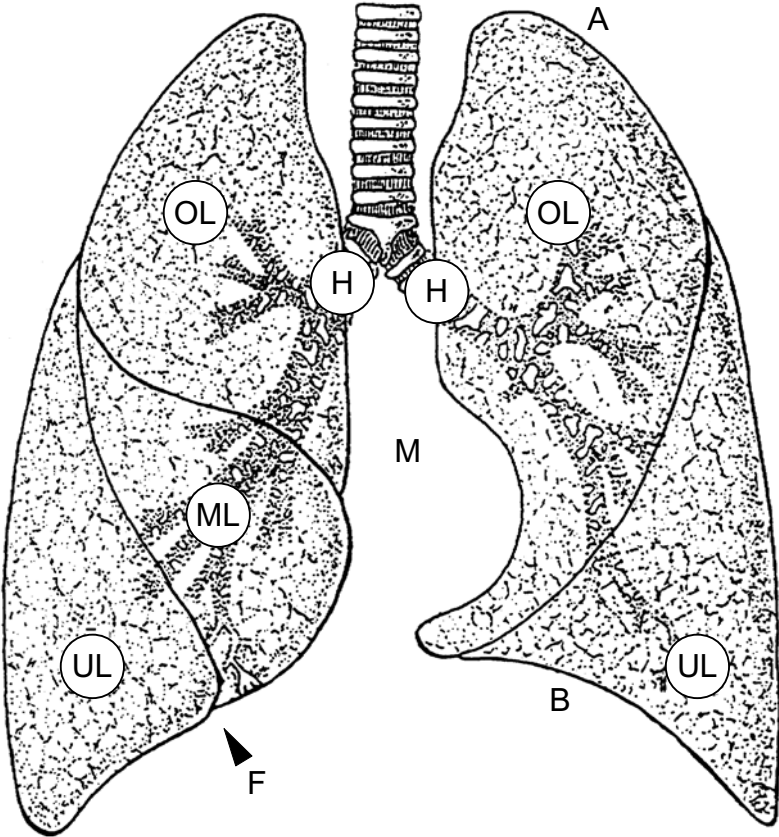
- Eigenelastizität der Lunge
- Bauchmuskeln
- innere Zwischenrippenmuskeln



Lunge und Bronchien

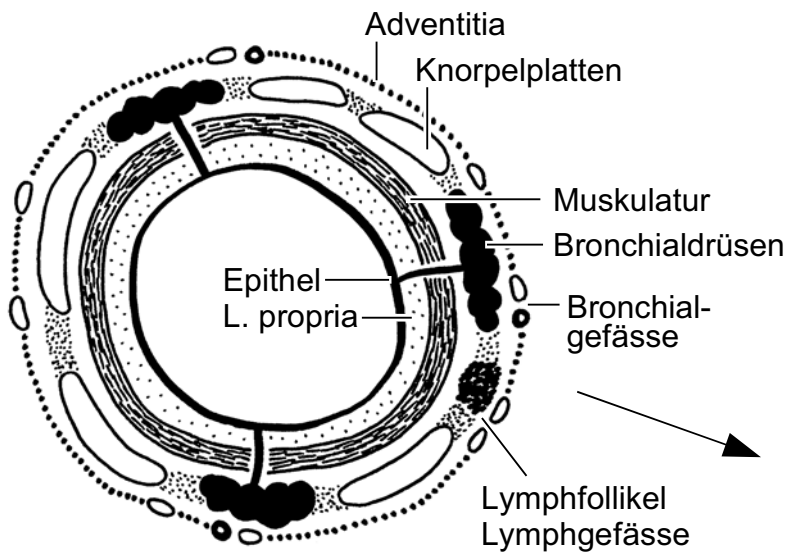
- A Apex
- B Basis
- M Mediastinum
- F Fissuren

- H Hilus (Hilum)
- OL Oberlappen
- ML Mittellappen
- UL Unterlappen

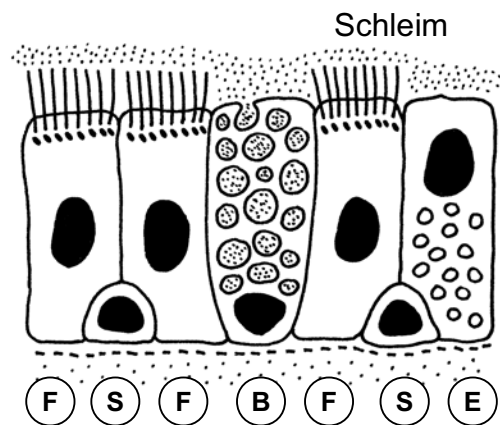


Intrapulmonale Atemwege

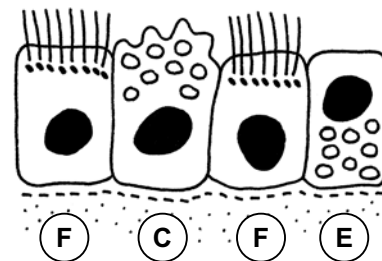
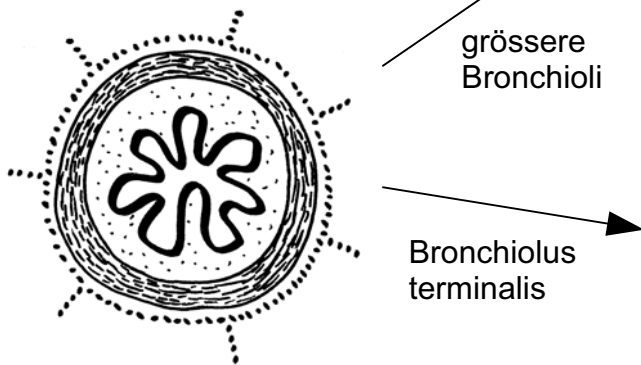
Bronchus



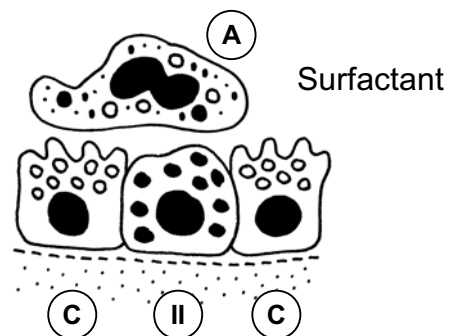
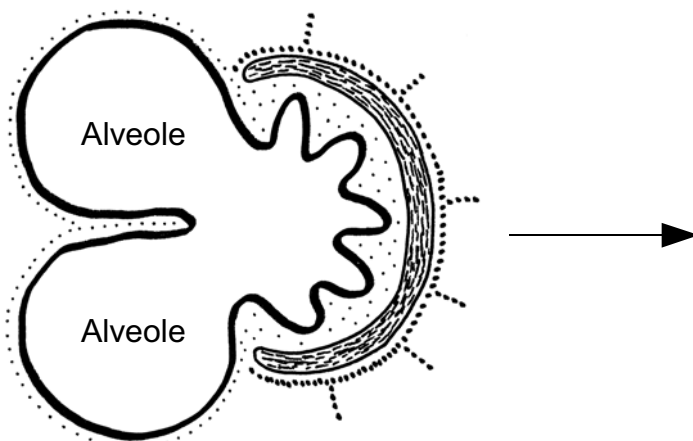
- F Flimmerzelle
- S Stammzelle
- B Becherzelle
- E endokrine Zelle
- C Clara-Zelle
- II Alveolarzelle Typ II
- A Alveolarmakrophage
- Basallamina



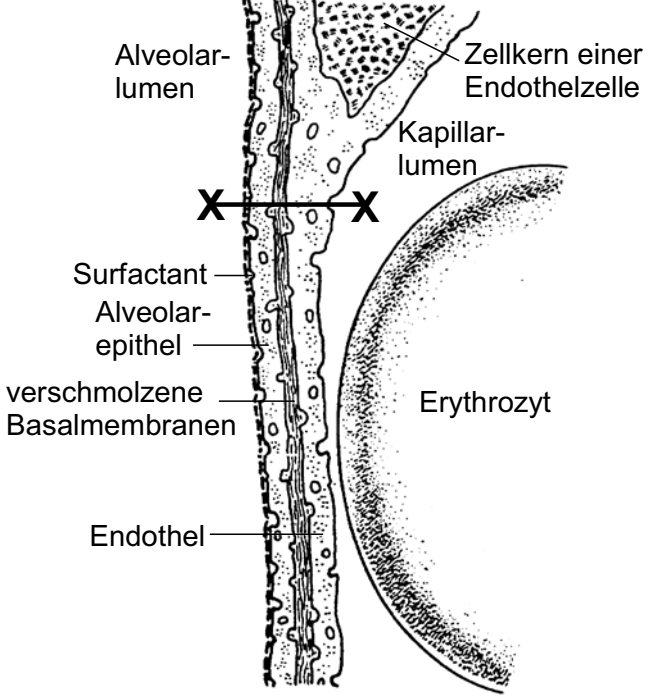
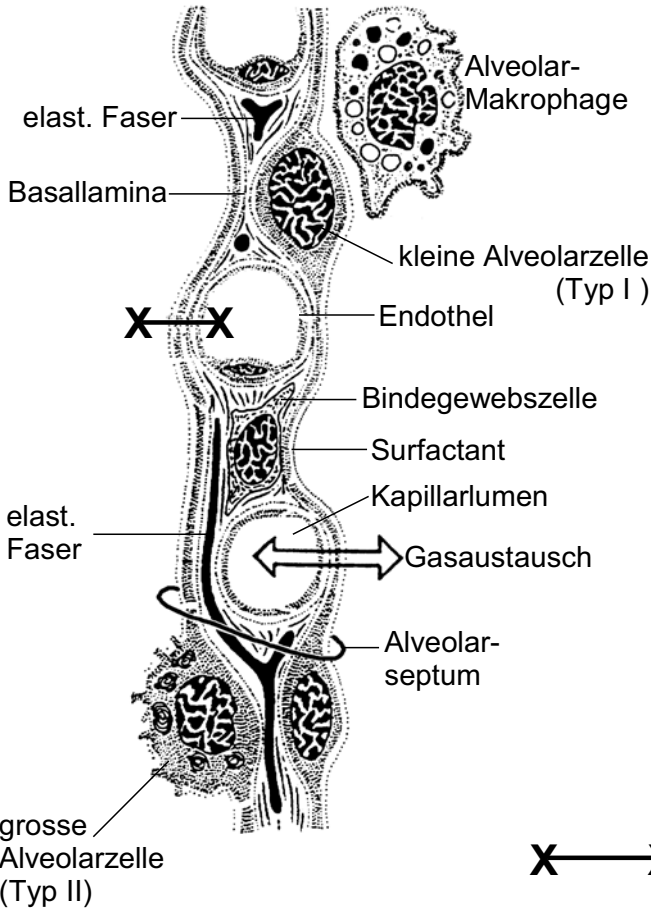
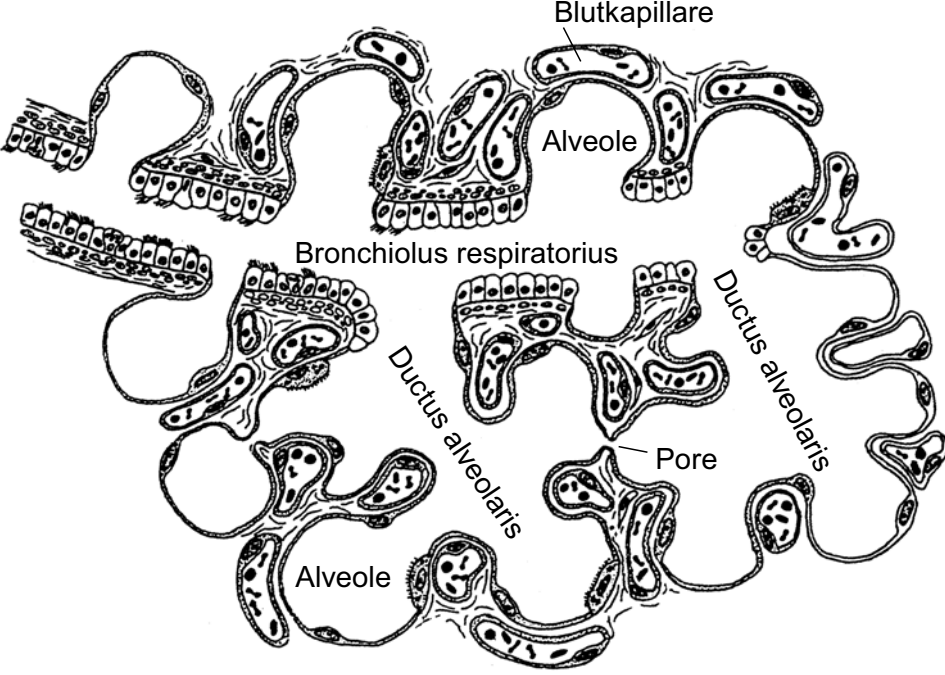
Bronchiolus



Bronchiolus respiratorius

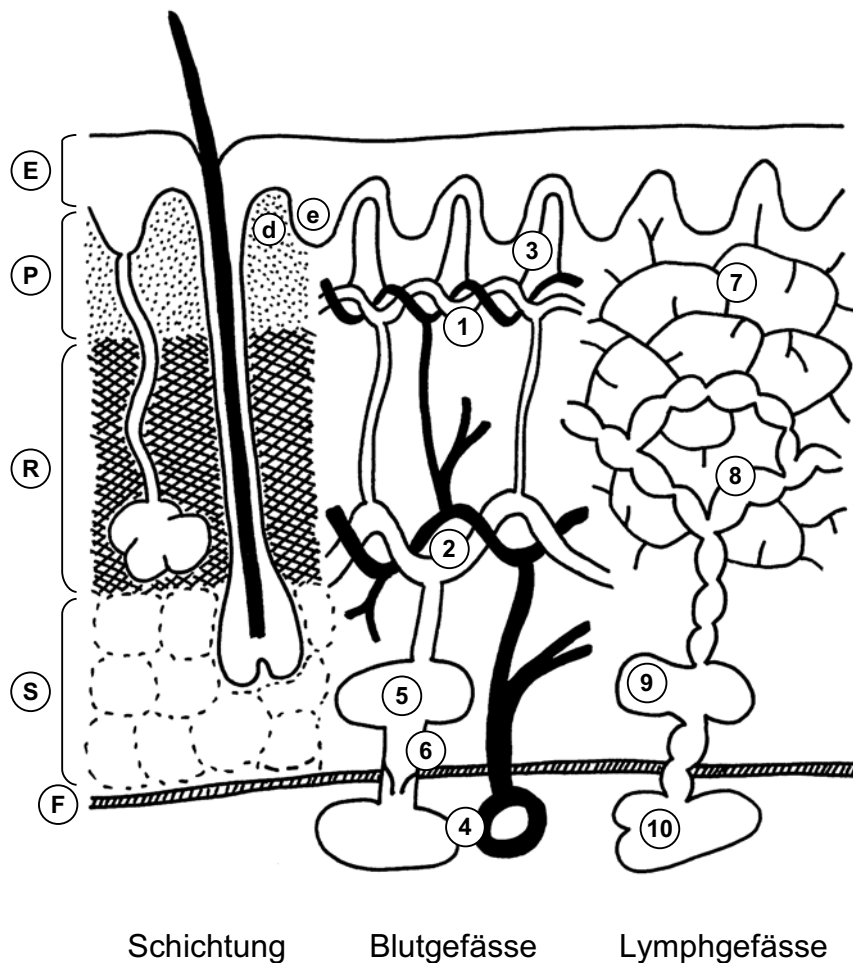


Lungenalveolen



X — X Blut-Luft-Schranke

Haut



- E Epidermis
- P Stratum papillare
- R Stratum reticulare
- S Subcutis
- F Körperfaszie

- PR Dermis
- EPR Cutis
- EPRS Hautdecke

- d dermale Papillen
- e epidermale Leisten

- Gefäßplexus:
- 1 oberflächlich
- 2 tief

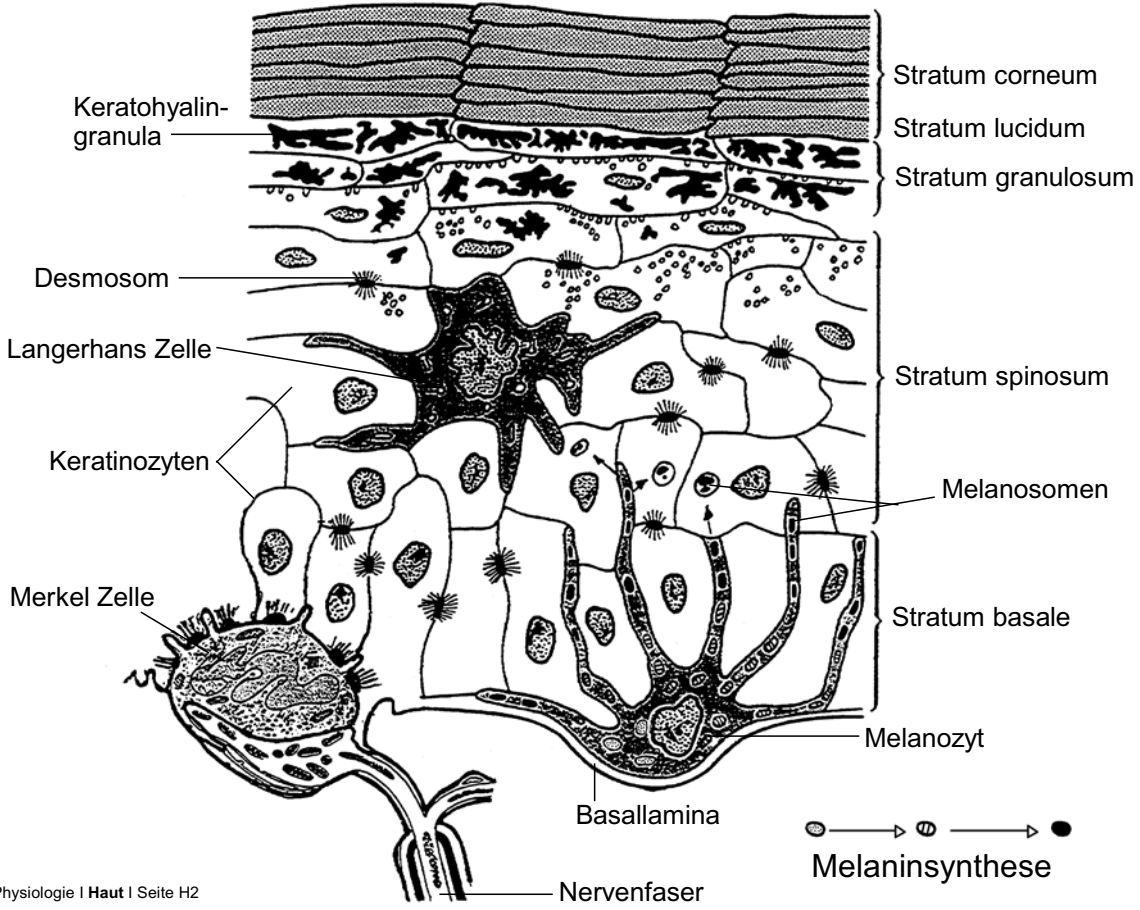
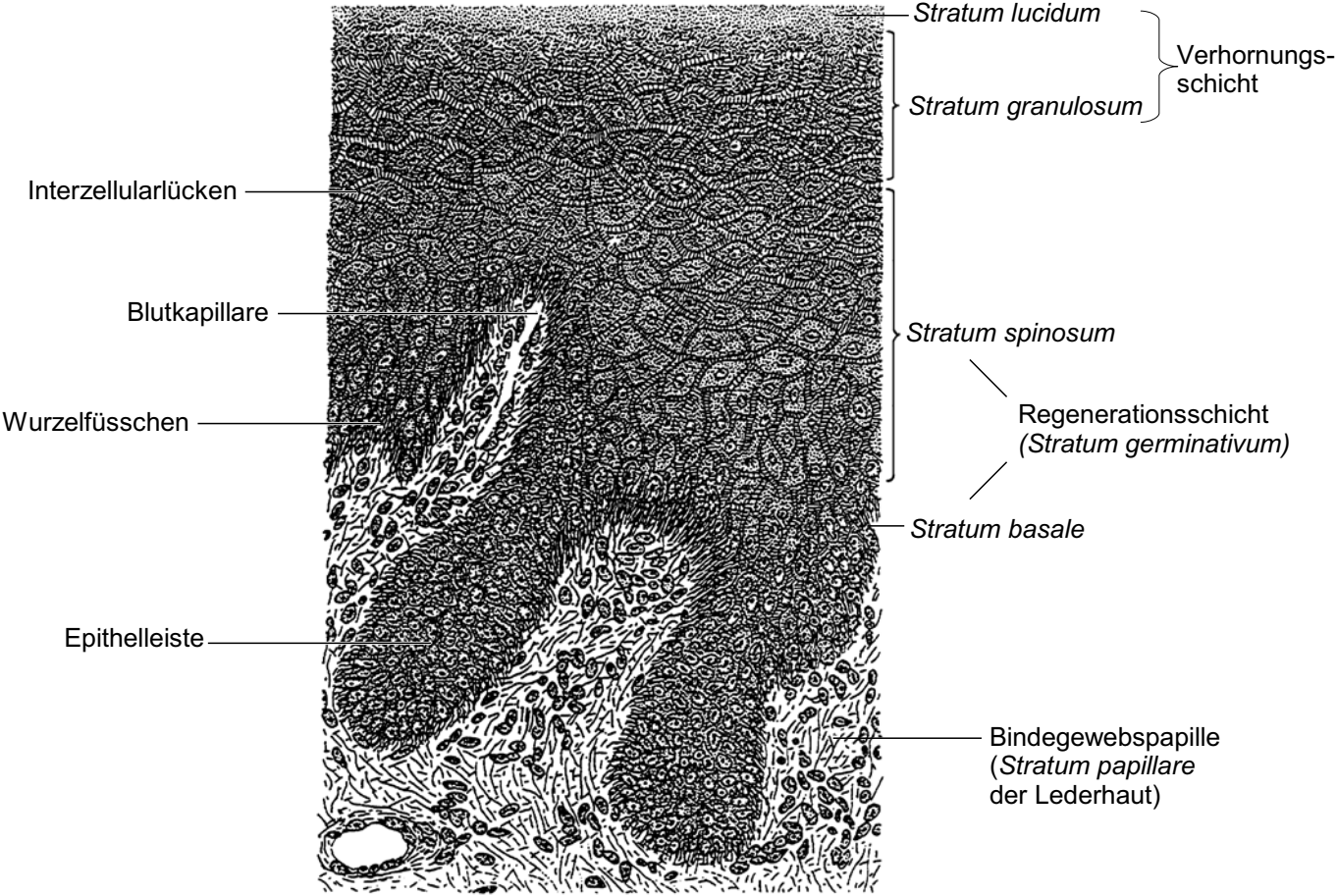
- 3 Kapillarschlingen
- 4 subfasziale Gefäße
- 5 subcutane Venen
- 6 Perforansvene

- 7 Lymphkapillaren
- 8 Präkollektoren
- Kollektoren:
- 9 subkutan
- 10 subfaszial

Hauttypen

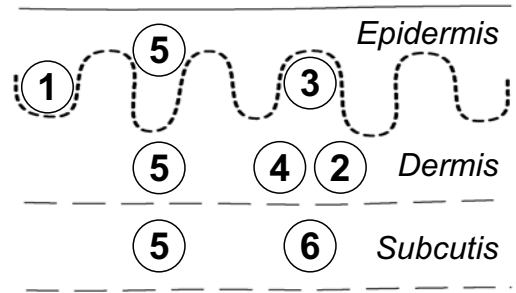
	Felderhaut	Leistenhaut
Epidermis Rezeptorendichte	<0.1mm +	<1mm ++
Schweissdrüsen (ekkrin) Duftdrüsen (apokrin) Haare & Talgdrüsen	+ (+)* +	++ - -
*Achselhöhle, Warzenhof, Genital-, Perianalregion	übrige Körperoberfläche	Hohlhand Fusssohle

Epidermis

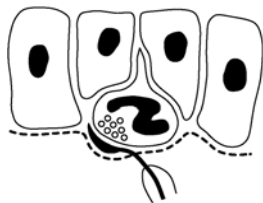


Hautrezeptoren

Axon
 myelinisierende Schwann-Zelle
 nicht-myelinisierende Schwann-Zellen
 kollagene Fibrillen
 Perineuralzellen
 Basallamina

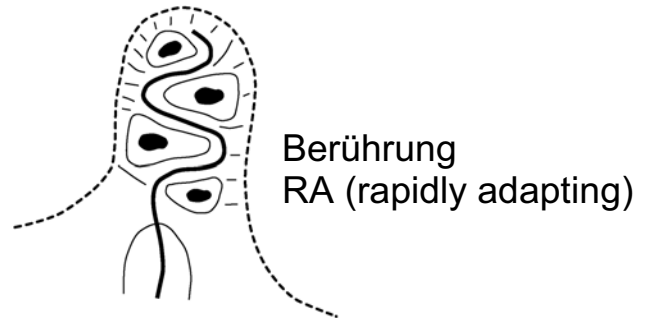


1 Merkel-Zelle



Druck
 SA-I (slowly adapting)

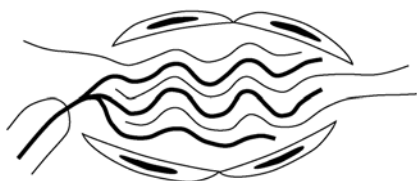
3 Meissner-Körperchen



4 Haarfollikelrezeptoren

Berührung
 RA (rapidly adapting)

2 Ruffini-Körperchen

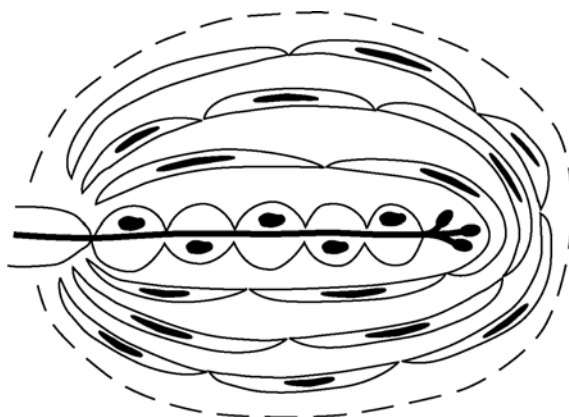


Zug
 SA-II (slowly adapting)

5 Freie Endigungen



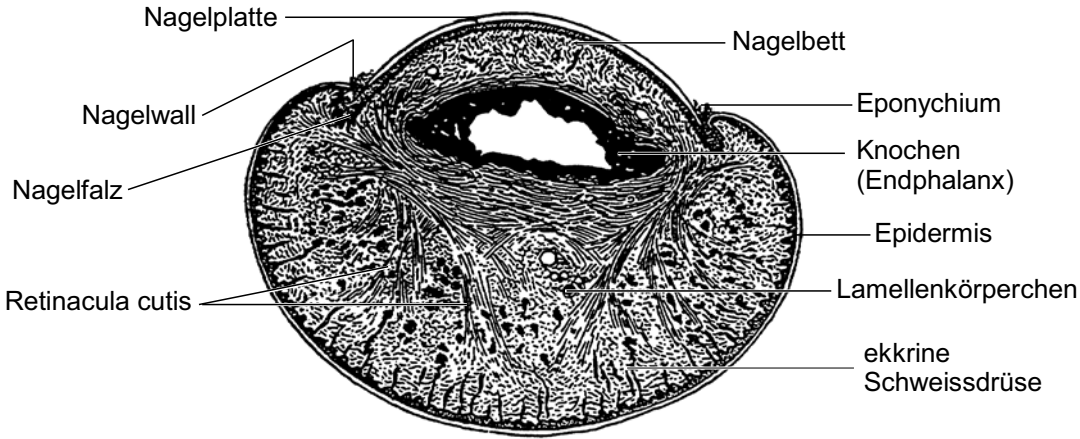
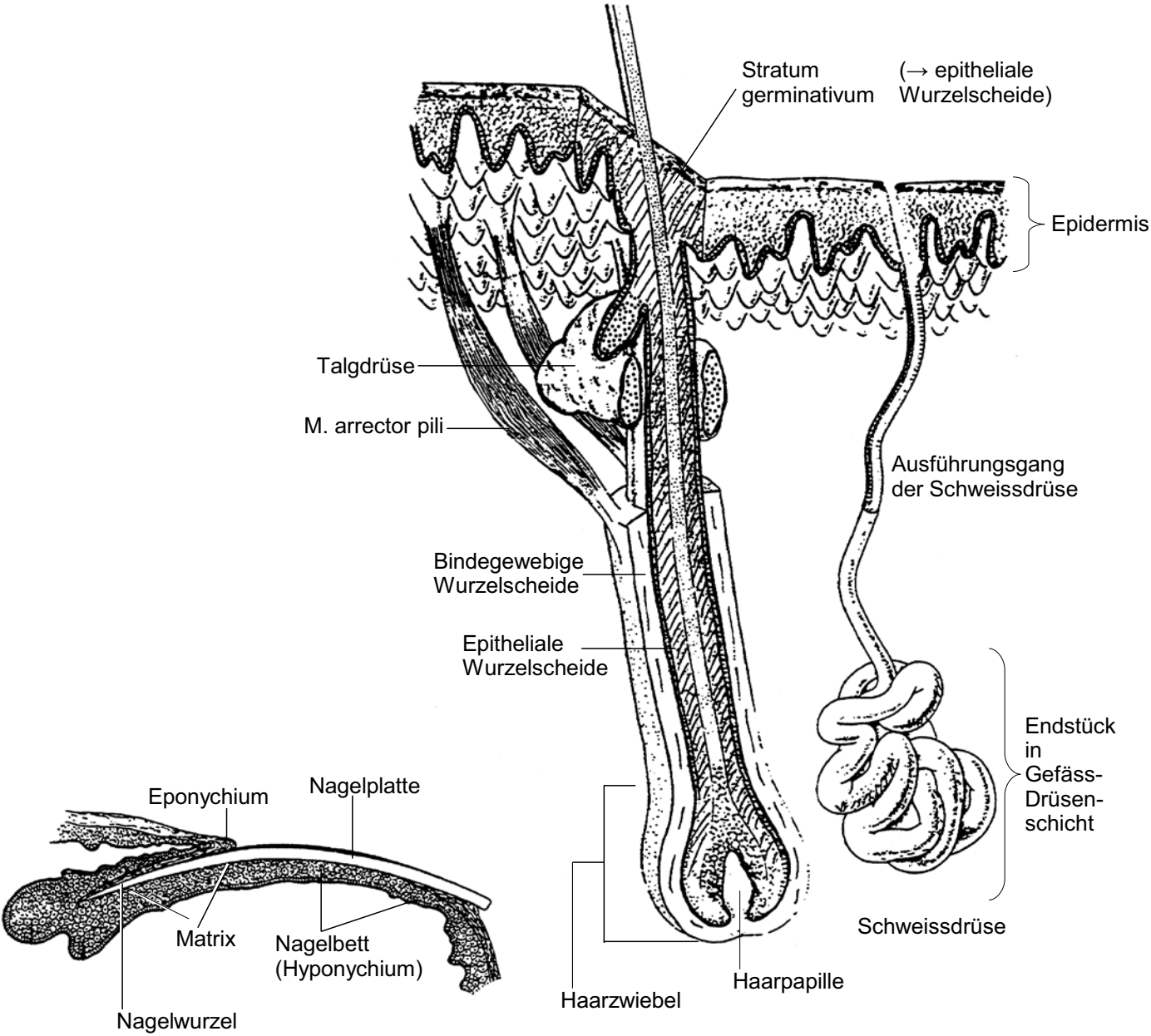
Temperaturänderung
 (Kalt- und Wärmepunkte)
 Schmerz (Nozizeptoren)
 Druck



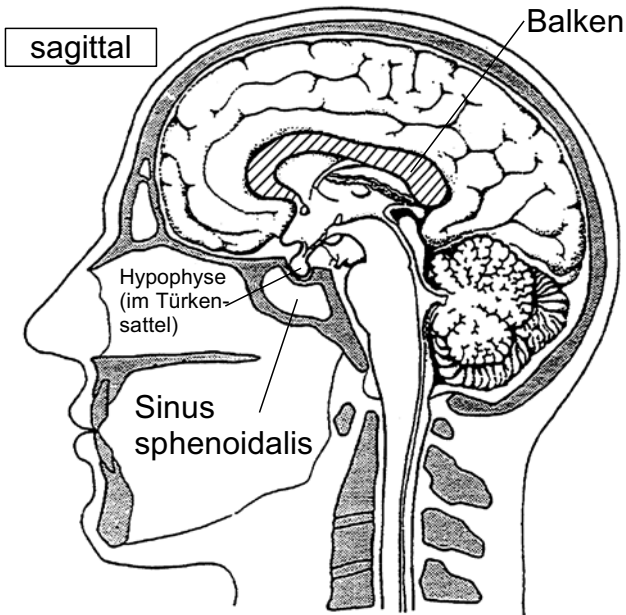
6 Vater-Pacini-Körperchen

Vibration, Textur
 (Beschleunigung)

Hautanhangsgebilde



Hypothalamus und Hypophyse I



Hirnbasis

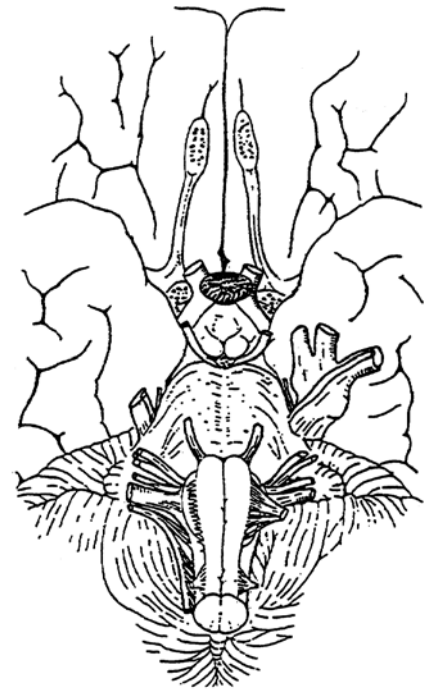
Riechnerv (N. olfactorius, I)

Sehnerv (N. opticus, II)

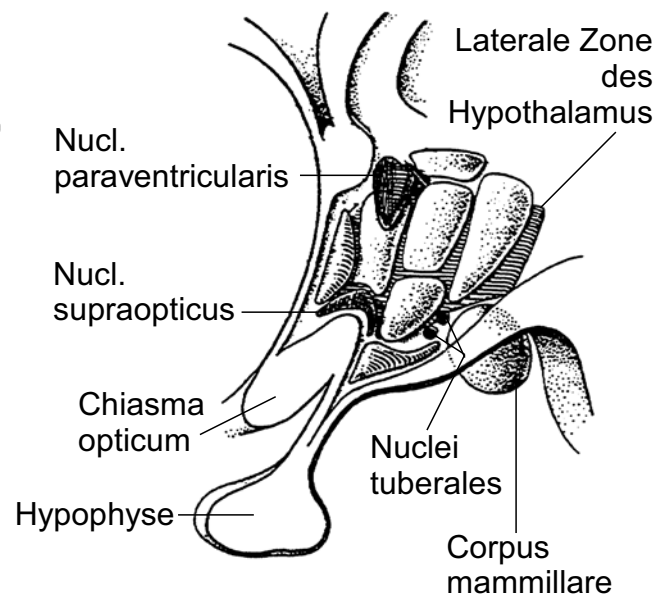
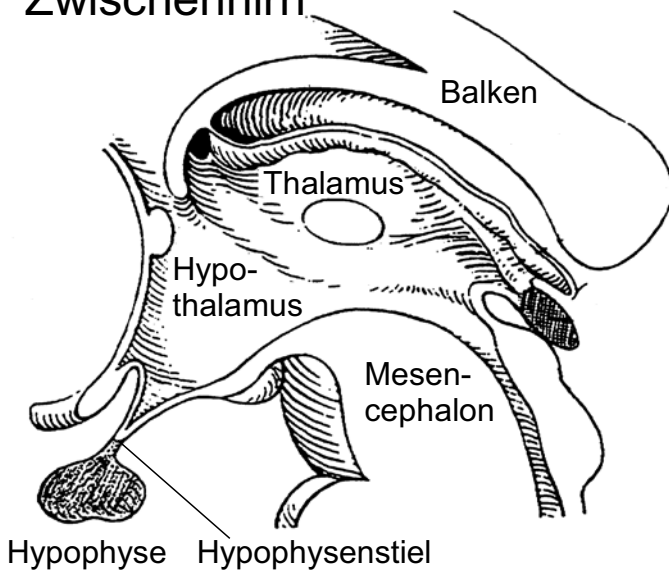
Mittelhirn (Mesencephalon)

Pons

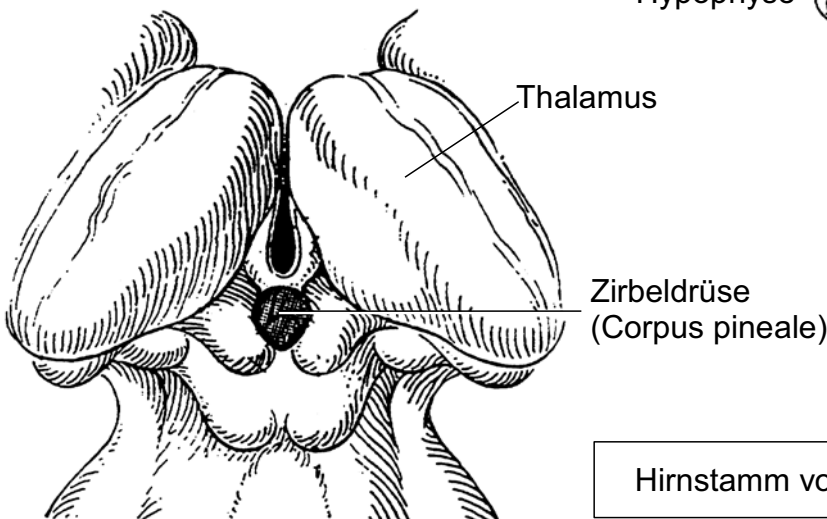
Medulla oblongata



Zwischenhirn

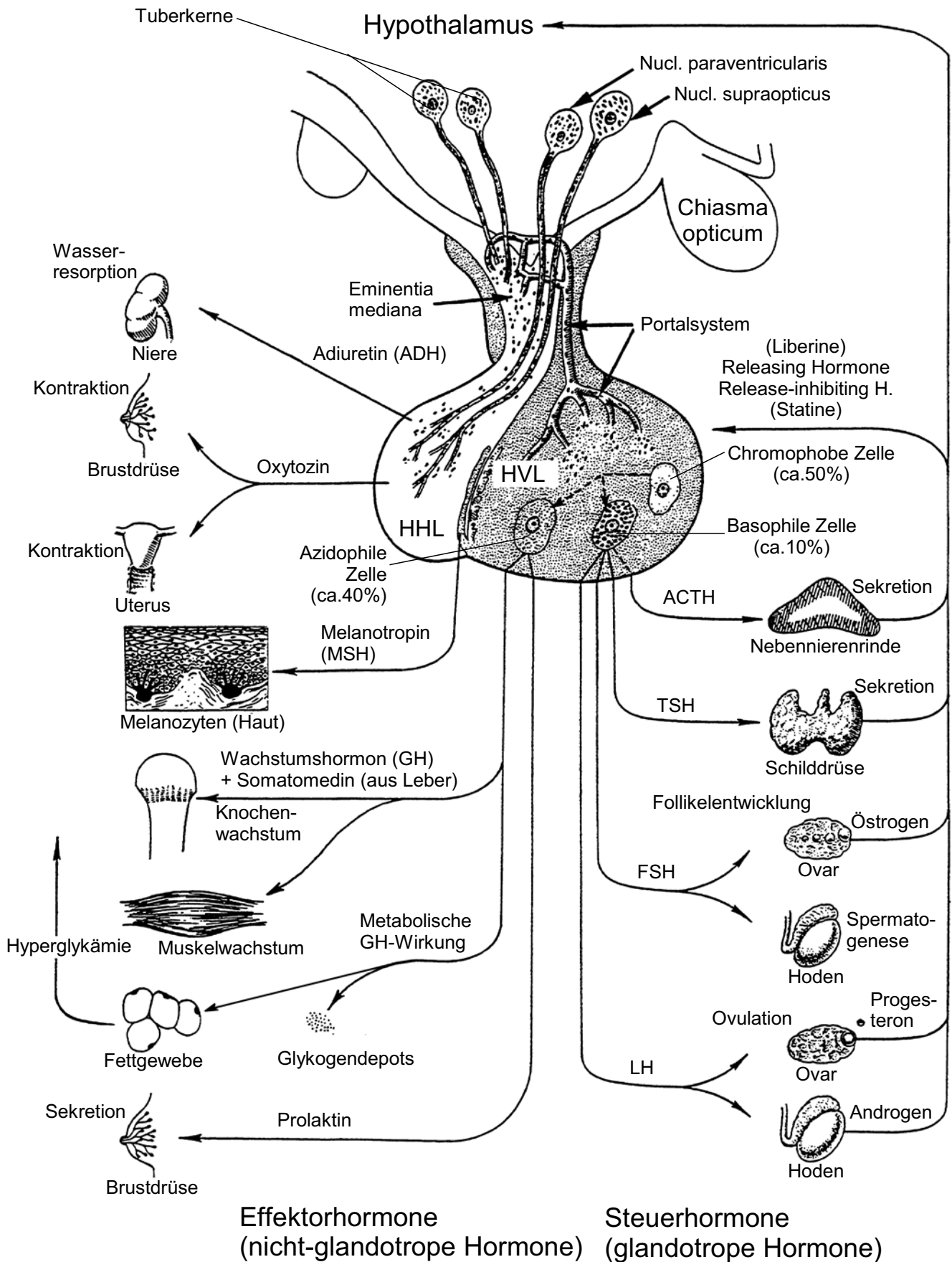


Hypophysäre Zellgruppen

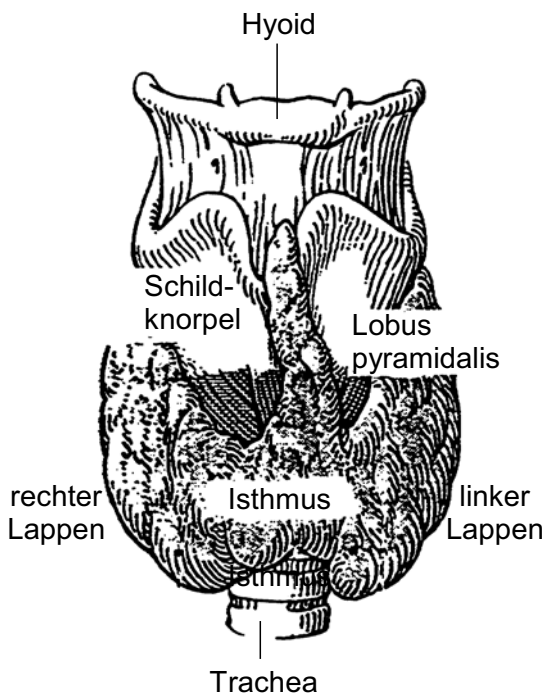


Hirnstamm von oben

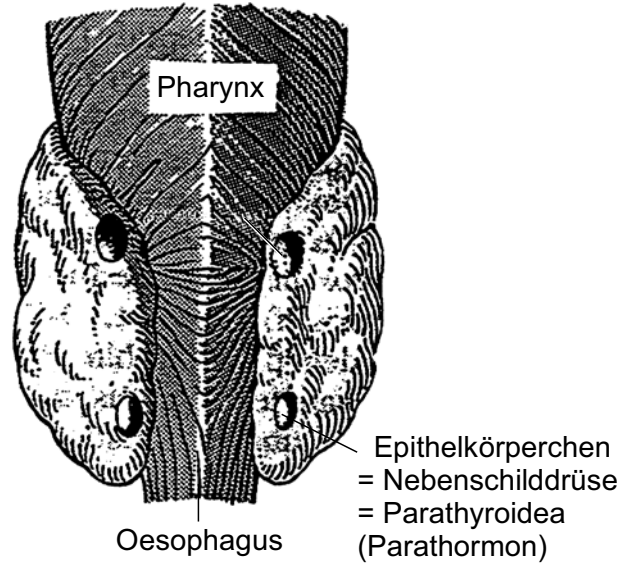
Hypothalamus und Hypophyse II



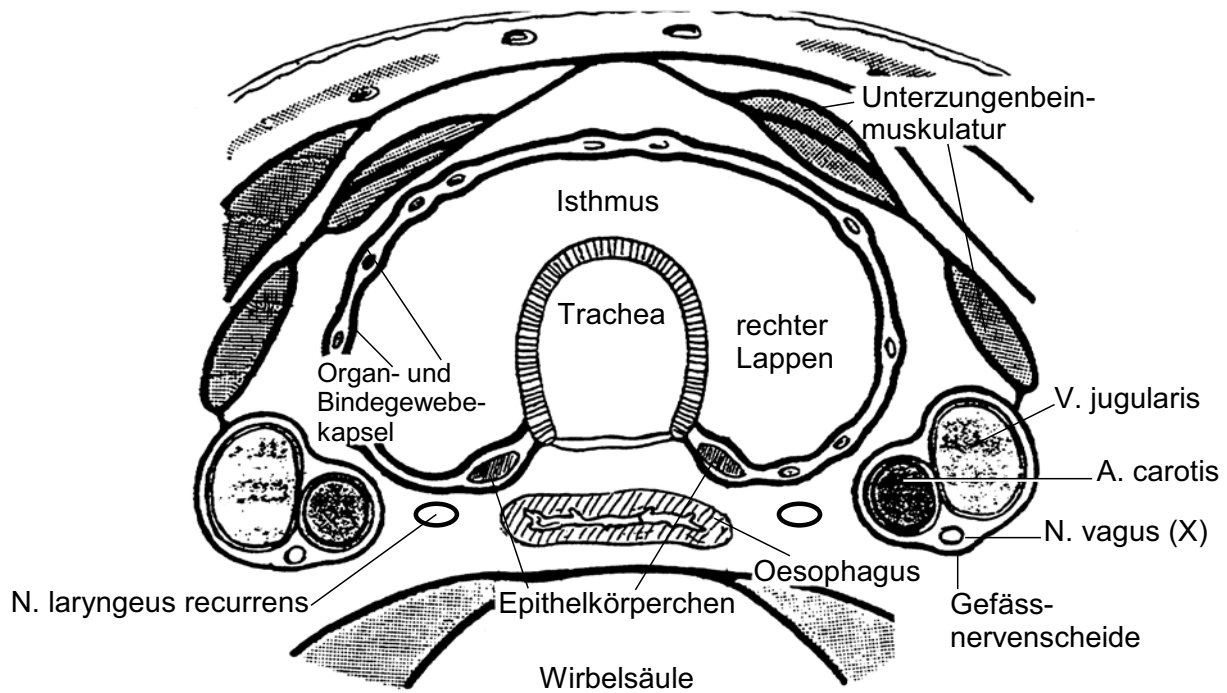
Schilddrüse I



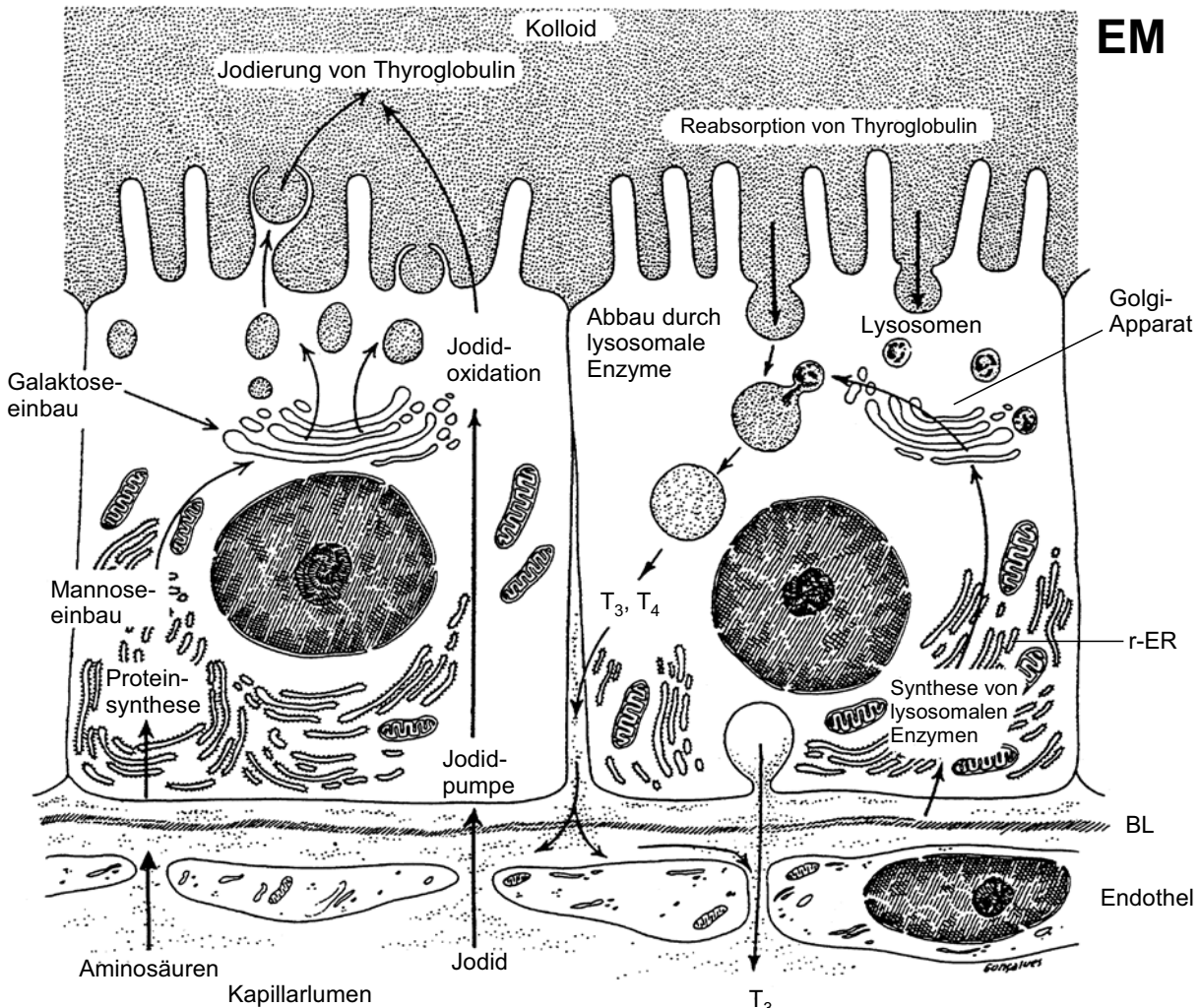
von ventral



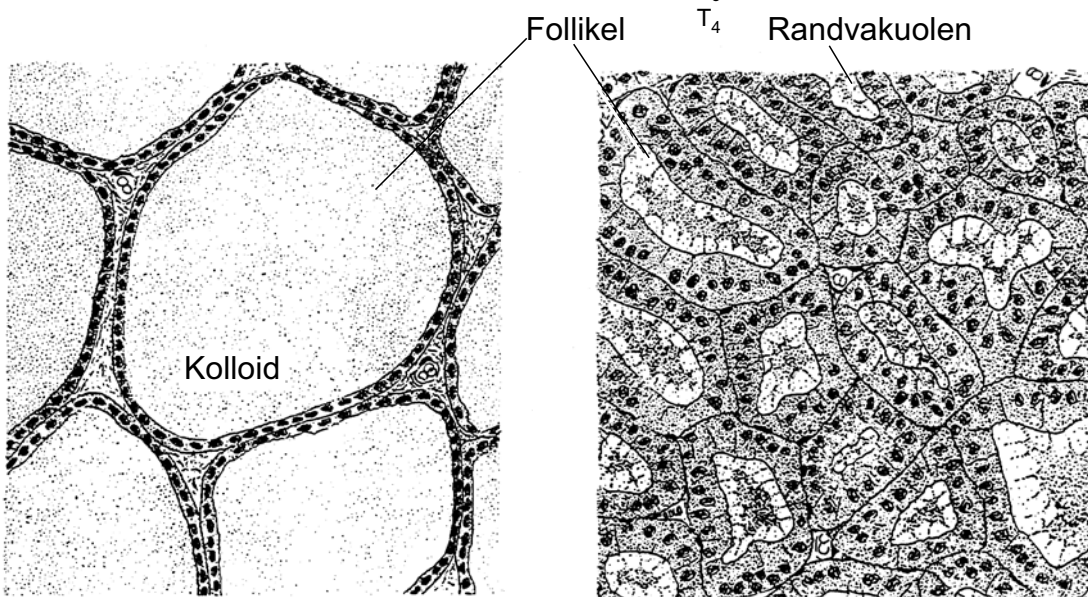
von dorsal



Schilddrüse II



EM



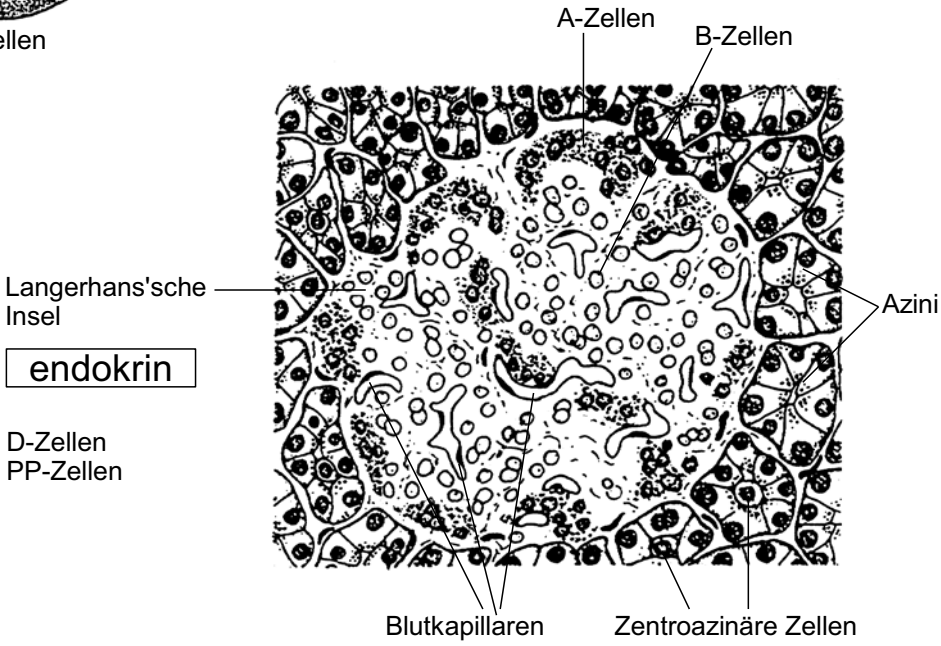
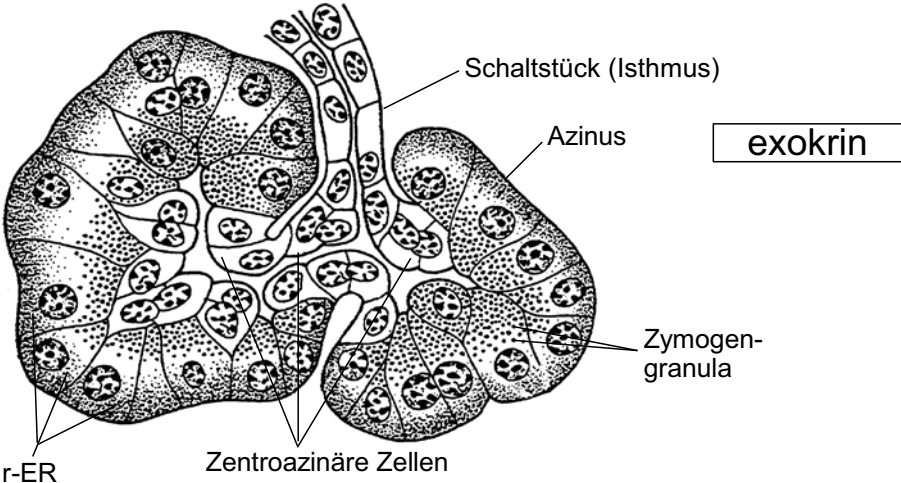
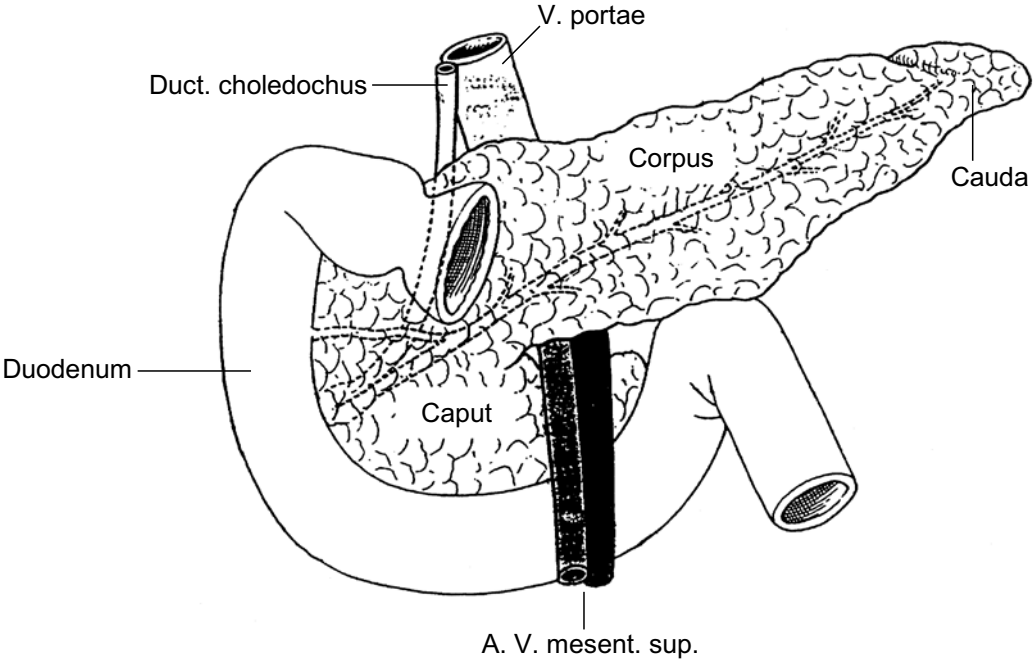
LM

Para-follikuläre Zellen = C-Zellen (Calcitonin)

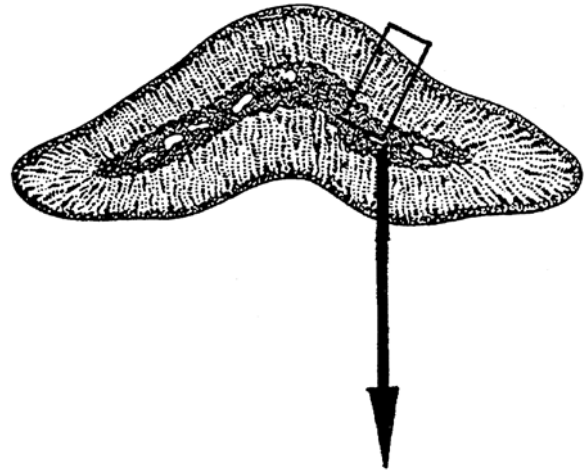
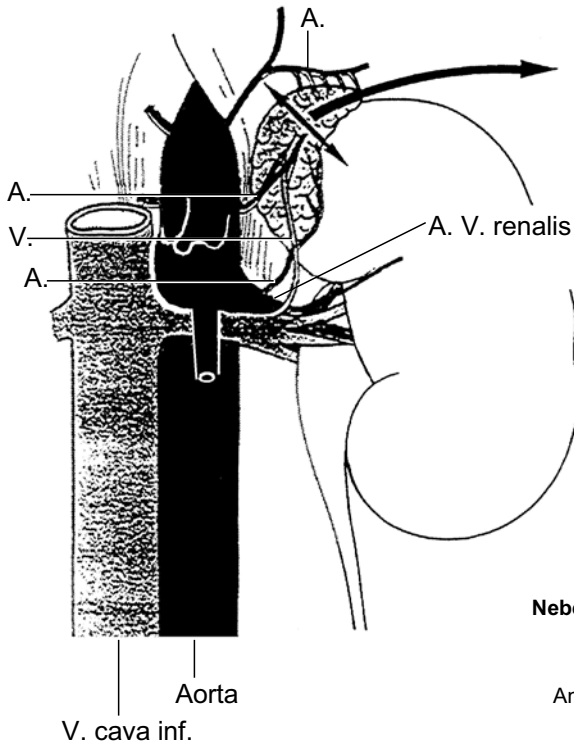
inaktiv

aktiv

Endokrines Pankreas

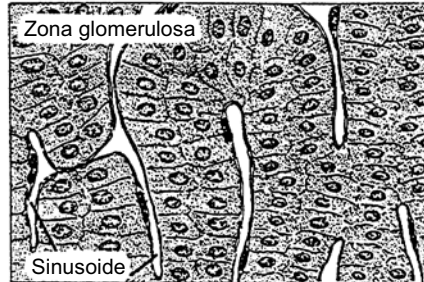


Nebenniere



was auf die Nebenniere wirkt

Angiotensin (und ACTH) stimulieren die Synthese von

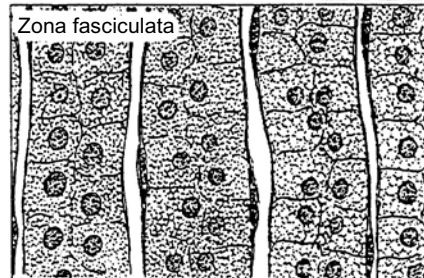


Hormone der Nebenniere

Aldosteron

Rinde

ACTH stimuliert die Synthese von

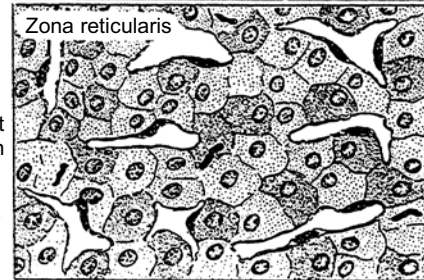


Glukokortikoide

Desoxykortikosteroide

17-Ketosteroide (Geschlechtshormone)

ACTH stimuliert die Synthese von

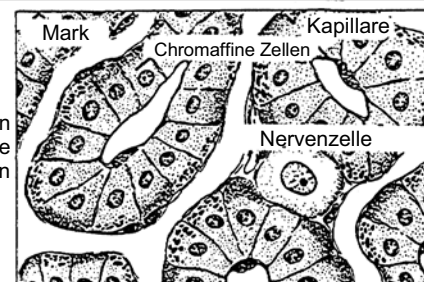


Glukokortikoide?

17-Ketosteroide (Geschlechtshormone)

Mark

Präganglionäre Fasern veranlassen die Freisetzung von



Adrenalin

Noradrenalin

Nervensystem Übersicht

ZNS

Gehirn

Telencephalon

Diencephalon

Mesencephalon

Metencephalon

Myelencephalon = Medulla oblongata

Hirnstamm:

- Tectum
- Tegmentum (Haube)
- Basis

Grosshirn

Riechhirn

Auge

Cerebellum

Rückenmark

Segment

Seitenventrikel (1.,2.)

3. Ventrikel

Aquädukt

4. Ventrikel

Zentralkanal

*schematische
Seitenansicht*

rostral

kaudal

PNS

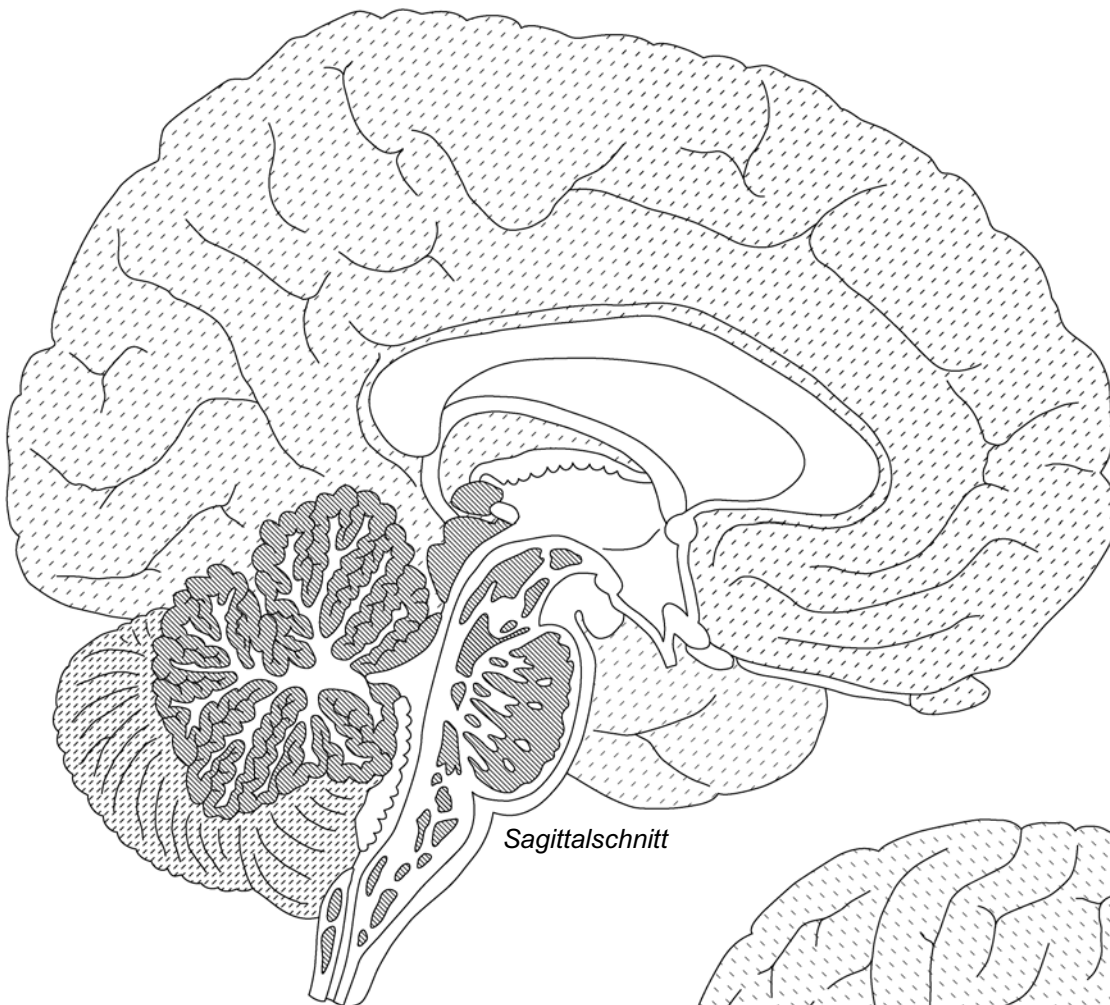
Hirnnerven:
(I), (II), III-XII

Spinalnerven:
C1-8, Th1-12, L1-5, S1-5
Vorderwurzel
Hinterwurzel

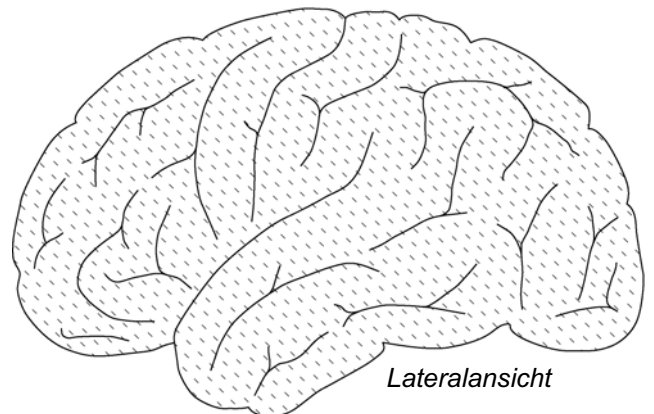
efferente Neurone

afferente Neurone
sensorische Ganglien
Spinalganglien
Dermatom

ZNS Gliederung I



Sagittalschnitt



Lateralansicht

Rückenmark
Zentralkanal

Medulla oblongata
4. Ventrikel
Cerebellum (Mark, Rinde)

Folien

Pons

Mesencephalon

Aquädukt

Thalamus

Hypothalamus

3. Ventrikel

Sehnervenkreuzung

Balken

vordere Kommissur

Grosshirn

Riechkolben

Primäre Felder:

- motorisch
- somatosensorisch
- visuell
- akustisch
- gustatorisch
- olfaktorisch

Assoziative Felder:

- Wernicke
- Broca

Frontallappen

Parietallappen

Temporallappen

Okzipitallappen

limbischer Lappen

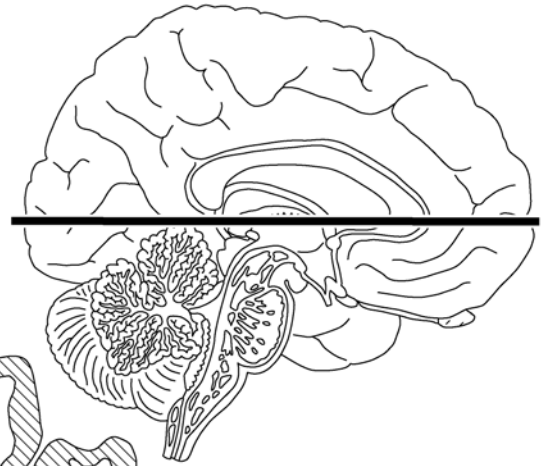
Windungen = Gyri

Furchen = Sulci

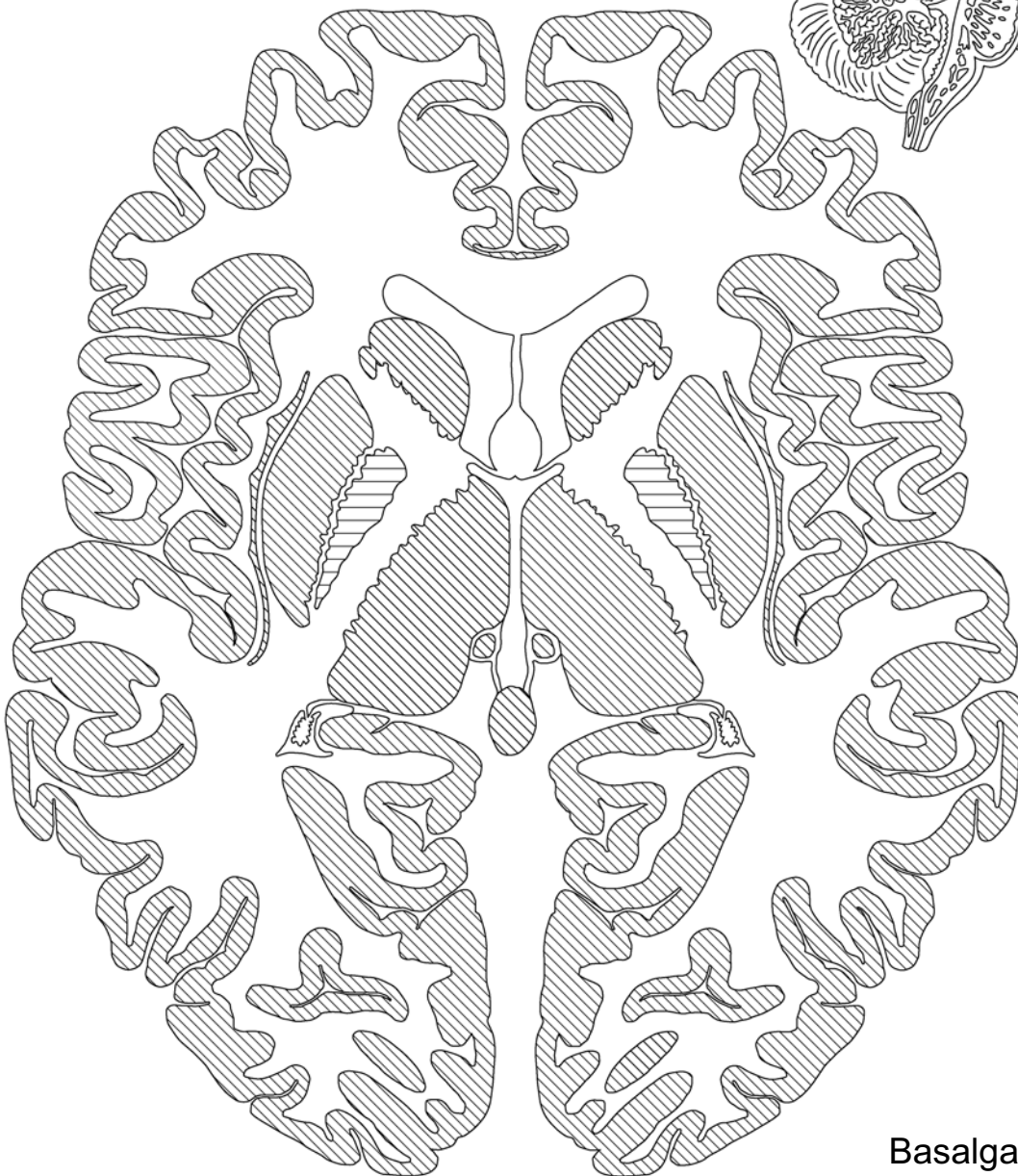
Sulcus lateralis

Sulcus centralis

ZNS Gliederung II



Horizontalschnitt



Thalamus
 Corpus geniculatum lat.
 Epithalamus
 Epiphyse
 3. Ventrikel

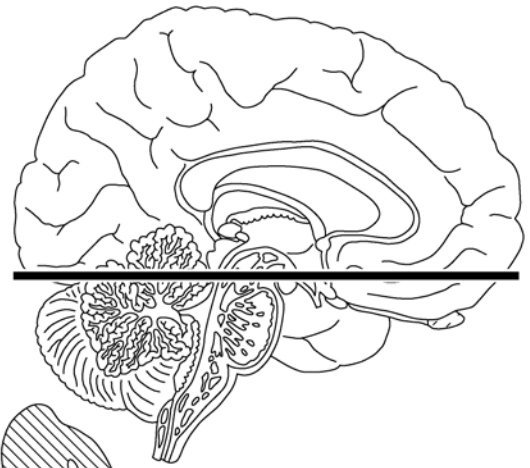
Frontallappen
 Parietallappen
 Temporallappen
 Insel
 Okzipitallappen
 Sehrinde
 limbischer Lappen
 Hippocampus

Basalganglien
 - Corpus striatum
 - Globus pallidus

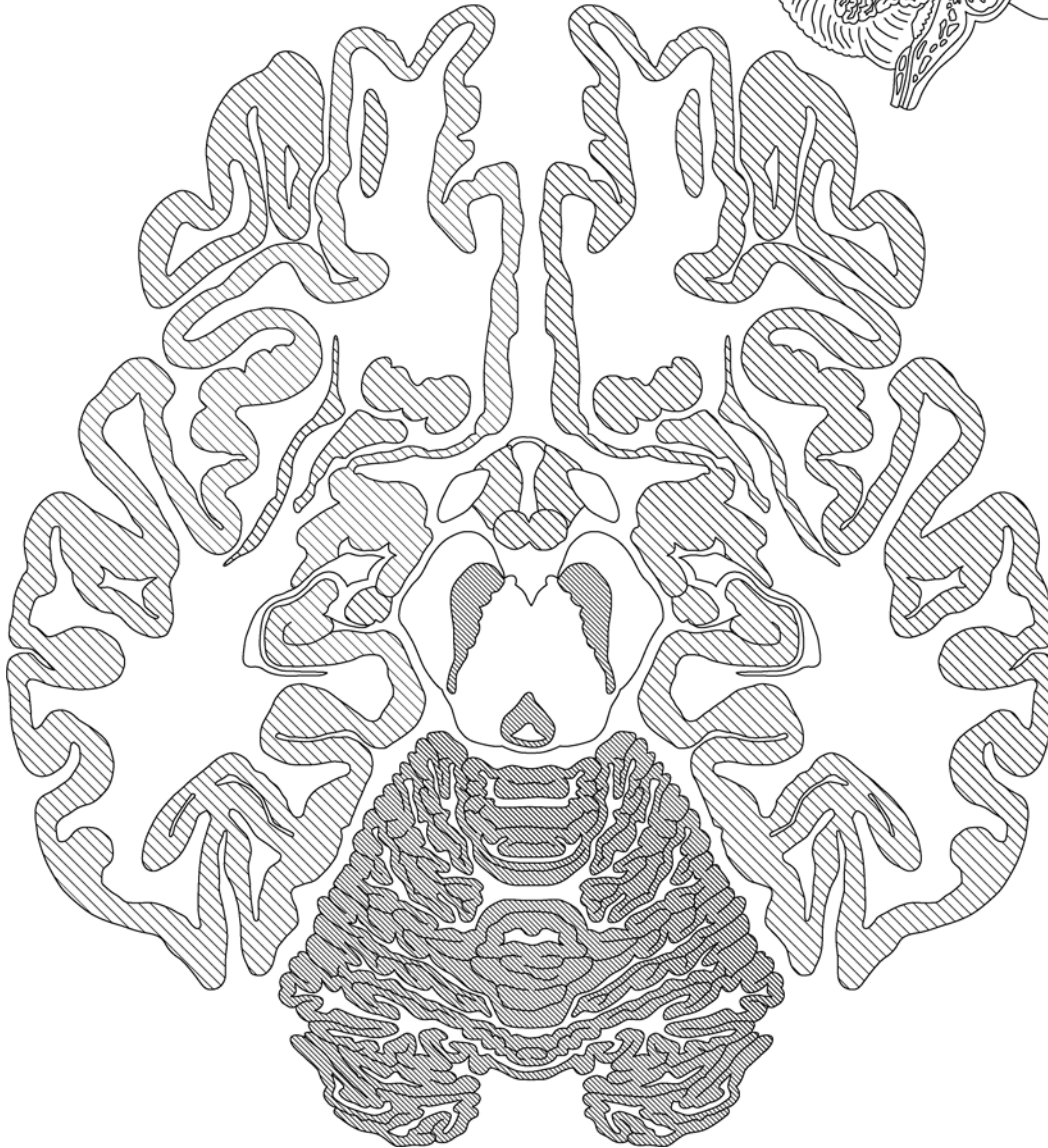
Assoziationsfasern
 Kommissurenfasern
 Projektionsfasern

Capsula interna
 Corpus callosum
 Seitenventrikel

ZNS Gliederung III



Horizontalschnitt



Hypothalamus
Tractus opticus
3. Ventrikel

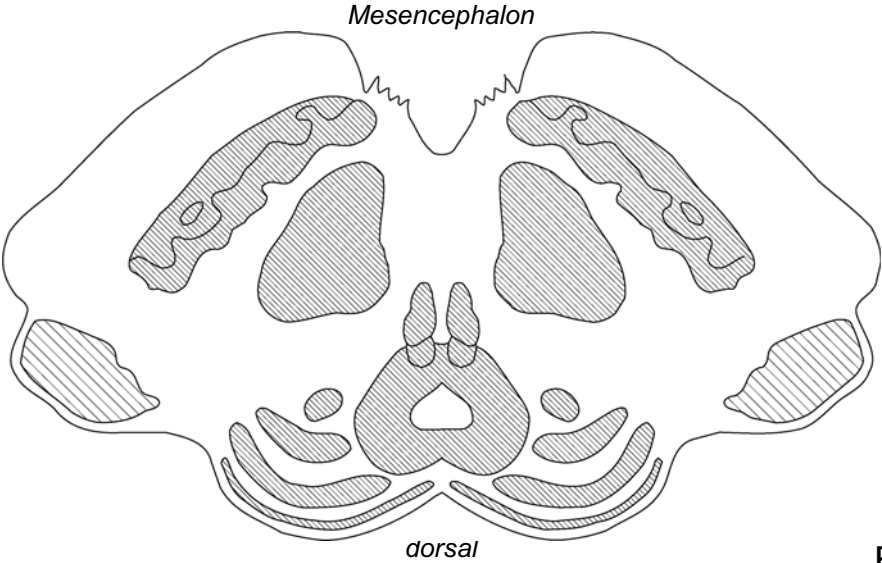
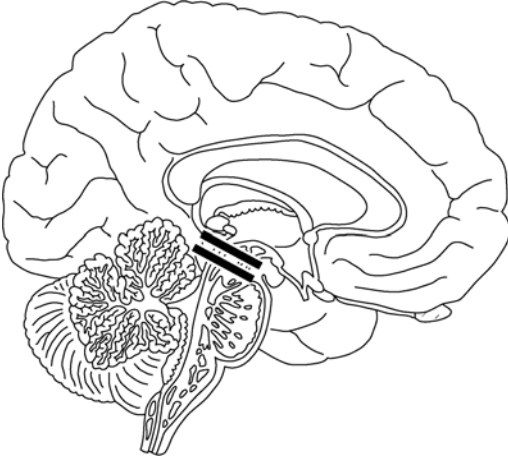
Mesencephalon
Aquädukt
Cerebellum

Frontallappen
Insel
Temporallappen
Okzipitallappen
limbischer Lappen
Hippocampus
olfaktorische Felder

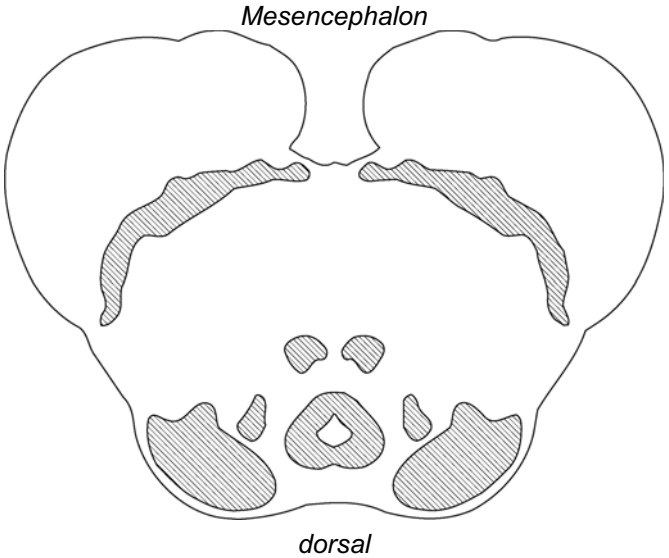
Basalganglien:
- Nucleus accumbens

Nucleus basalis
Clastrum
Amygdala
Seitenventrikel

ZNS Gliederung IV



Basis
Tegmentum
Tectum

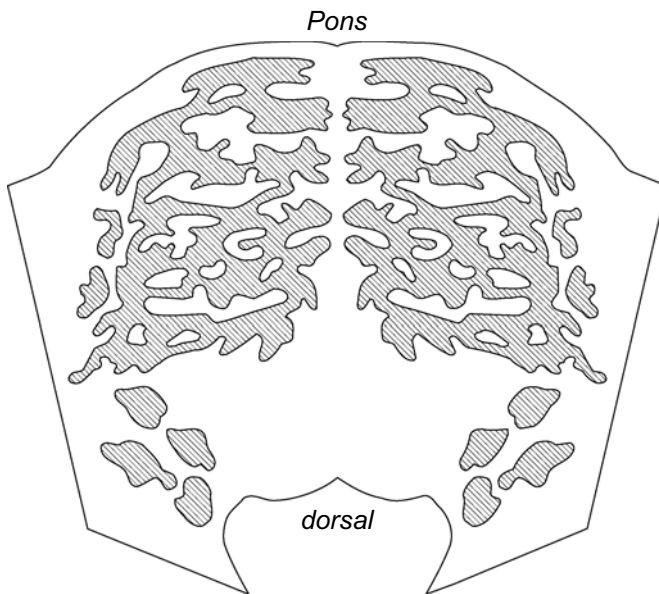
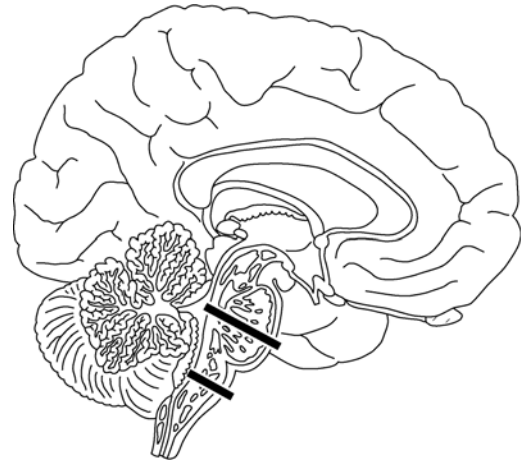


Formatio reticularis

Hirnschenkel
Aquädukt

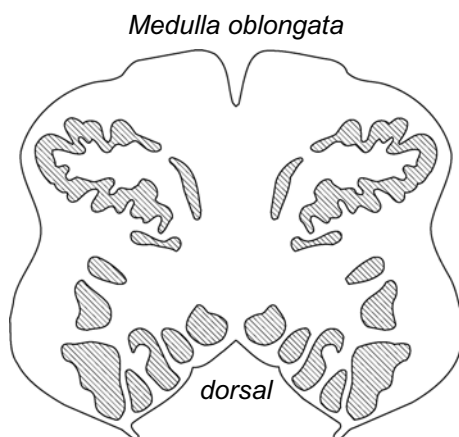
Substantia nigra
Nucleus ruber
motorische Kerne
sensorische Kerne
Colliculus superior
Colliculus inferior
zentrales Grau

ZNS Gliederung V



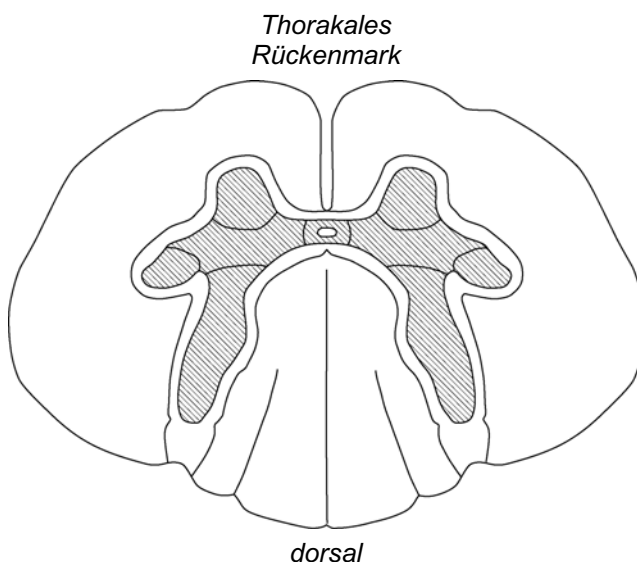
Basis
Tegmentum
Tectum

Formatio reticularis



Ponskerne
Pyramidenbahn
motorische Kerne
sensorische Kerne
4. Ventrikel
Kleinhirnstiele

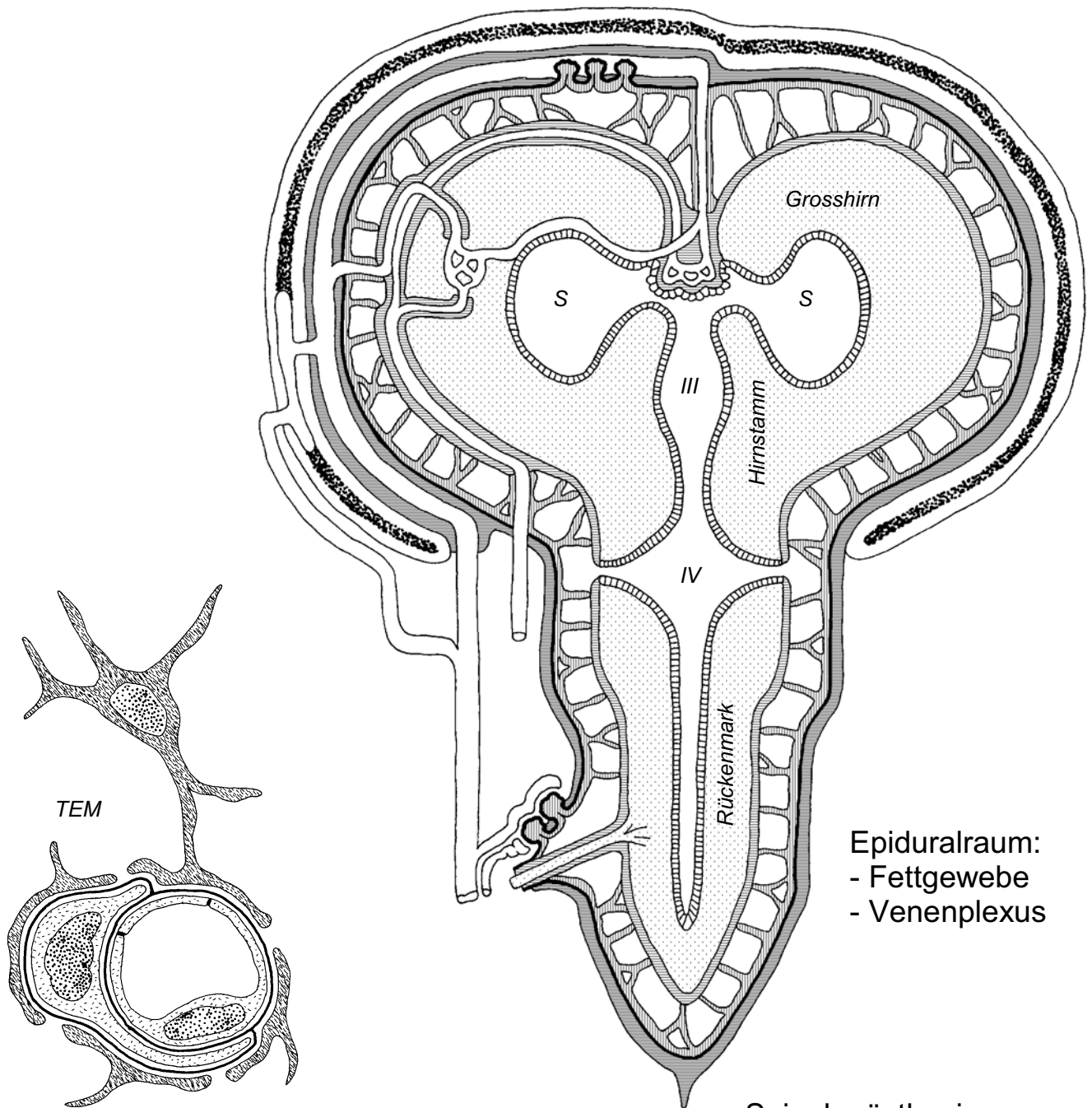
Pyramidenbahn
Olivenkern
motorische Kerne
sensorische Kerne
4. Ventrikel



Vorderstrang
Seitenstrang
Hinterstrang

Vorderhorn
Seitenhorn
Hinterhorn
Zentralteil
Zentralkanal

ZNS Hüllen und Gefäße



Epiduralraum:
 - Fettgewebe
 - Venenplexus

Spinalanästhesie
 Epiduralanästhesie

Arterien
 tiefe Venen
 oberflächliche Venen
 Durasinus

Bluthirnschranke
 Astrozyt
 tight capillary

Harte Hirnhaut:
 - Dura mater

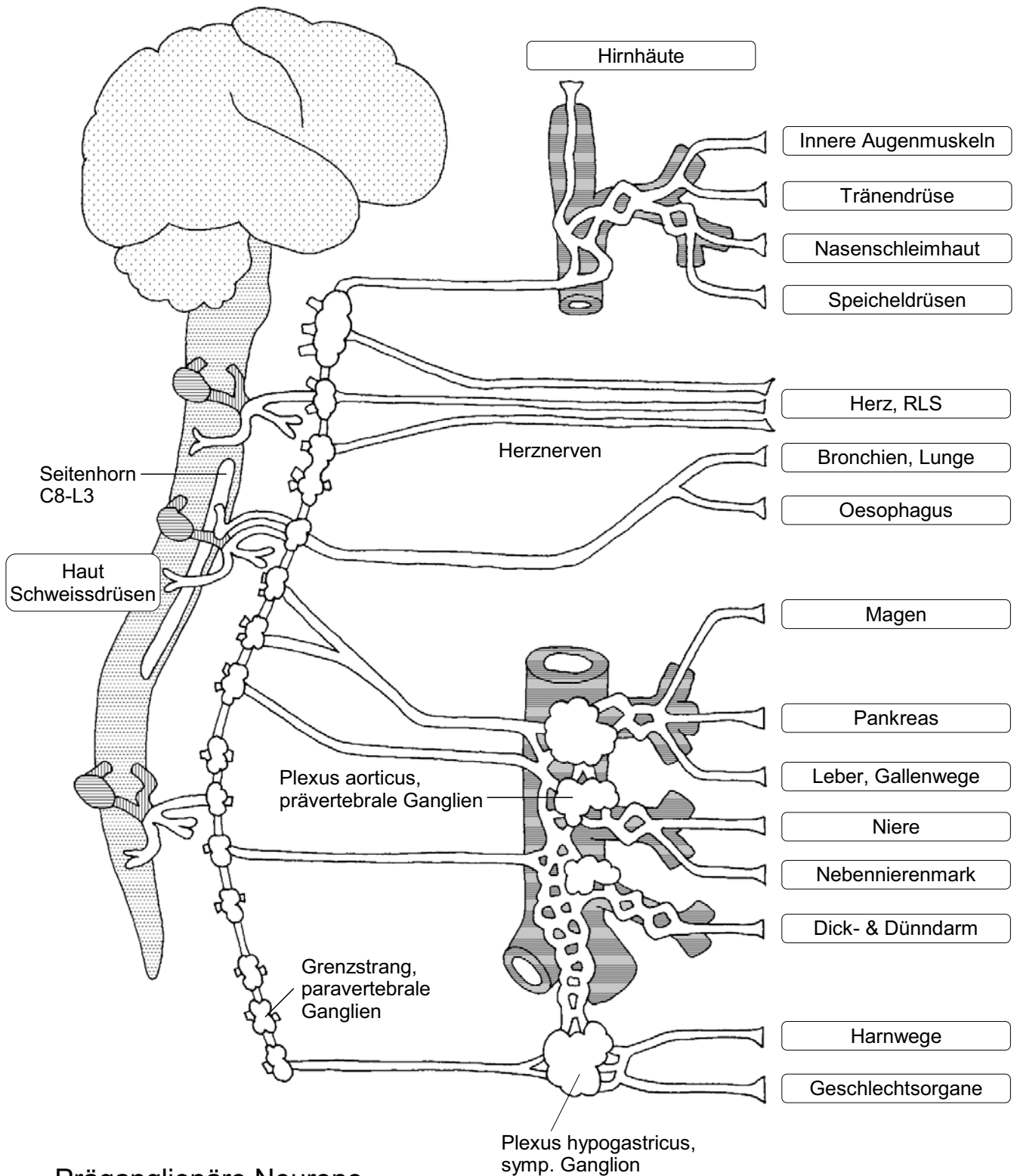
Weiche Hirnhaut:
 - Arachnoidea
 - Pia mater

Neurothel

Liquor cerebrospinalis
 Subarachnoidalraum
 Ventrikel, Aquädukt
 Ependym

Plexus choroideus
 Arachnoidalzotten

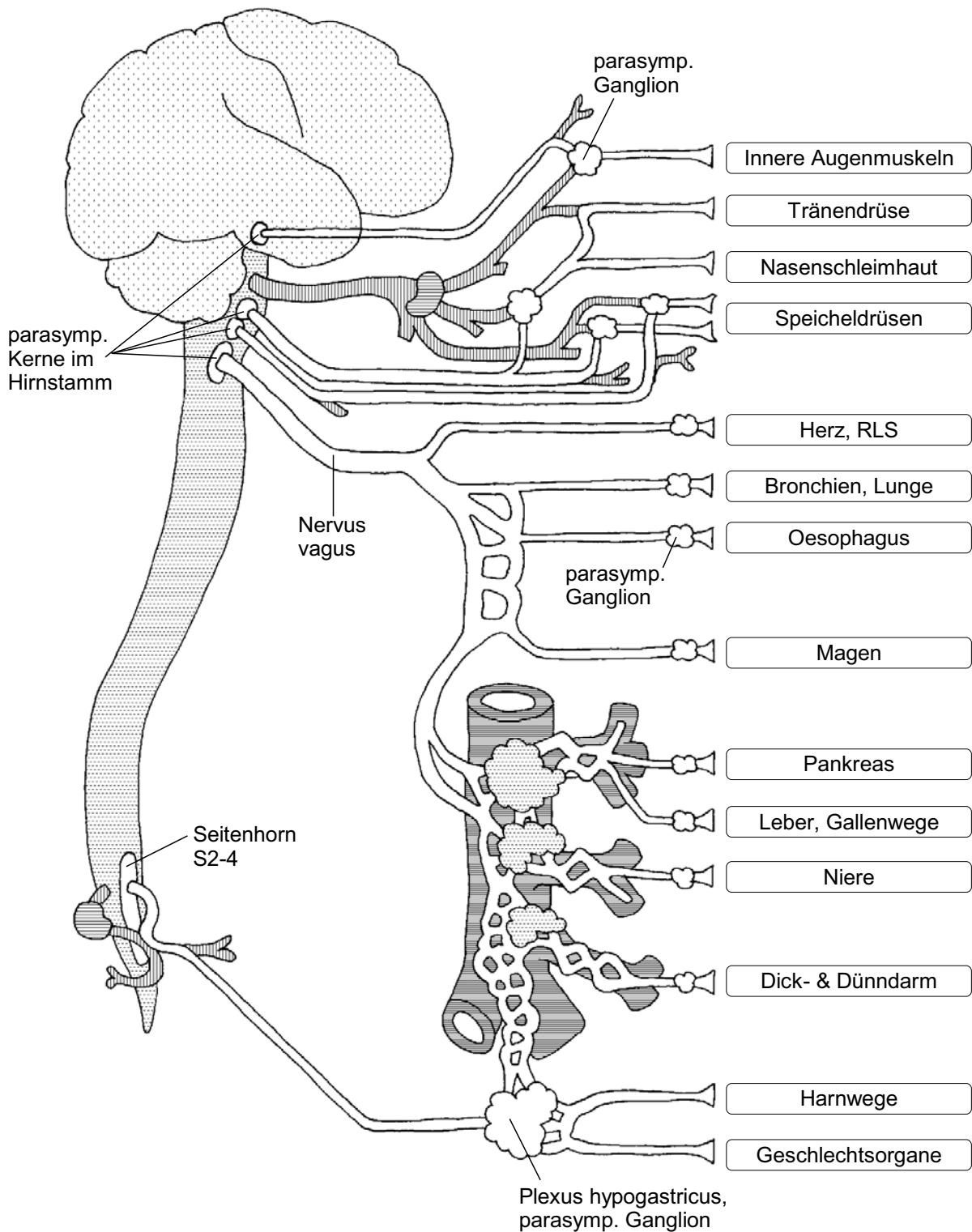
VNS, Sympathicus



Präganglionäre Neurone
+ Fasern (ACh)

Postganglionäre Neurone
+ Fasern (NA, ACh)

VNS, Parasympathicus

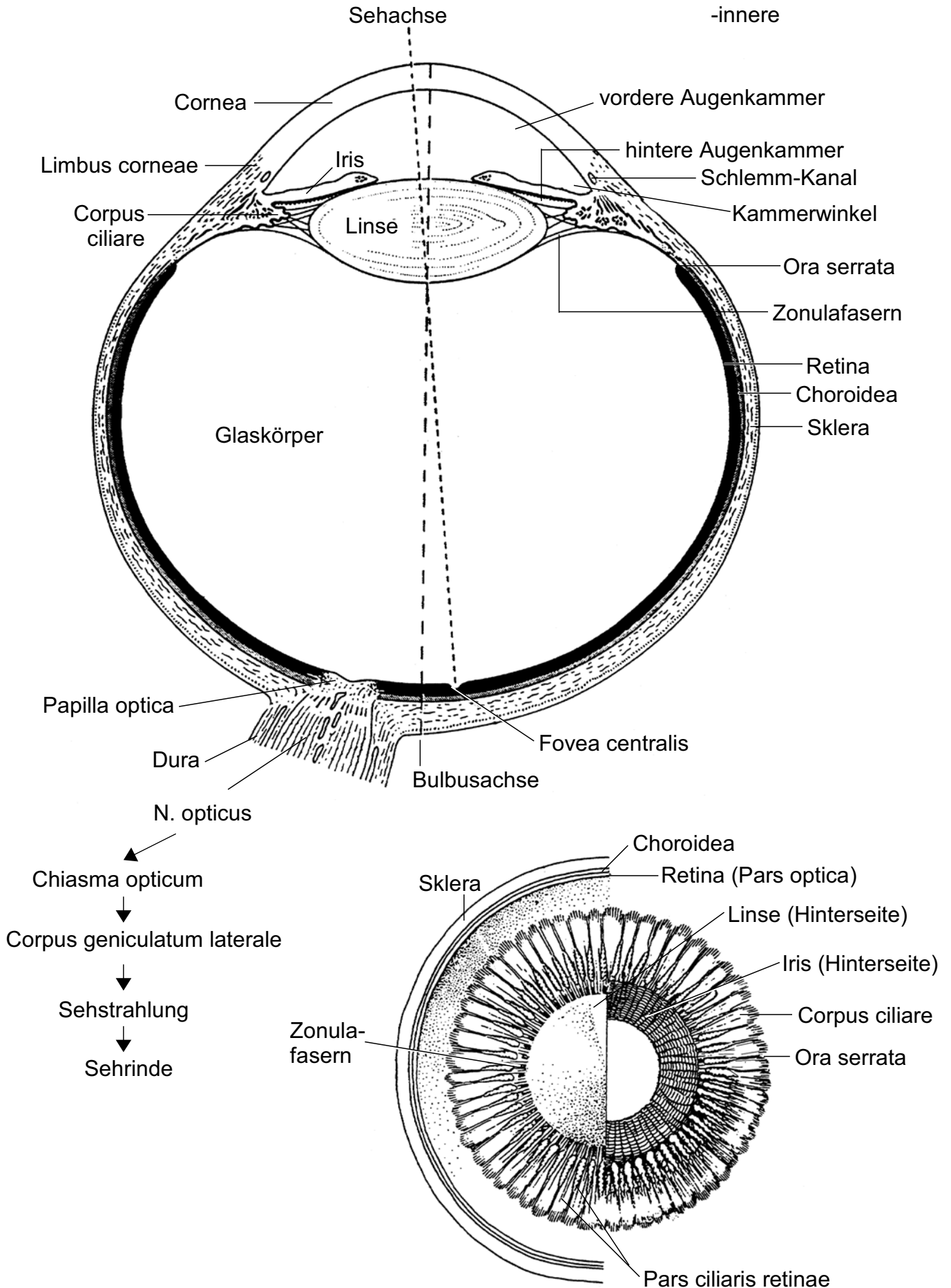


Präganglionäre Neurone
+ Fasern (ACh)

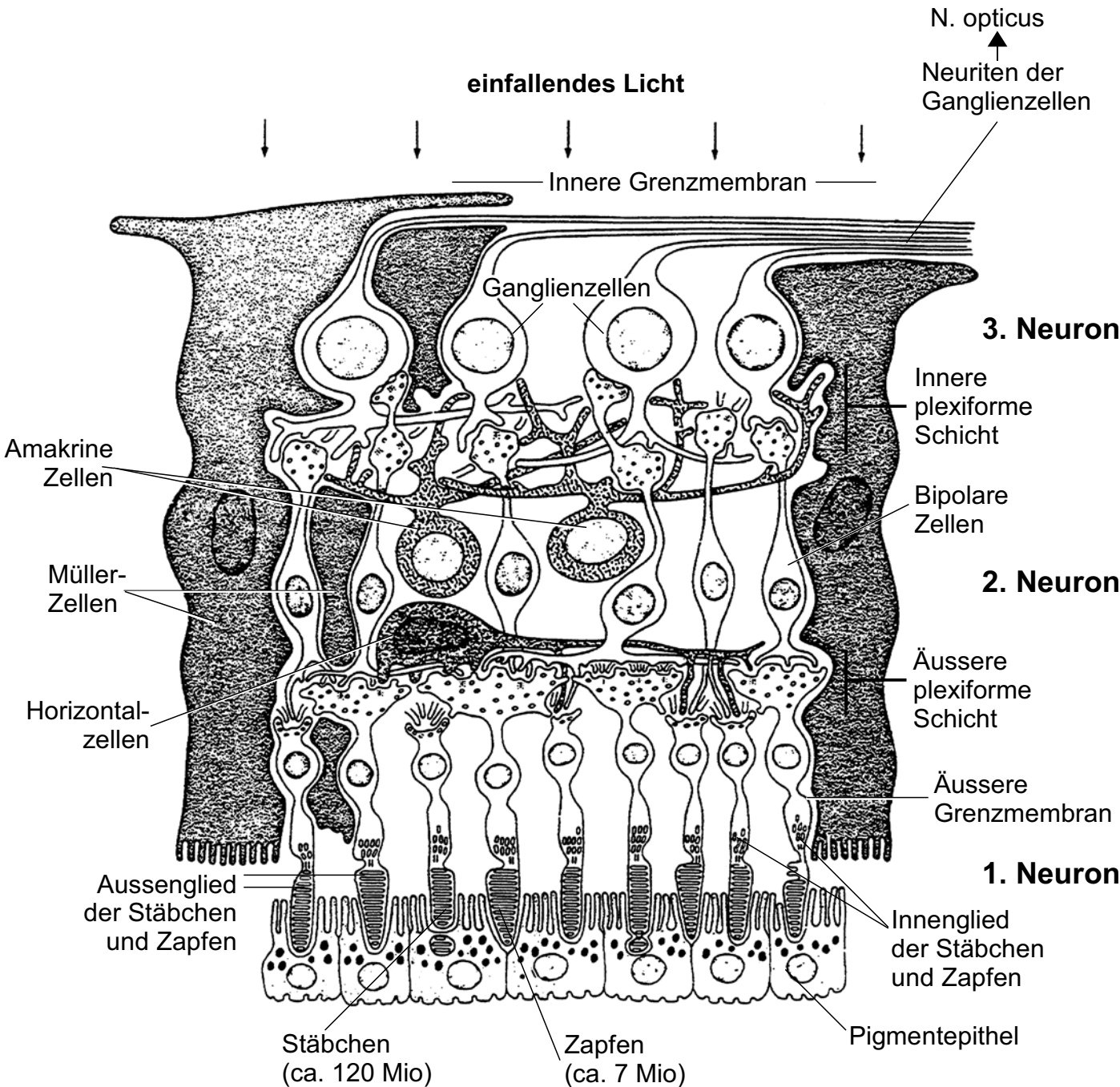
Postganglionäre Neurone
+ Fasern (ACh)

Augapfel

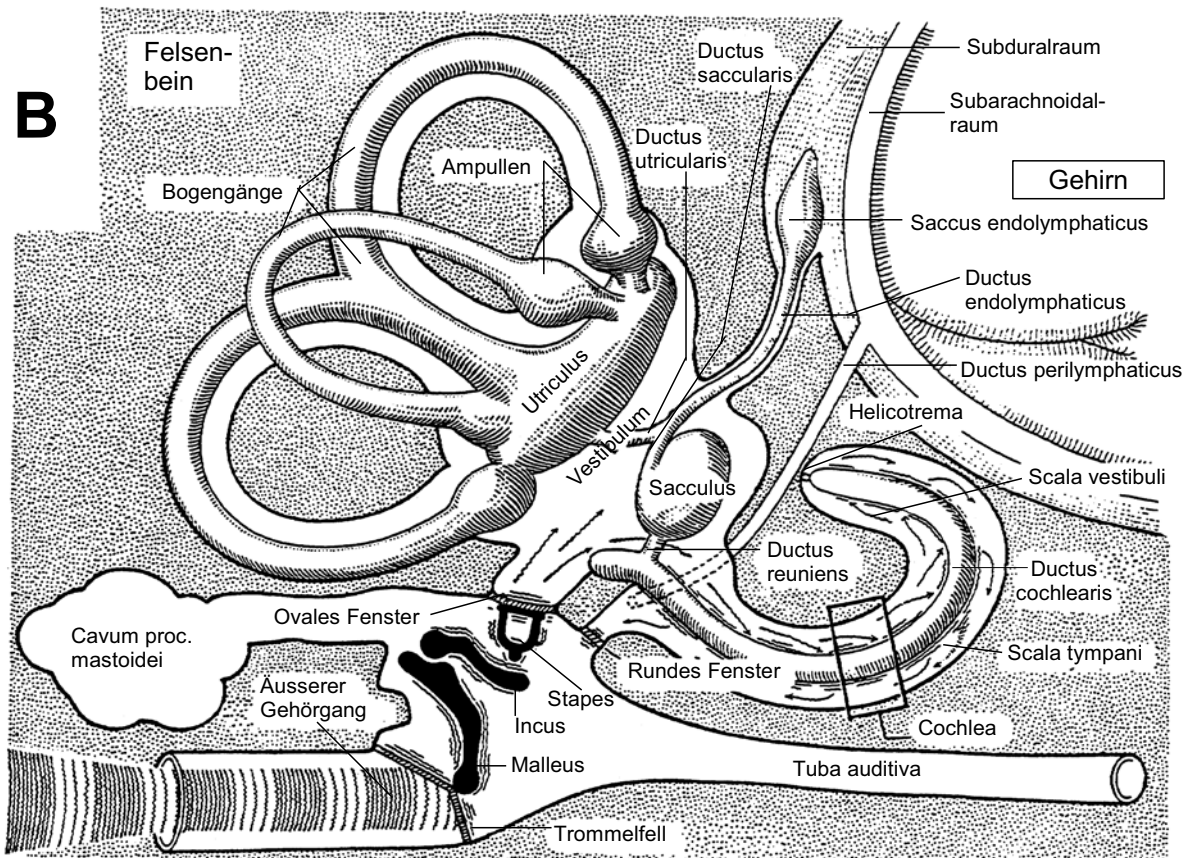
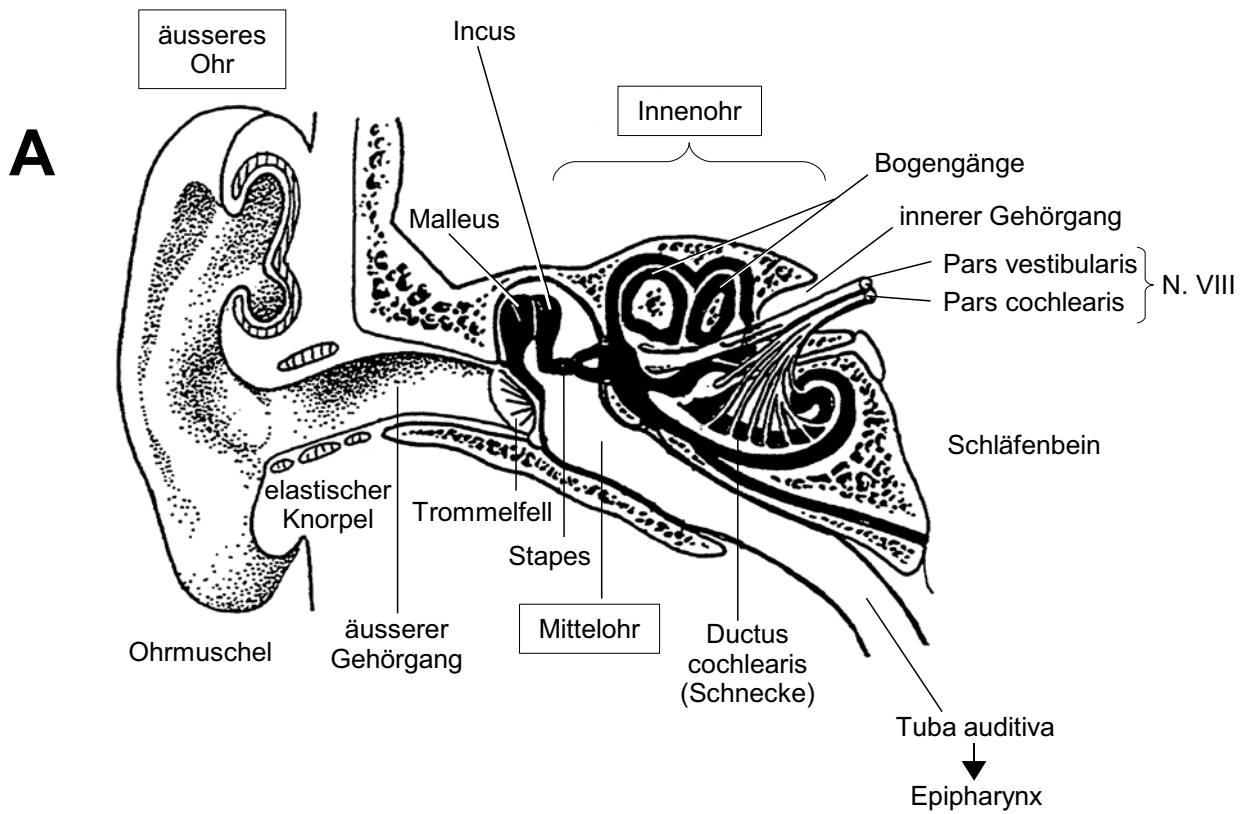
Augenhaut
 -äussere
 -mittlere
 -innere



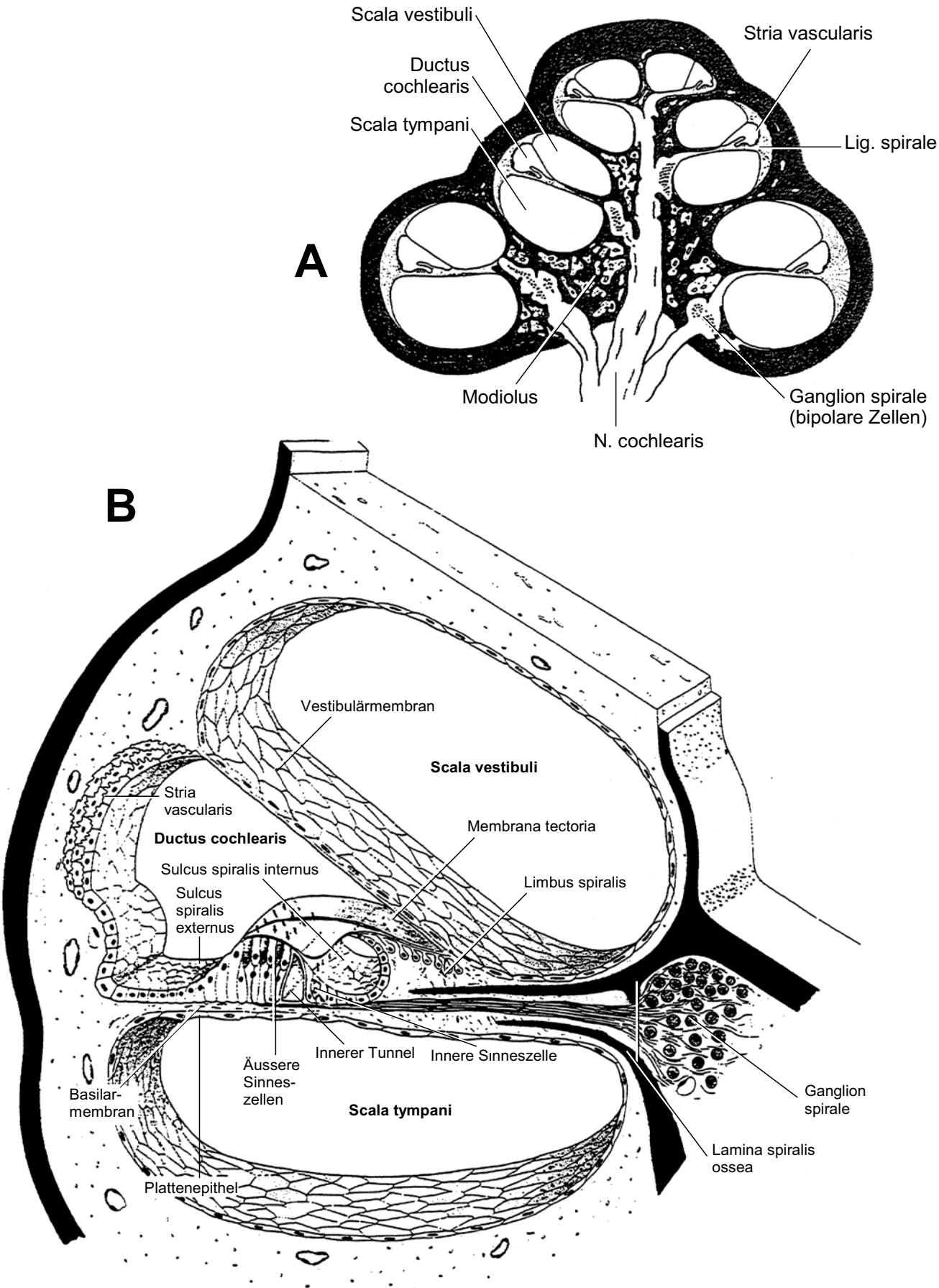
Retina



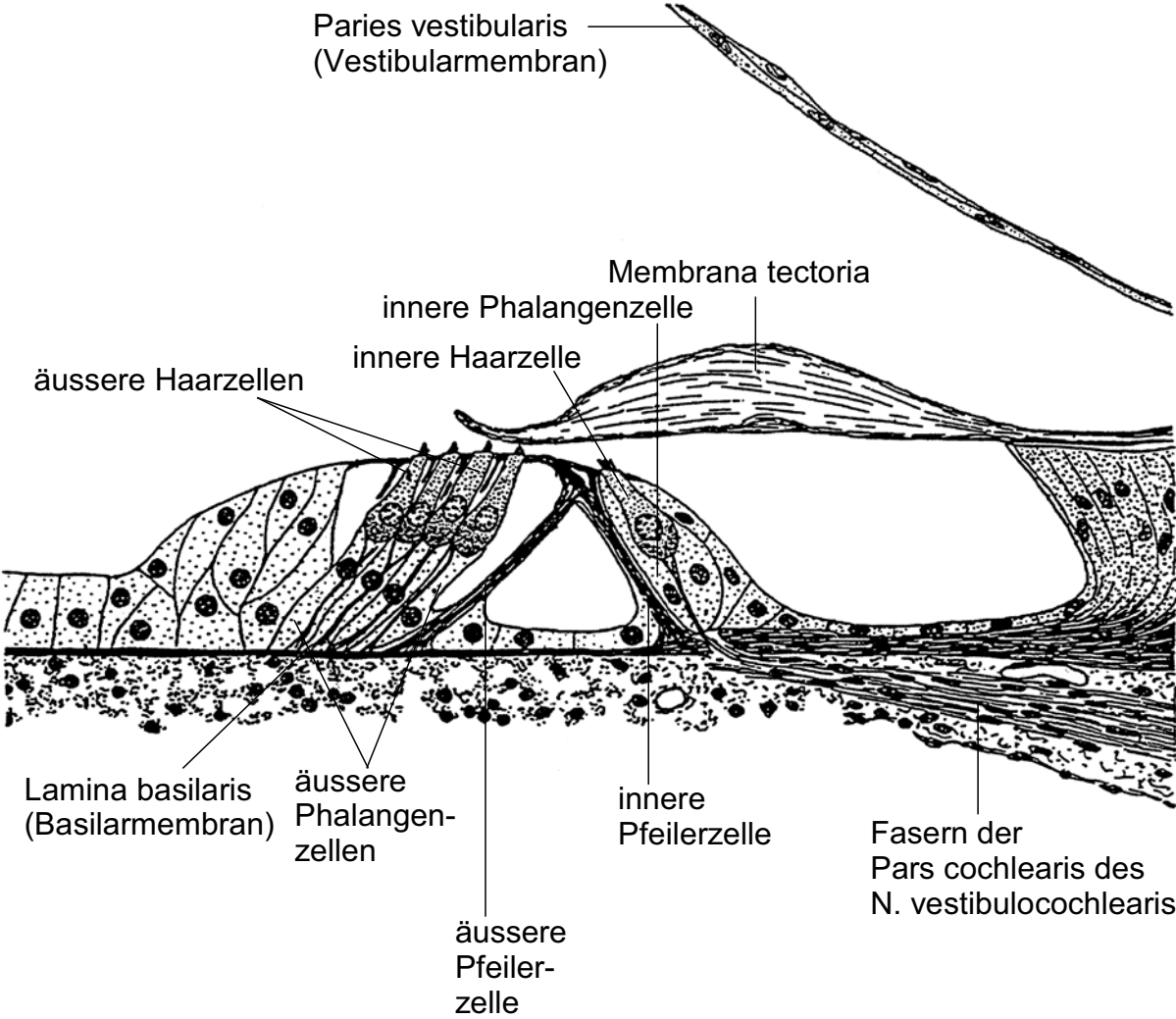
Ohr



Cochlea

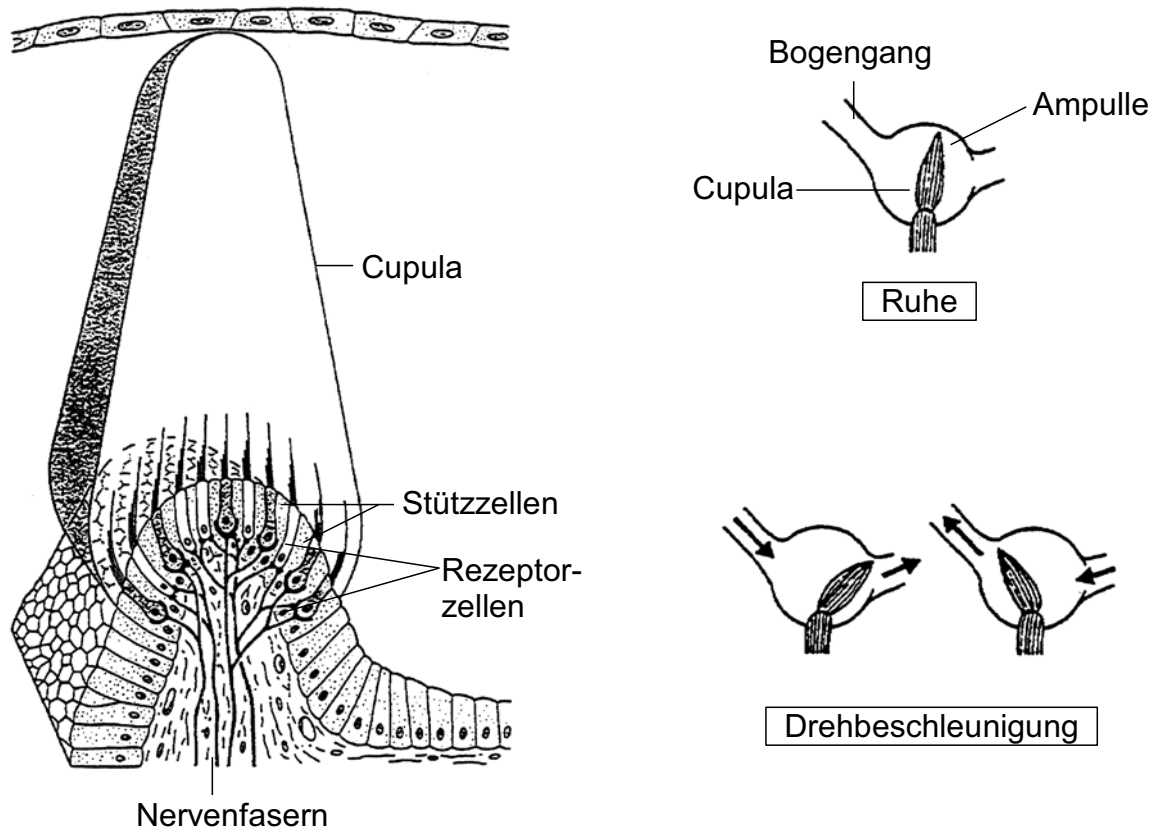


Corti-Organ

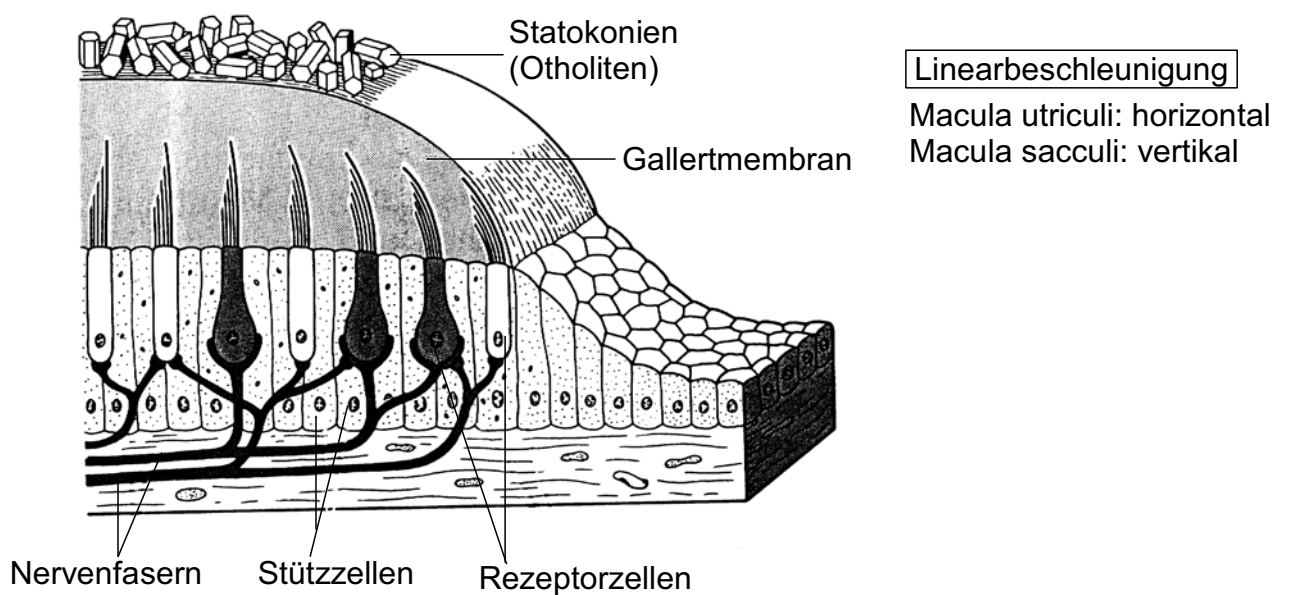


Gleichgewichtsorgan

A Crista ampullaris

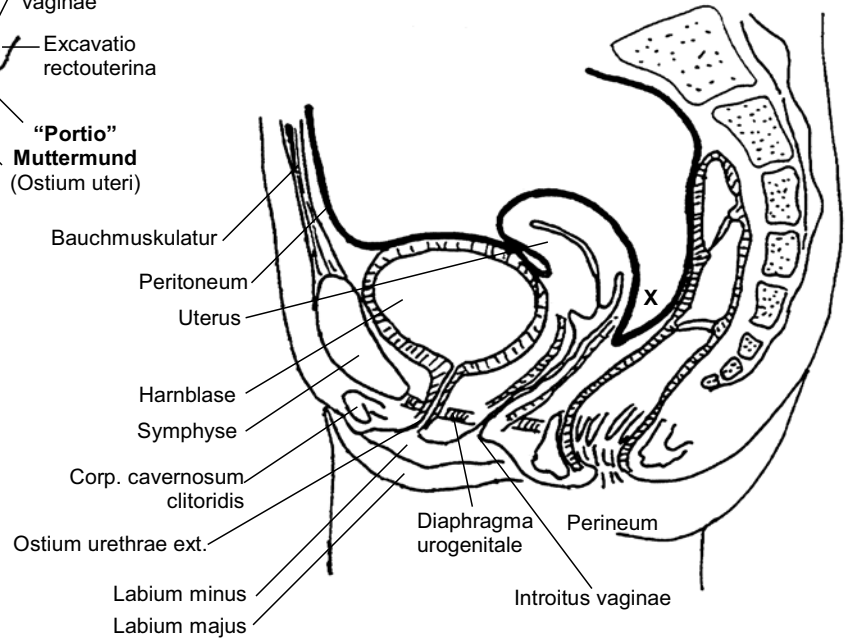
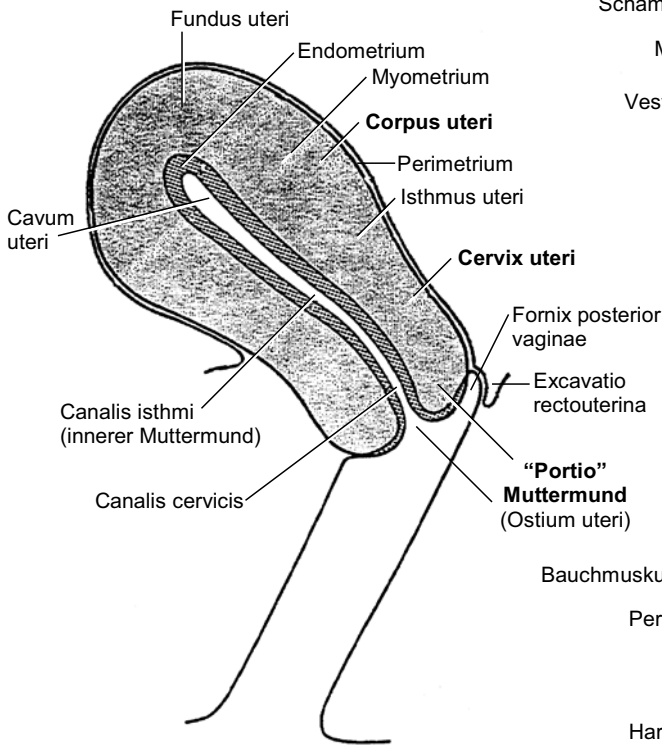
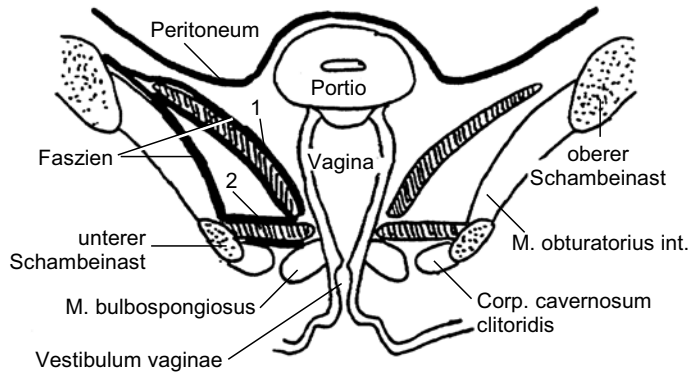


B Macula statica

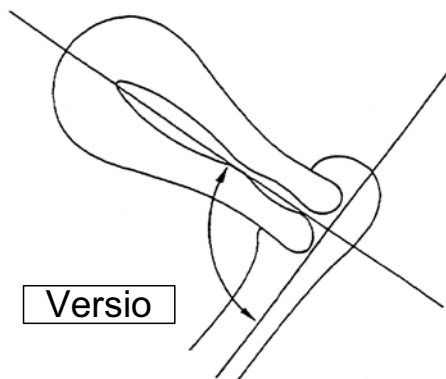


Uterus

- Beckenboden:
- 1 Diaphragma pelvis (M. levator ani)
 - 2 Diaphragma urogenitale

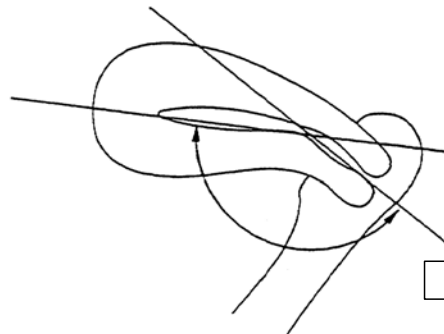


X Excavatio recto-uterina (Douglas)



Versio

Anteversio 90°

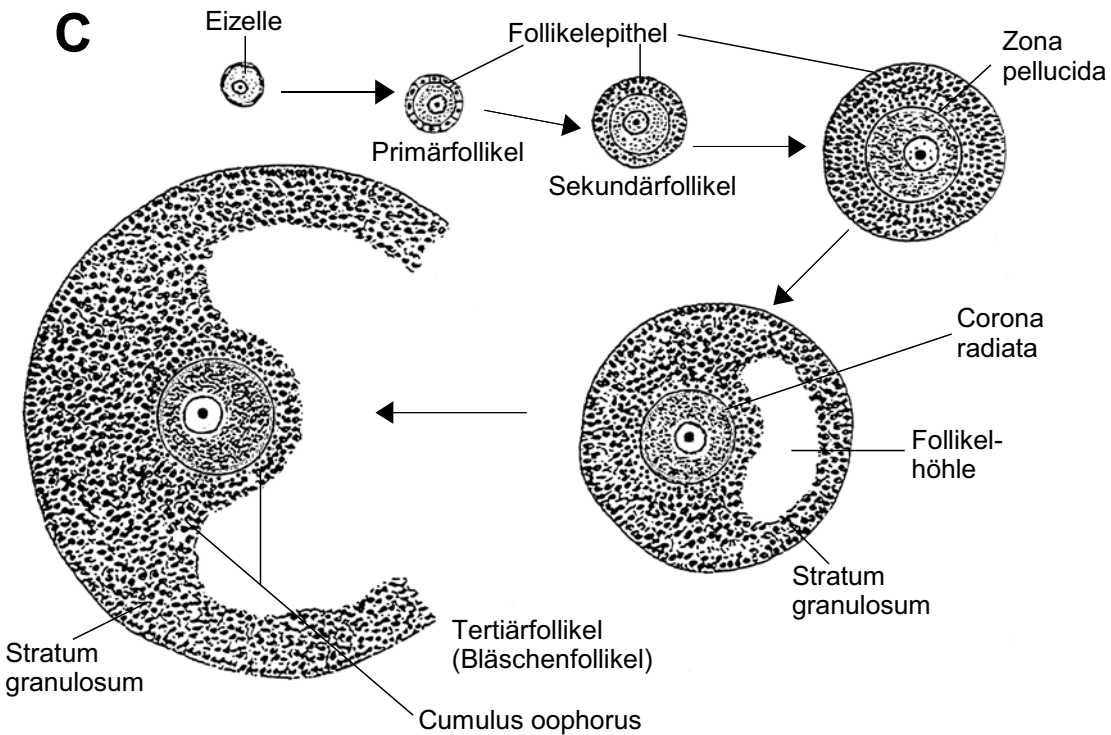
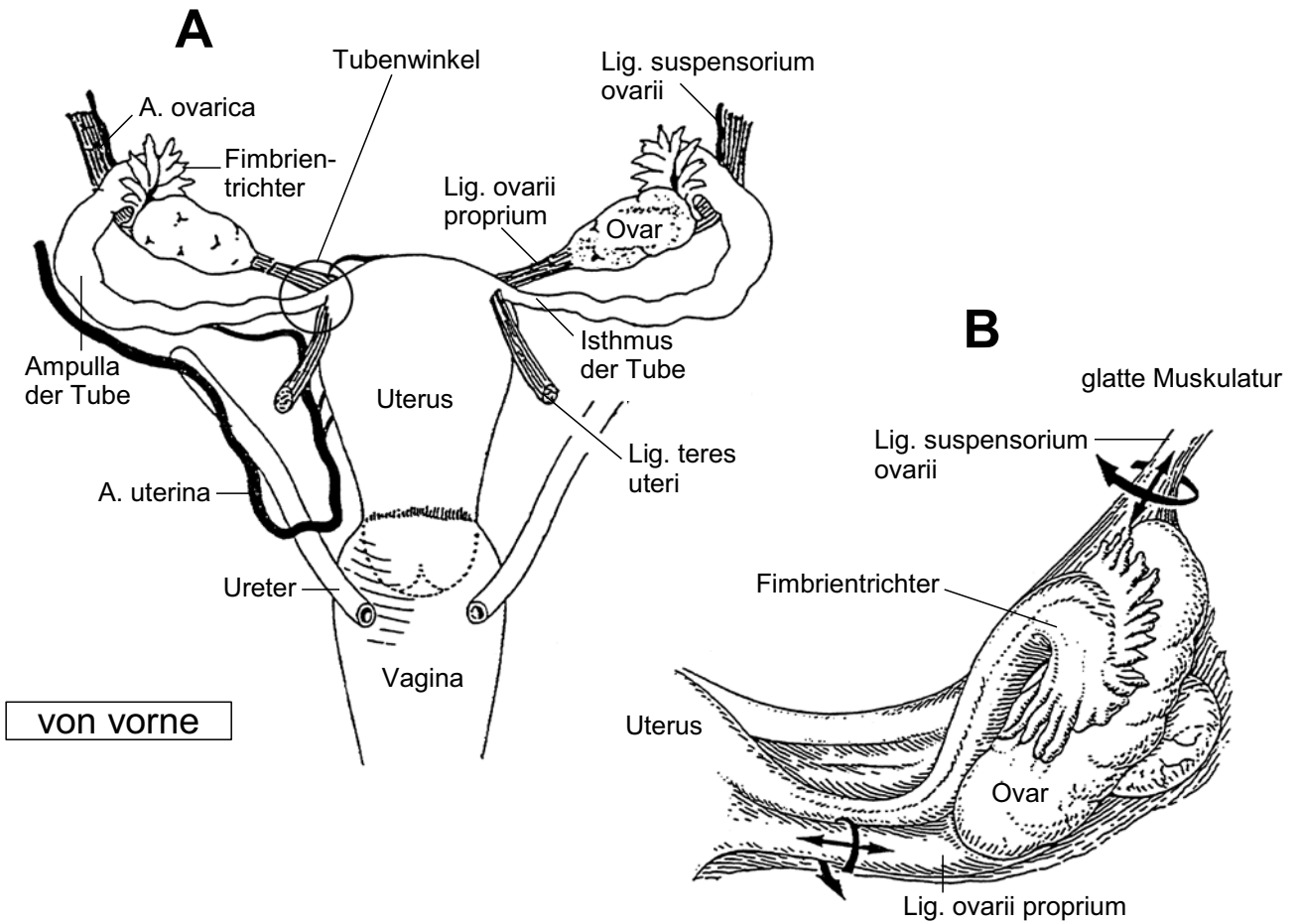


Flexio

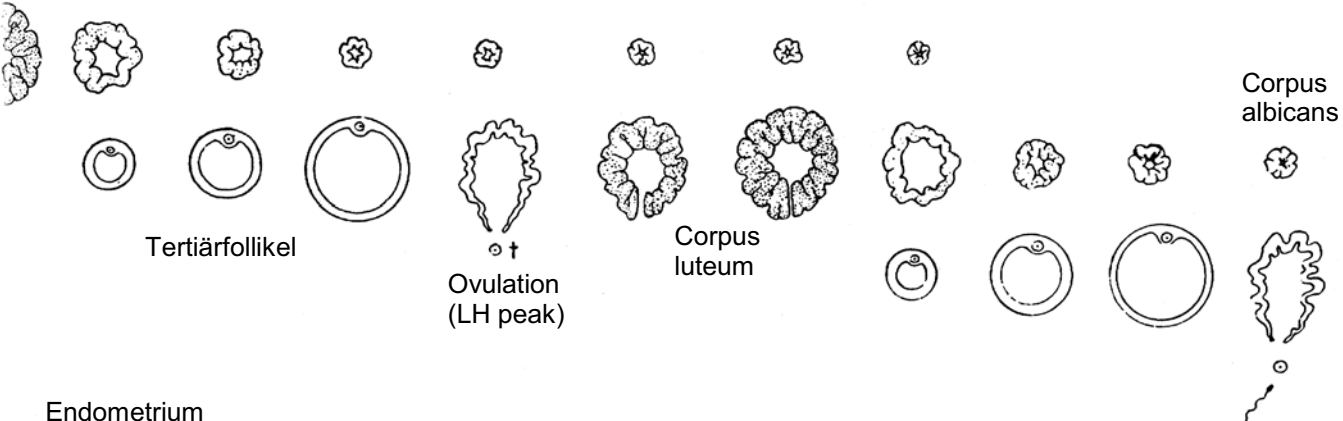
Anteflexio 170°

Positio (med./ lat.)

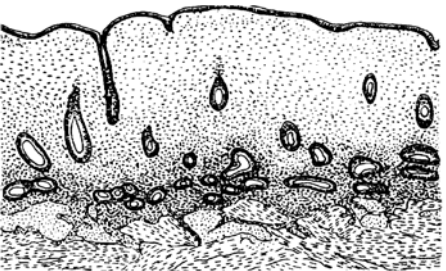
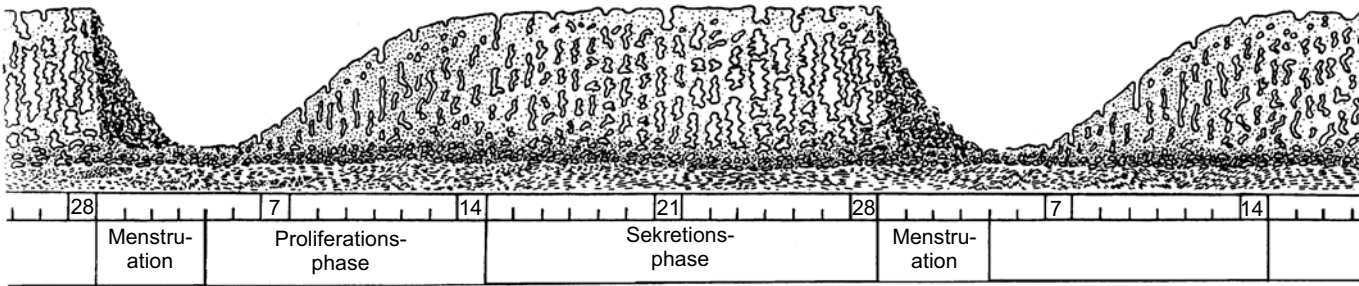
Ovar



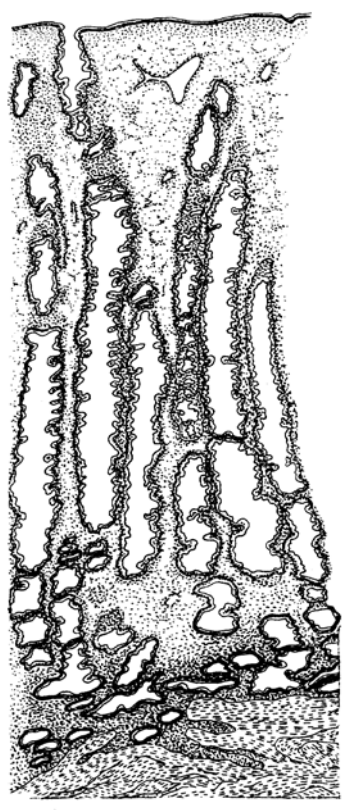
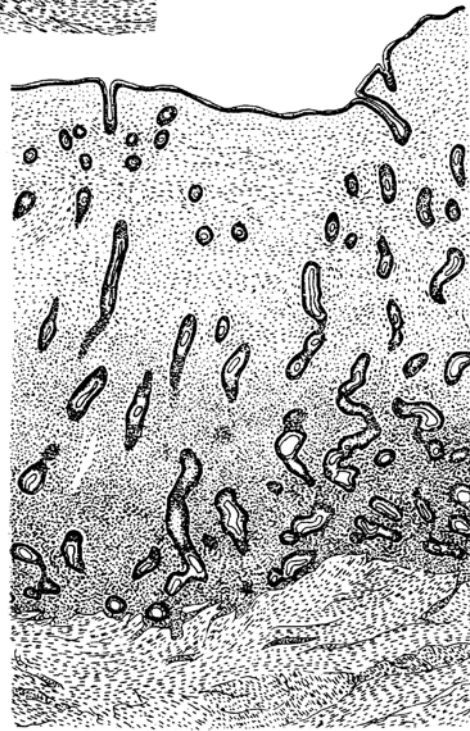
Endometrium



Endometrium



12. - 13. Tag

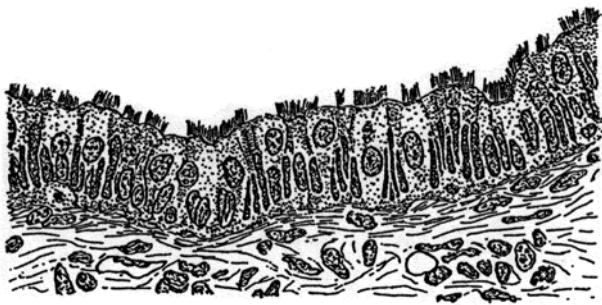


Stratum functionale

Stratum basale

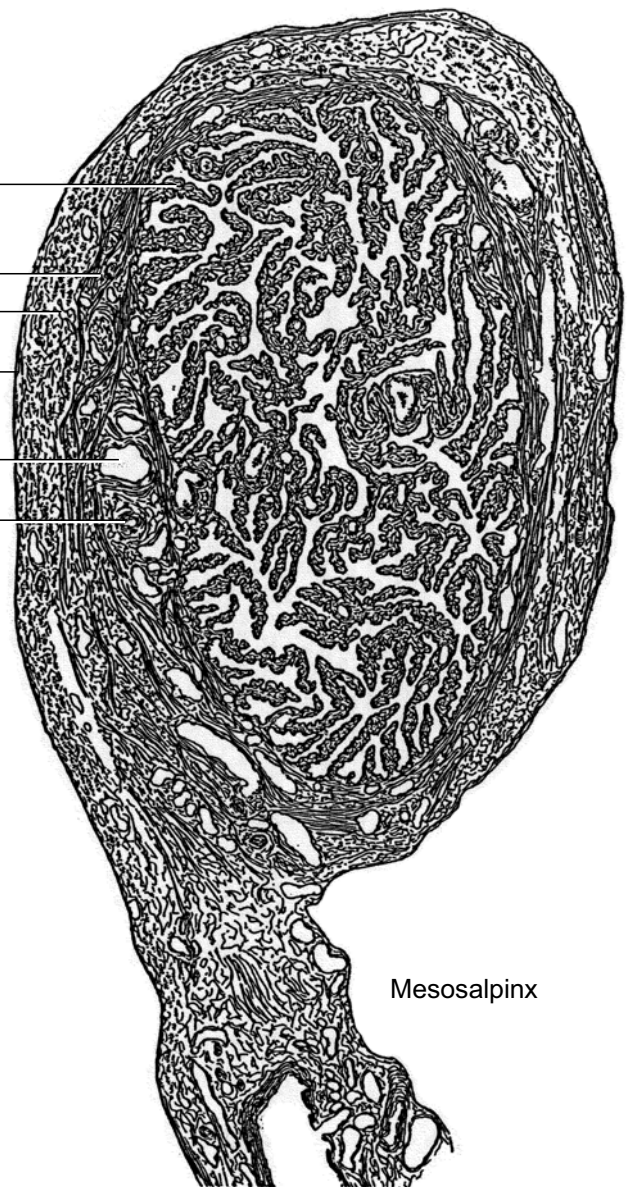
Tuba uterina

Querschnitt durch die Ampulla tubae uterinae einer 20-jährigen Frau. Die Tela subserosa enthält grössere Gefässe und subperitoneale Muskulatur. An den freien Enden der Fimbrien geht das Serosa-Epithel in das den Eileiter auskleidende Epithel über.

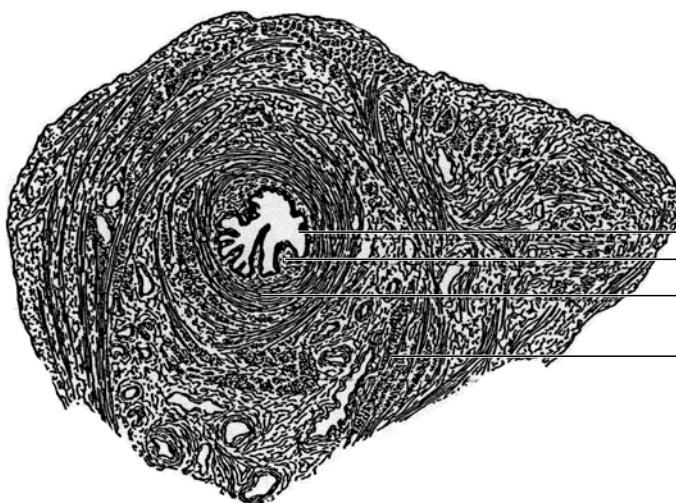


Tunica mucosa des Eileiters (Mensch, erste Hälfte des menstruellen Zyklus): einschichtiges prismatisches Flimmerepithel und Lamina propria.

Schleimhautfalte
 tubeneigene Muskulatur
 subperitoneale Muskulatur
 Tunica serosa
 Vene
 Arterie



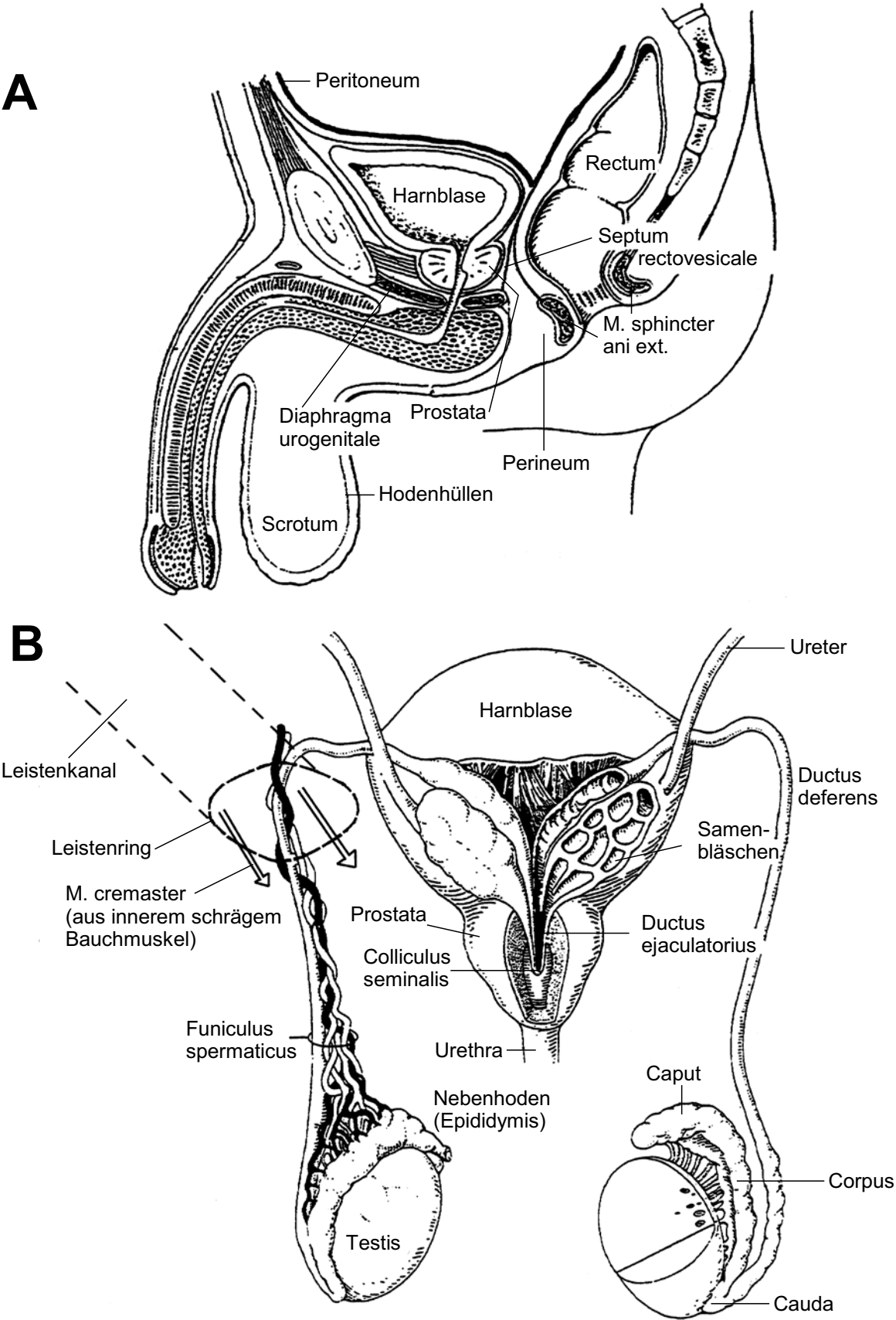
Mesosalpinx



einschichtiges prismatisches Epithel
 Lamina propria
 Ringmuskulatur
 Längsmuskulatur

Querschnitt durch den Isthmus tubae uterinae (kurz vor dem Eintritt in den Uterus) einer 44-jährigen Frau.

Männliche Reproduktionsorgane Übersicht I

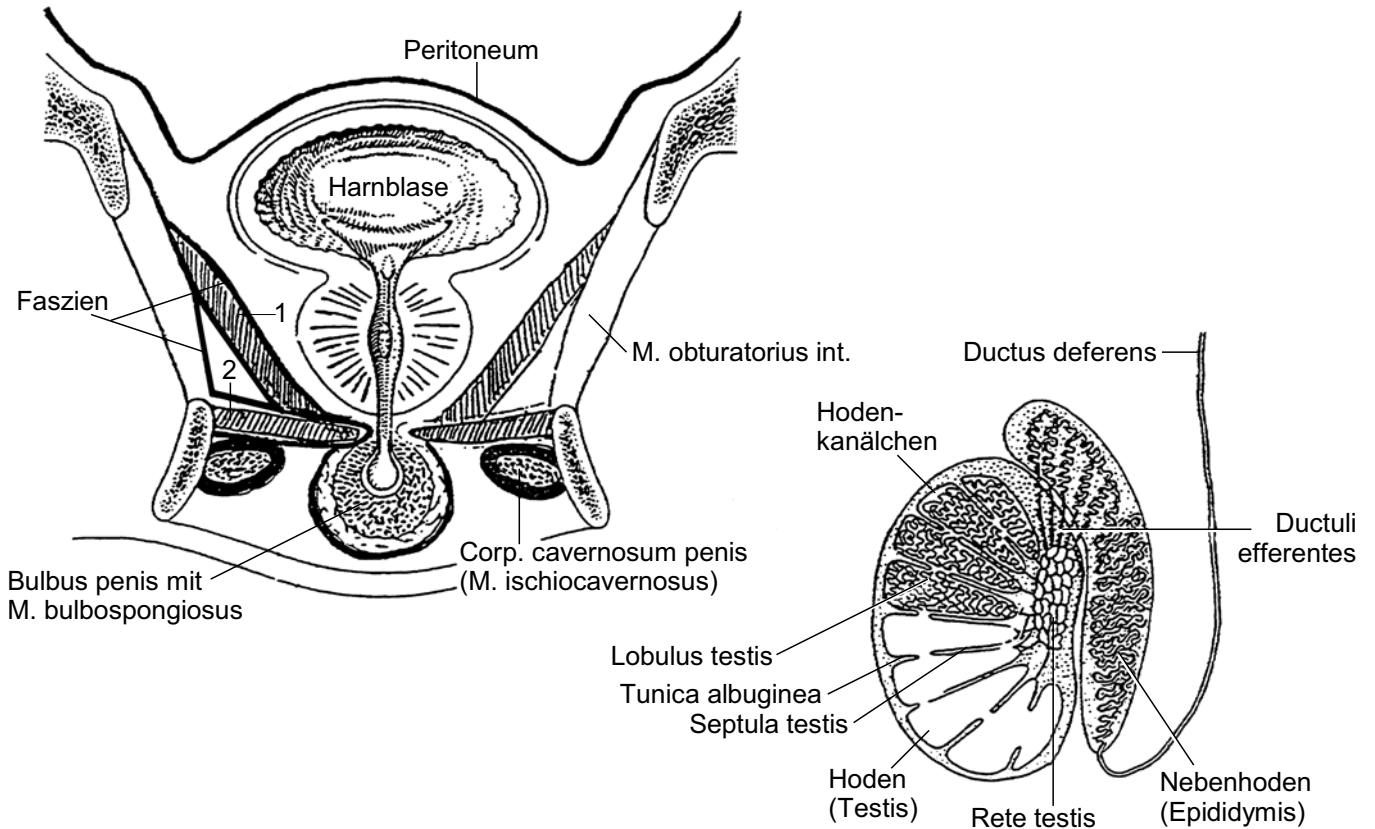


Männliche Reproduktionsorgane Übersicht II

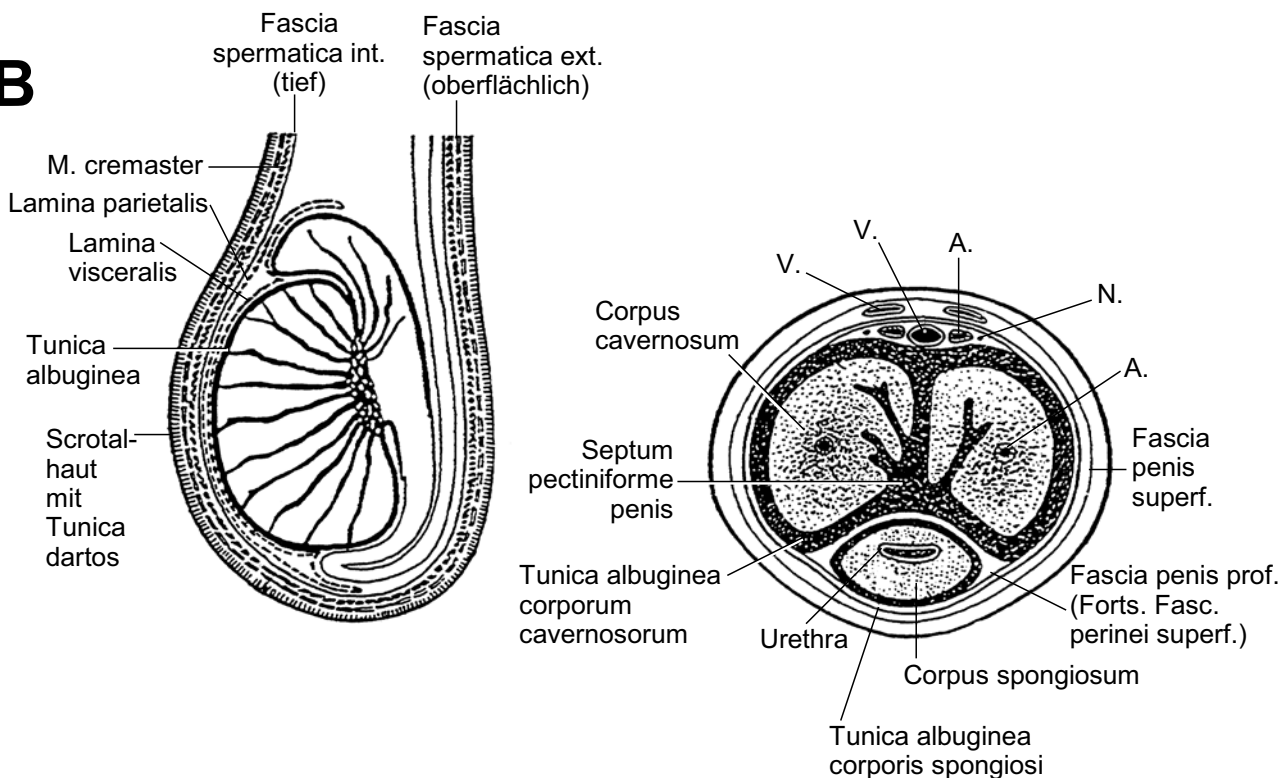
Beckenboden: 1 Diaphragma pelvis
(M. levator ani)

2 Diaphragma urogenitale

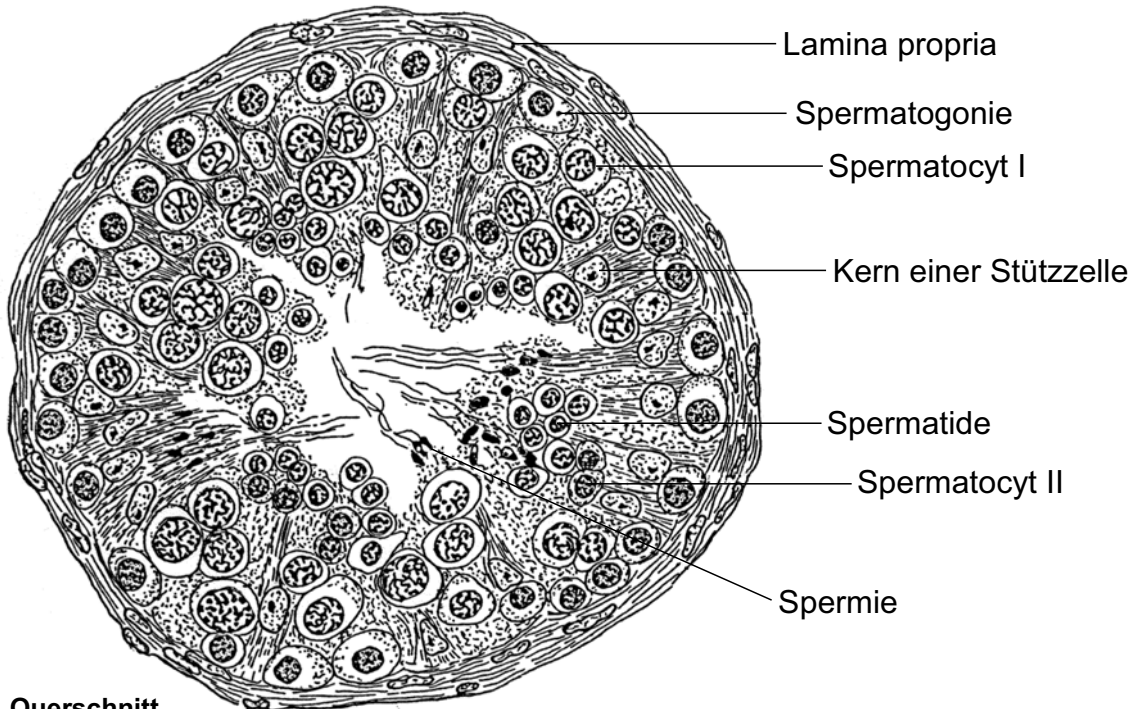
A



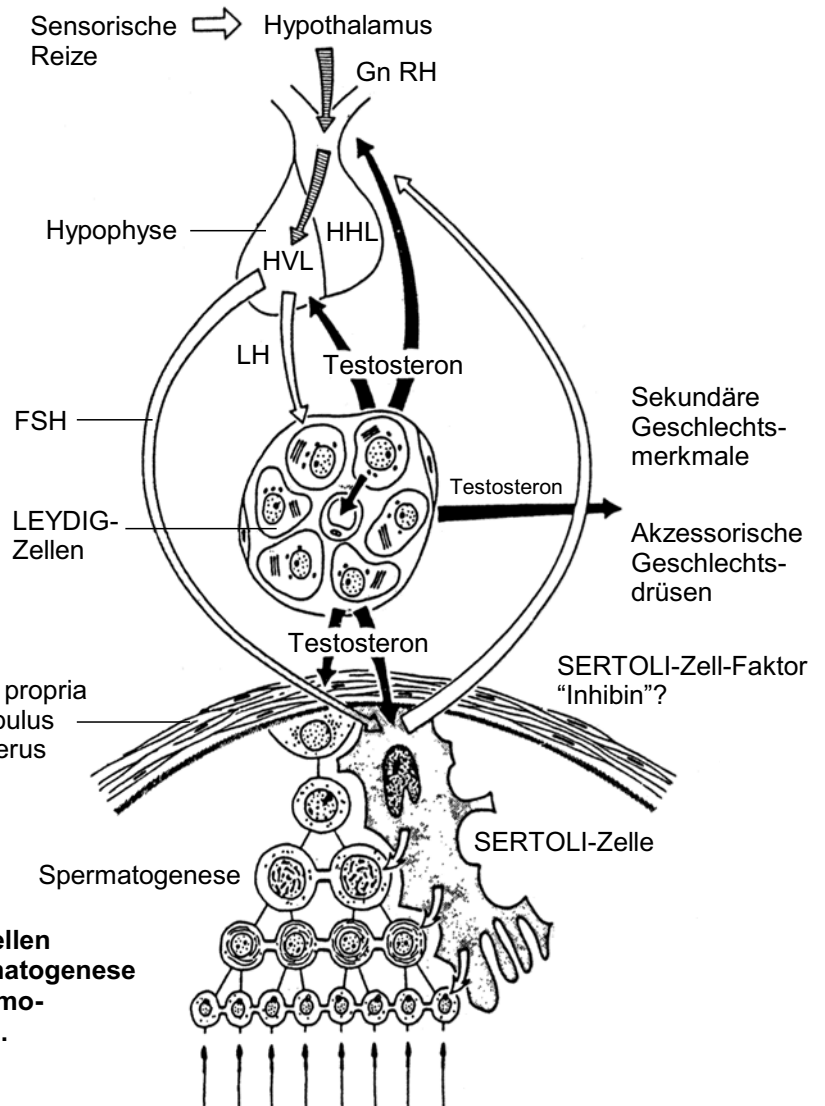
B



Spermatogenese

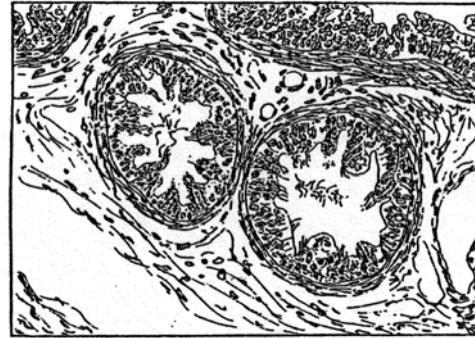
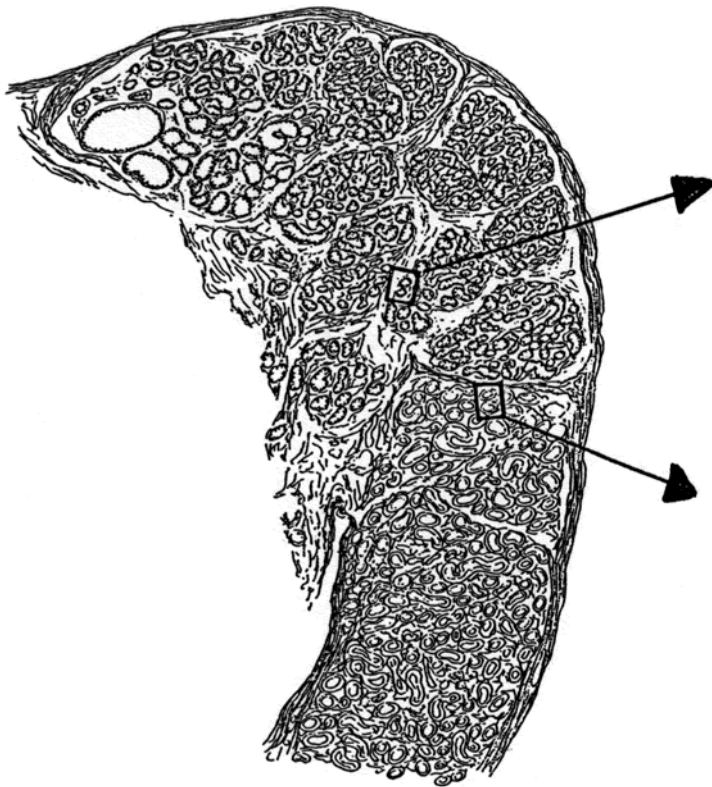


Querschnitt durch einen Tubulus contortus aus einem menschlichen Hoden. Samenbildungszellen und Stützzellen (Sertoli-Zellen). Vergrößerung 500x.

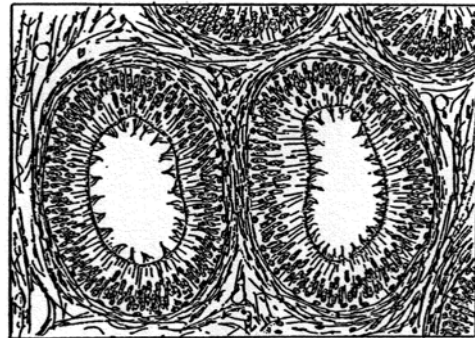


Schema zur hormonellen Steuerung der Spermatogenese durch das hypothalamo-hypophysäre System.

Nebenhoden

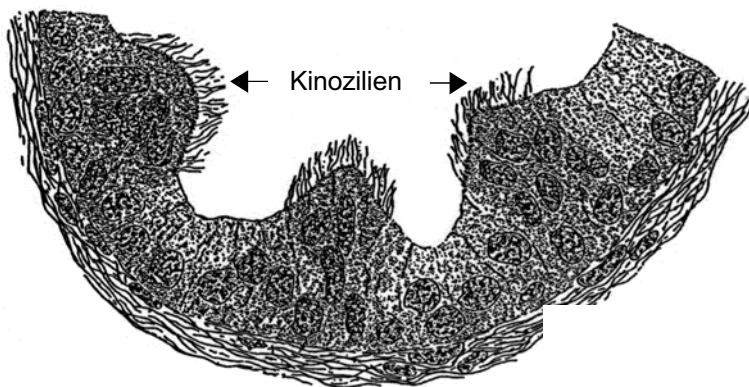


Ductuli efferentes testis. Vergr. 100x



Ductus epididymidis. Vergr. 100x

Längsschnitt durch den Nebenhodenkopf eines Menschen. Ductuli efferentes testis und Ductus epididymidis. Die beiden eingezeichneten Vierecke markieren die in den rechts daneben stehenden Abbildungen bei starker Vergrößerung wiedergegebenen Stellen. Vergr. 6x



Ausschnitt aus einem Ductulus efferens eines menschlichen Nebenhodens. Vergr. 600x

Ausschnitt aus dem Ductus epididymidis eines menschlichen Nebenhodens. Vergr. 600x

