

VETERINARY · ILLUSTRATED GUIDE

VETERINARY GROSS ANATOMY NOTES

Veterinary Gross Anatomy Notes: Regions, Cavities and Organ Systems (PDF)

Gross anatomy is everything in the body you can resolve with your own eyes, and it comes in two arrangements that are both called by that name. Systematic anatomy orders the body by organ system; regional (topographic) anatomy orders it by part of the body and describes everything found there together.

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IN SHORT

Gross anatomy is everything in the body you can resolve with your own eyes, and it comes in two arrangements that are both called by that name. **Systematic** anatomy orders the body by organ system; **regional** (topographic) anatomy orders it by part of the body and describes everything found there together. Search this subject and you will mostly be handed the systematic map — so these notes teach the regional one: the five divisions of the body, the named regions of the trunk with their boundaries, the three cavities those regions enclose, the three parts of the flank, and what organ topography means. Five labelled figures, four tables, an 18-question self-test and two free PDFs.

KEY POINTS

1. **Gross** means resolvable by the unaided eye. It is defined against **microscopic** anatomy, which studies the structures invisible to the eye, and against **developmental** anatomy, which follows the animal from conception to old age.
2. The same dissection can be written up two ways, and both are gross anatomy. **Systematic** anatomy groups organs by function into body systems. **Regional** — also **topographic** — anatomy takes one part of the body and describes everything in it, whatever system it belongs to.
3. The body has five externally distinguishable divisions — **head, neck, trunk, tail and limbs** — and each is subdivided into **regions**, which are the descriptive units of topographic anatomy.
4. A region is defined by a **boundary you can find**: a palpable bone, a muscle edge, the last rib. That is not decoration — it is why intravenous injections in a large animal are made in the cranial or middle third of the jugular groove and not the caudal third.
5. The **flank** is the lateral abdominal region, and in the large mammals it has three parts from the top down: **paralumbar fossa, cord of the flank** and **slope of the flank**. The left paralumbar fossa is where the rumen is auscultated and where a bloat trocar is placed.
6. The abdominal cavity runs from the **diaphragm** to the **terminal line** — and the part of it that still lies inside the rib cage has its own name, the **intrathoracic part of the abdominal cavity**.
7. **Organ topography** is the question a regional account exists to answer: what lies under this spot, and what is behind that? In ruminants the rumen fills the left half of the abdomen and pushes the intestines right, so the two flanks answer different questions.

About the images

Two figures are reproduced for educational reference from *Veterinary Anatomy of Domestic Animals: Textbook and Colour Atlas*, 7th edition, by König and Liebich, and one from the *Illustrated Veterinary Anatomical Nomenclature*, 4th edition, edited by Constantinescu. Each is credited beneath it and copyright remains with the original authors and publishers. The two diagrams are our own, drawn for this guide from the sources named under them.

01 What gross anatomy actually means

Anatomy is the study of the form, arrangement and structure of the tissues and organs that make up the body. **Gross anatomy** — also called macroscopic anatomy — is the part of it you can resolve with your own eyes: bones, muscles, organs, vessels, nerves. The word earns its meaning by contrast. Microscopic anatomy is the subdiscipline that uses light and electron microscopy to study the structures invisible to the eye; developmental anatomy follows the stages an animal passes through from conception to old age. Gross anatomy is the floor you stand on in the dissection room.

So far, so simple. The complication is what comes next, and it is the reason this page exists. The information you get by dissection *can be arranged in two principal and complementary ways* — and both of them are gross anatomy.

Systematic anatomy studies groups of organs closely related in function, which together constitute body systems: the digestive system, the cardiovascular system, and so on. It compares well between species, it mixes gross, microscopic and developmental material easily, and for a beginner it is easier to follow than the alternative.

Regional anatomy — also called **topographic anatomy** — is directly concerned with the form and relationships of *all* the organs present in one particular part of the body. It pays less attention to function than the systematic approach, and it has immediate application to clinical work. It is the arrangement a clinician actually meets: nobody is presented with a digestive system, they are presented with a swollen left flank.

ONE SUBJECT, TWO ARRANGEMENTS

Two ways to organise the same body

SYSTEMATIC

By organ system

Digestive, respiratory

The stomach, once

Easier to learn first

REGIONAL

By part of the body

Neck, thorax, flank

The flank, all at once

How the clinic sees it

Both are **gross** anatomy. This page is the regional map.

Fig 1 — One subject, two arrangements. The same dissection can be written up either way, and a veterinary course teaches both. Systematic anatomy takes you through the stomach once, completely. Regional anatomy takes you through the left flank once, and the stomach is one of the things you meet there. Neither is more *gross* than the other.

Diagram — Vet-eBooks.com, drawn for this guide. Data from Dyce, Sack and Wensing's Textbook of Veterinary Anatomy, 5th ed., ch. 1, p. 26.

Here is the thing worth knowing before you search for anything else. If you look up *veterinary gross anatomy notes*, almost everything you find is arranged **by system** — osteology, then myology, then the digestive system, and so on down the list. Yet the standard textbook that carries that exact name is a **regional** one, built region by region with the ox as its model. Both uses of the phrase are correct. The regional half is simply the one almost nobody publishes for free, so it is the half these notes teach.

If it is the systematic map you want, our guide to the eleven body systems and what each one does covers it properly and this page will not repeat it.

02 The five divisions, and what a region is

Before any region can be named, the body has to be cut into pieces big enough to argue about. König and Liebich start where a regional account has to start: the animal body has major divisions that are clearly distinguishable from the outside — the **head** (*caput*), the **neck** (*collum*), the **trunk** (*truncus*), the **tail** (*cauda*) and the **limbs** (*membra*). Each of those is then divided into **regions**, which serve as the descriptive motifs of topographic anatomy.

These notes then take the **trunk**, because that is where the cavities and the viscera are and where a regional account earns its keep first. The head and the limbs have region lists of their own on the same pattern — the frontal, orbital, nasal and masseteric regions of the head, the carpal, metacarpal and coronal regions of the limb — and our guides to the canine skull and its landmarks and the equine foot and distal limb work in those two.

That last sentence is doing more work than it looks. A **region** is not a vague area. It is a named piece of the body with a *stated boundary*, and the whole point of naming it is that everything inside it gets described together. When a textbook chapter is called *the neck*, the vertebrae, the muscles, the jugular vein, the carotid artery, the trachea, the oesophagus and the thyroid gland all appear in it — not because they are functionally related, but because they are in the same place.

The one-line definition worth memorising

A **region** is a named part of the body with a defined boundary, described as a whole — every structure inside it, whatever system it belongs to, in the order you would meet them.

The names themselves are Latin, and they are not decoration. The *Nomina Anatomica Veterinaria* lists them under the heading *Regiones corporis* — regions of the body — and gives each one a boundary in the same breath as its name: *Regio frontalis*, the frontal region, over the frontal bone. Once you can read the Latin, most region names tell you where they are, which is why our note on the Latin and Greek roots behind anatomical names pays for itself early. The directional words those boundaries are written in — cranial, caudal, dorsal, ventral — are covered in planes, sections and directional terms, and this page assumes them rather than teaching them again.

03 The regions of the trunk

The trunk is where most students meet regions for the first time, for a practical reason: it holds the two large body cavities, so a great many of the questions a clinician asks about the inside of an animal are really questions about a trunk region.

Start with the chest. The nomenclature files these under *Regiones pectoris* — *regions on the surface of the chest* — and König and Liebich single out four of them as the most important: the **presternal**, **sternal**, **cardiac** and **costal** regions. Behind them the abdominal wall is divided into a **cranial**, a **middle** and a **caudal** group, and the side of the belly — the **lateral abdominal region** — is the one you will hear called the flank.

CHEST REGION	WHERE IT LIES	WORTH KNOWING
Presternal	Over the descending pectoral muscle, between the lateral and median pectoral grooves	The lateral pectoral groove has the cephalic vein in its depth
Sternal	Over the sternum	The floor of the chest — the most ventral part of the thoracic wall in a standing animal, and bone rather than cartilage
Costal	Over the ribs, <i>excluding</i> the costal cartilages	The cartilages belong to the hypochondriac region, which is abdominal
Cardiac	Over the heart, caudal to the triceps margin — the caudal edge of the triceps, where the forelimb muscle mass ends	It can be enlarged by advancing the thoracic limb , to ease the approach for auscultating or percussing the heart

That last row is the whole argument for learning regions in one line. Pulling a foreleg forward to hear a heart is a piece of handling; knowing *why* it works — the cardiac region is bounded cranially by the triceps margin, and moving the limb moves that margin — is anatomy.

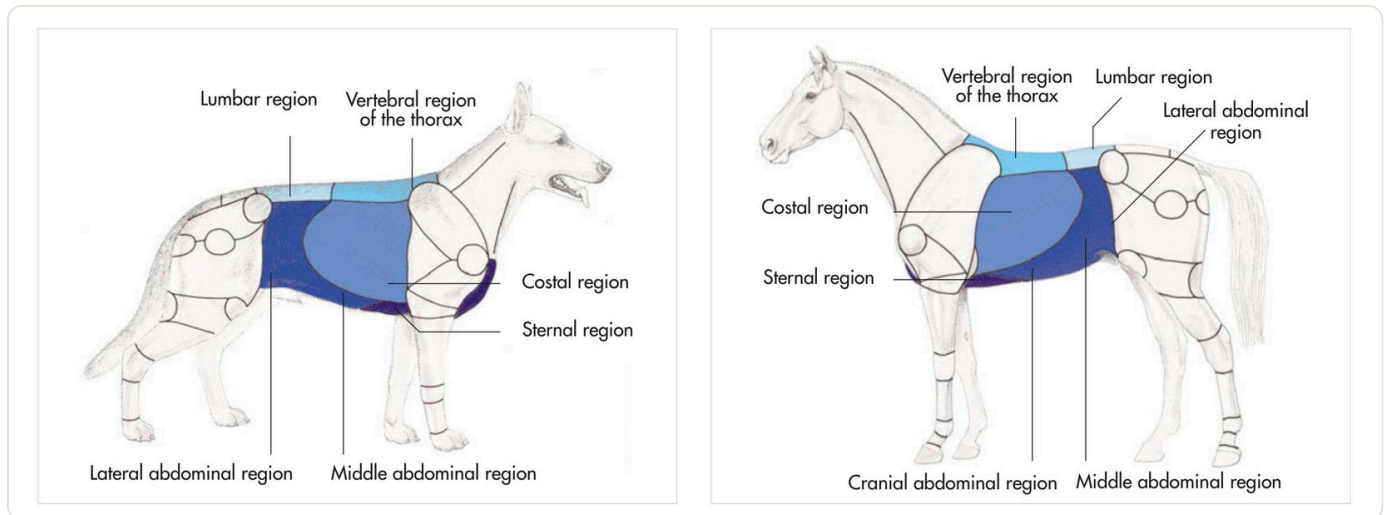


Fig 2 — The same regions, on two very different animals. The dog on the left and the horse on the right carry the same named regions in the same order: vertebral region of the thorax and lumbar region along the back, costal and sternal regions on the chest wall, and the abdominal regions behind. What changes is proportion, not plan — the horse's costal region is deeper and its lumbar region shorter, and the six labelled regions are the same six on both animals.

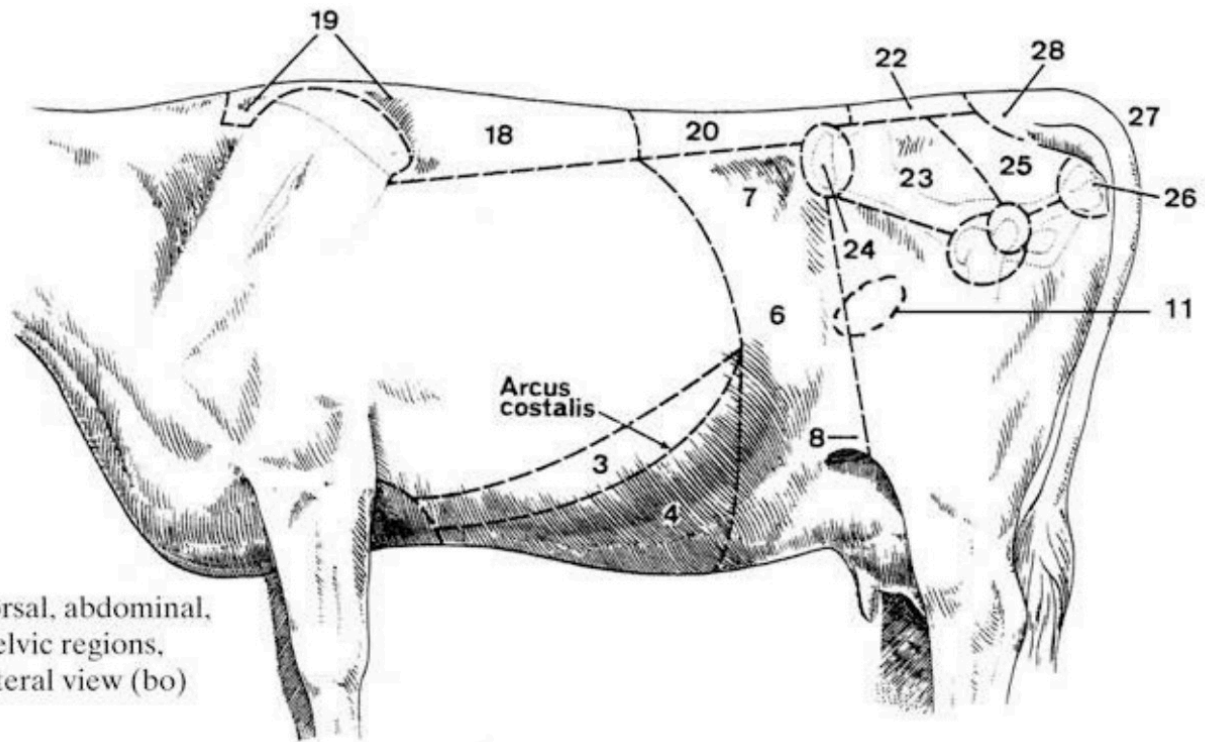
Image — König HE, Liebich H-G. *Veterinary Anatomy of Domestic Animals: Textbook and Colour Atlas*, 7th ed. Thieme — Figs. 20.19 and 20.20. Reproduced for educational reference.

Two things are worth noticing in that figure before moving on. The first is that the region boundaries do not follow the organs underneath them — the costal region is defined by the ribs, not by the lung. The second is that the schematic is a simplification: it names six regions on each animal, and the nomenclature has far more than six for the trunk alone. The full list is in the next section.

04 Finding a boundary with your hands

A region is only useful if you can find its edges on a live animal, and that is the test the nomenclature quietly applies. Read the *Regiones corporis* list and you notice that the boundaries are given in structures a hand can locate: a bone you can feel, the edge of a muscle, a palpable prominence, the last rib.

Look at the neck. It reaches from the transverse plane between the atlas and the occipital bone to the shoulder, at the prescapular groove — the hollow immediately in front of the shoulder blade. Both ends are findable, because the wings of the atlas and the transverse processes of the third to sixth cervical vertebrae can be palpated.



A Dorsal, abdominal, and pelvic regions, left lateral view (bo)

Fig 3 — The nomenclature's own map, on an ox. This is the reference version of the previous figure: the surface regions of the trunk and pelvis drawn as the *Nomina Anatomica Veterinaria* defines them, with dashed lines where the boundaries run. The numbers are keyed in Table 1 below. Note how many of them are named after a bony point you can put a finger on — the tuber coxae (24), the tuber ischiadicum (26), the costal arch (*arcus costalis*).

Image — Constantinescu GM (ed). Illustrated Veterinary Anatomical Nomenclature, 4th rev. ed. Georg Thieme Verlag, 2018 — Regiones corporis, plate p. 7, panel A. Reproduced for educational reference.

NO.	LATIN NAME	ENGLISH	WHERE IT RUNS
3	<i>Regio hypochondriaca</i>	Hypochondriac region	The band of abdominal wall over the costal cartilages
4	<i>Regio xiphoidea</i>	Xiphoid region	The ventral surface of the abdomen between the costal arches — the cartilage rims joining the last rib to the sternum — back to the level of the last rib's ventral end
6	<i>Regio abdominis lateralis</i>	Lateral abdominal region — the flank	The side of the belly, extending to the level of the tuber coxae
7	<i>Fossa paralumbalis</i>	Paralumbal fossa	Bounded dorsally by the lumbar transverse processes, ventrally by the cord of the flank, and cranially by the last rib
8	<i>Regio plicae lateris</i>	Region of the fold of the flank	The fold itself is formed by the dorsal border of the abdominal part of the cutaneous muscle, which in large animals reaches no further
11	<i>Regio inguinalis</i>	Inguinal region	Lateral to the pubic region; in this lateral view it lies deep, out of reach
18	<i>Regio vertebralis thoracis</i>	Region of the thoracic vertebrae	From the dorsal region of the neck back to the lumbar region
19	<i>Regio interscapularis</i>	Interscapular region	Between the dorsal borders of the scapulae or their cartilages — the withers in the large mammals
20	<i>Regio lumbalis</i>	Lumbar region	Over the lumbar vertebrae
22	<i>Regio sacralis</i>	Sacral region	Over the sacrum
23	<i>Regio glutea</i>	Gluteal region	Over the middle gluteal muscle, caudal to the region of the tuber coxae

NO.	LATIN NAME	ENGLISH	WHERE IT RUNS
24	<i>Regio tuberis coxae</i>	Region of the tuber coxae	Over the tuber coxae — the point of the hip
25	<i>Regio clunis</i>	Region of the rump	The caudal end of the rump, dorsal to the level of the tuber ischiadicum and lateral to the root of the tail
26	<i>Regio tuberis ischiadici</i>	Region of the tuber ischiadicum	Over the tuber ischiadicum — the point of the buttock
27	<i>Regio caudalis</i>	Tail region	The tail itself
28	<i>Regio radialis caudae</i>	Region of the root of the tail	Where the tail leaves the pelvis

Now the part that makes this more than vocabulary, because what you are allowed to do in a region depends on exactly where in it you are standing.

The **jugular groove** is the depression over the external jugular vein on the lower part of the side of the neck, bounded above by the brachiocephalic muscle and below by the sternocephalic. That vein is the vessel of choice for intravenous injection — but in the large animals the **omohyoid** — a thin strap muscle of the neck — separates it from the common carotid artery only in the **cranial and middle** thirds of the groove. In the caudal third the artery is unprotected, and the vein there is covered by the thick cervical part of the cutaneous muscle, which can push a needle off line as it contracts.

Why the boundary is the lesson

Nobody memorises “cranial or middle third of the jugular groove” as a fact about needles. You arrive at it by knowing what lies under each part of one region — which is precisely what regional anatomy is for. Learn the boundary and the rule follows; learn the rule alone and you have nothing to reason with when the animal is a different shape.

05 The flank, and why it comes in three parts

Of all the regions on the list, the flank is the one that repays study first, because it is the one large-animal practice reaches for most often.

The nomenclature is careful here. The **lateral abdominal region** is *called the flank*, and it extends back to the level of the tuber coxae. In the large mammals it is then conventionally divided, from top to bottom, into three parts: the **paralumbal fossa** (the hollow of the flank), the **cord of the flank** — where the muscular fibres of the internal abdominal oblique attach at the **last costochondral joint**, the point at which the last rib meets its cartilage — and the **slope of the flank**. These, in the nomenclature's own words, are *very important in assessing the topography of the abdominal viscera in the large mammals*.

LARGE MAMMALS — DORSAL TO VENTRAL

The flank, in three parts

1 • Paralumbar fossa Behind the last rib, under the lumbar processes

2 • Cord of the flank Internal oblique, tuber coxae to last rib

3 • Slope of the flank The wall below the cord

WHY THE LEFT ONE MATTERS

Where the rumen is heard and the bloat trocar goes.

Fig 4 — Three parts, from the top down. The **cord** is not a landmark on the skin but a muscle: the part of the internal abdominal oblique that runs from the tuber coxae to the last rib. It is the floor of the hollow above it and the ceiling of the slope below it, which is why naming it fixes both of the other two.

Diagram — Vet-eBooks.com, drawn for this guide. Data from Constantinescu's Illustrated Veterinary Anatomical Nomenclature, 4th ed., pp. 6–7, and König and Liebich 7th ed., p. 365.

The **paralumbar fossa** gets a full definition of its own, and it is worth reading as three separate boundaries rather than one sentence: dorsally, the **lumbar transverse processes**; ventrally, the part of the **internal abdominal oblique** that passes from the tuber coxae to the last rib — the cord; and cranially, the **last rib**. Three edges, all of them findable on a standing cow.

Then the payoff. Auscultation and palpation of the rumen are among the most commonly performed procedures in cattle practice, and both are done **at the left paralumbar fossa**, where a normal animal shows seven to twelve wave-like ruminal contractions over five minutes. The same spot is where a trocar is inserted to relieve bloat. A region that began as a Latin name on a list turns out to be an address.

Two footnotes the sources are explicit about. First, the fold of the flank is a region in its own right (*Regio plicae lateris*), distinct from the flank above it. Second, the fifth edition of the *N.A. V.* names nothing specific distal to the cord of the flank — the “slope” is conventional usage, not an official term, and it is honest to say so.

What actually lies behind that fossa is the subject of the four compartments of the ruminant stomach, and the ox region by region is covered in our guide to cattle anatomy for vet students.

06 The cavities a region encloses

The trunk regions wrap three cavities: **thoracic**, **abdominal** and **pelvic**. For a regional account what matters most about them is where each one starts and stops.

The abdominal cavity **begins cranially with the diaphragm** and **ends caudally at the terminal line**, which marks the transition to the pelvic cavity. Its roof is the vertebral column and its muscles, and the kidneys, adrenal glands, aorta, caudal vena cava, lumbar lymphatic trunks and

lumbar nerves all lie against that roof in the **retroperitoneal space** — behind the peritoneum rather than inside it. Inside it are the digestive organs, the urogenital system and the endocrine glands, together with their supply vessels, nerve tracts, mesenteries and ligaments.

The sentence that catches people out

The space caudal to the diaphragm but **still inside the rib cage** is called the **intrathoracic part of the abdominal cavity**. The diaphragm domes forward, so the ribs cover abdominal organs for some distance. A wound between the caudal ribs may be an abdominal wound, and a needle aimed at “the chest” low and far back may not reach it.

The membranes that line these cavities — pleura, pericardium and peritoneum, and the potential spaces between their layers — are a subject in their own right, and we treat them as one: see how the serous membranes line the body cavities for the sacs themselves, the mediastinum and what a potential space actually is. This page stops at the boundary, because a region is defined by its wall, not by its lining.

07 Organ topography: what lies behind the wall

Organ topography is the question a regional account exists to answer: if I stand at this spot on the outside of this animal, what is immediately under my hand, and what is behind that?

It is a different question from “what does the liver do” or even “what shape is the liver”, and no systematic chapter answers it, because the answer is a list of neighbours rather than a description of an organ. It is also the question that changes most between species.

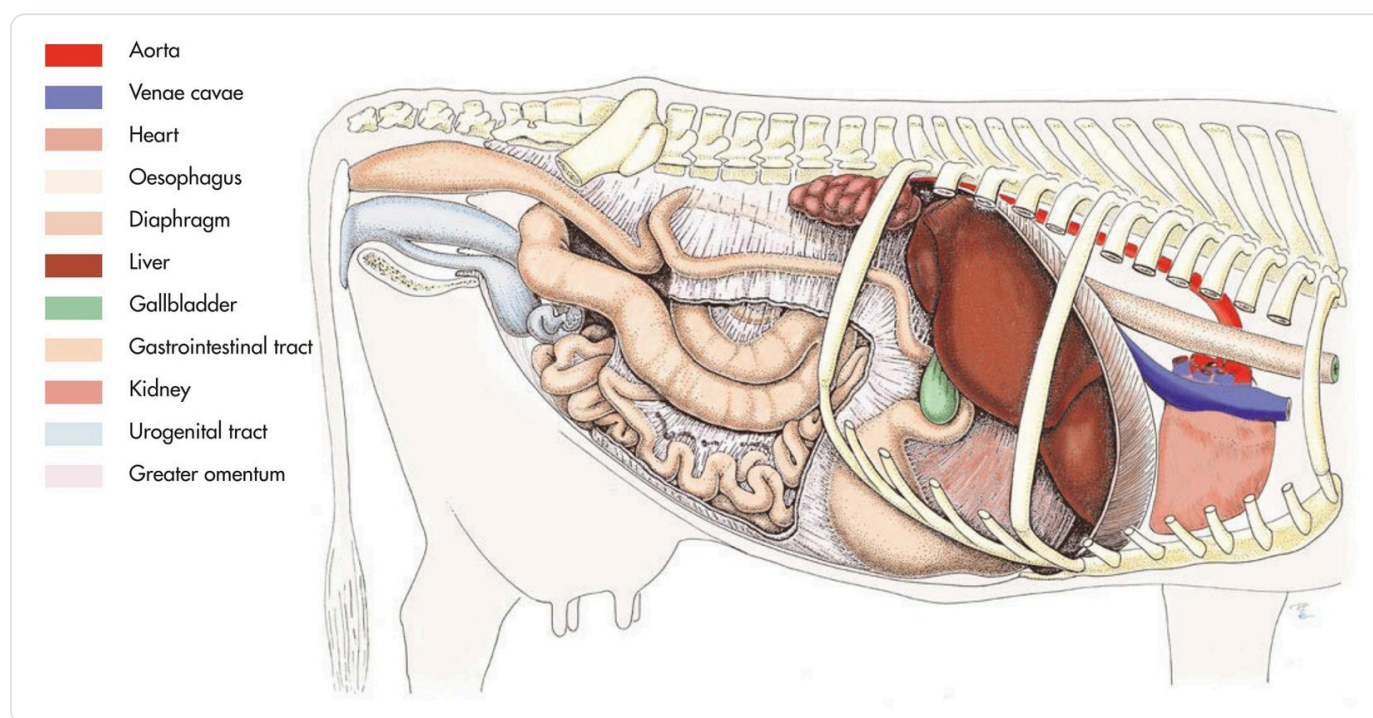


Fig 5 — The right side of a cow, with the wall taken away. The animal's head is to the right. Behind the caudal ribs sit the liver (dark brown) and the right kidney, with the gallbladder against the liver's edge and the aorta and caudal vena cava running along the roof. Everything cranial to the diaphragm's dome is chest; everything caudal to it is abdomen, and a good deal of that abdomen is still under ribs. The colour key is the book's own.

Image — König HE, Liebich H-G. *Veterinary Anatomy of Domestic Animals: Textbook and Colour Atlas*, 7th ed. Thieme — Fig. 20.33. Reproduced for educational reference.

Now put the two flanks side by side. In ruminants the large rumen occupies the **left half** of the abdomen and pushes the intestines to the **right**. That single fact re-writes both flanks at once: the left paralumbar fossa is a window onto the rumen, and the right one is a window onto intestine and, further forward and under the ribs, the liver. The regions are symmetrical; the topography is not.

This is also why regional anatomy has to be taught species by species. A dog's left flank does not open onto a rumen, and the same hand position on a horse meets a different organ again. What one of those maps looks like when it is written out in full for a surgeon is shown in our guide to the dog's abdomen as a surgeon approaches it.

08 Surface, applied, surgical and radiographic anatomy

Four more terms circle regional anatomy, and they cause a lot of unnecessary confusion because they are usually met as bare labels on a reading list.

Dyce, Sack and Wensing put it plainly: regional anatomy is one of the foundations of clinical practice, and *different aspects pursued with particular aims are sometimes known as surface, applied, surgical, and radiographic anatomy — terms whose connotations overlap but hardly require definition*. That is worth quoting rather than paraphrasing, because it tells you two useful things at once: these are not four separate disciplines, and no source is going to hand you crisp definitions of them.

What they are is **regional anatomy with an aim attached**. The aim decides what gets included and what gets left out, which is why a book with one of these words in its title looks so different from a general textbook covering the same region. The table below is *our* characterisation, not a set of definitions lifted from a source — the source has just told you no such definitions exist. Each row is anchored to the kind of book that carries that word in its own title.

ASPECT	THE QUESTION IT IS ORGANISED AROUND	SO THE ACCOUNT IS FULL OF...
Surface anatomy	What can I see and feel from the outside, and what does it tell me is underneath?	Palpable bony points, muscle edges, grooves and the projections of organs onto the body wall
Applied anatomy	Which anatomical facts change what I do to this animal?	Injection sites, block sites, safe angles, the structures a procedure puts at risk
Surgical anatomy	What will I meet, in order, if I open here?	Layer-by-layer approaches, planes of separation, what must be identified before it is cut
Radiographic anatomy	What does normal look like in this projection?	Superimposed structures, normal variants, the difference between a shadow and a lesion

Each has a shelf of its own in the literature. When you meet one, the title is telling you which question the book is organised around, not which body it describes.

09 What changes between species

Because the detail that matters to a clinician is exactly the detail that differs, it is necessary to give the regional anatomy of each species separate consideration. That is not a counsel of despair: the *map* is remarkably stable and it is the *contents* that move.

SPECIES	THE REGION MAP	WHAT ACTUALLY DIFFERS
Dog	The full trunk set, and the animal most general schematics are drawn on	The three-part division of the flank is a large-mammal convention, so it is not used here; Figure 2's dog carries the region names without it
Cat	As the dog	The same names on a much smaller frame, so any given region covers far less ground — and a landmark missed by a centimetre is a bigger fraction of it
Horse	The same named regions as the dog, with a deeper costal region and a shorter lumbar one	It has a paralumbar fossa of its own, with the internal oblique raising a ridge along the fossa's caudoventral boundary — and tympany of the caecal base is relieved by needle decompression through it, or else transrectally
Cattle	The full list, and the model species for regional textbooks	The rumen fills the left half of the abdomen and pushes the intestines right. Distension of the left flank suggests ruminal tympany or a left-displaced abomasum; right -sided distension points to the abomasum or the intestines
Sheep and goats	As cattle	The same three-part flank on a smaller body, and under wool or a hair coat — the bony landmarks are found by hand rather than by eye
Pig	As cattle in outline	A thick layer of subcutaneous fat almost completely hides the junction between abdomen and pelvis; the coxal and ischial tubers, however, stay easily palpable
Birds	—	The mammalian region names do not transfer: the body wall, the air sacs and the absence of a diaphragm change the whole scheme

Birds are out of scope here rather than squeezed in: pretending the mammalian region list applies to them would be worse than silence. How bird bodies differ from mammals handles them, and our seven-species comparison sets the mammals against each other feature by

feature.

10 Fascia, and where one layer stops

One more thing decides how a regional description reads: regions have **layers**, and the sheets of connective tissue between them are the **fascia**. A regional account is written outside-in — skin, subcutaneous tissue, superficial fascia, muscle, deep fascia, and so on inwards — because that is the order a scalpel meets them, and the fascial planes are where one layer genuinely stops and the next begins.

They matter clinically for the same reason. The fasciae of the neck, for instance, can obstruct the drainage of pathological secretions when an injection site becomes infected, which is why the site is cleaned and disinfected with more care than the size of the needle would suggest. A fascial plane is a route and a barrier at once.

Fascia as something you handle, cut and follow belongs to the dissection room: what a first dissection lab is actually like covers it there, and the dog's muscles, origin by insertion shows what the fascia is separating.

11 How to revise from these notes

A branch page is worth the hour only if you use it as a spine. This is the order that works.

First, fix the two maps. If you cannot say in one sentence what separates systematic from regional anatomy, little else on this page will stay put. Figure 1 is there for that alone.

Second, learn the trunk regions from the pictures, not the list. Cover the labels on Figure 2 and name them; then do the same with the numbers on Figure 3, checking against Table 1. Recognition is not recall, and only one of the two is revision.

Third, take one region all the way down. The flank is the best candidate: three parts, three findable boundaries, and a clinical use for each. Then repeat the exercise on the neck using the jugular groove. Two regions done properly teach the method; sixteen skimmed teach nothing.

Fourth, go outward. The species pages take one animal from end to end — the dog, the cat and the horse — and our guide to studying anatomy without drowning in it covers the revision method itself. The rest of the collection is indexed in the anatomy articles hub, and if you want a printed atlas beside you the veterinary anatomy books shelf is where ours are listed.

Both PDFs are free and need no sign-up: the complete article, figures and tables included, and a condensed set of revision notes for the week before the exam.

12 Test yourself

Eighteen questions across every section above. Cover the answers first — looking at them is not the same as retrieving them, and only one of the two is revision.

1 What does *gross* mean in *gross anatomy*, and what two things is the term defined against?

ANSWER Everything that can be resolved with the unaided eye. It is defined against **microscopic** anatomy, which studies the structures invisible to the eye, and against **developmental** anatomy, which follows the stages from conception to old age.

2 Systematic and regional anatomy describe the same body. Which is the clinician's arrangement, and why?

ANSWER Regional (topographic) anatomy. It describes all the organs present in one part of the body together, which is how a case presents — nobody brings you a digestive system, they bring you a swollen flank. Systematic anatomy is easier for a beginner and compares better between species, which is why it is usually taught first.

3 Name the five major divisions of the animal body, with their Latin names.

ANSWER Head (*caput*), neck (*collum*), trunk (*truncus*), tail (*cauda*) and limbs (*membra*). Each is subdivided into regions.

4 What makes a *region* different from just an area of the body?

ANSWER A region has a **stated boundary**, and everything inside that boundary is described together — whatever system each structure belongs to. The neck region holds vertebrae, muscles, vessels, trachea, oesophagus and thyroid gland, not because they are functionally related but because they are in the same place.

5 The nomenclature files the chest regions under *Regiones pectoris*. Name the four König and Liebich single out as the most important.

ANSWER The **presternal**, **sternal**, **cardiac** and **costal** regions.

6 The dog and the horse in Figure 2 carry the same region names. What actually differs between them?

ANSWER Proportion, not plan. The horse has a deeper costal region and a shorter lumbar one, but no region is added and none is missing. That is the general rule for the trunk map across the domestic mammals.

7 Which palpable structures let you find the cranial and caudal ends of the neck region?

ANSWER Cranially, the transverse plane between the atlas and the occipital bone — the **wings of the atlas** are palpable, as are the transverse processes of the 3rd to 6th cervical vertebrae. Caudally, the **prescapular groove** at the shoulder.

8 Why are intravenous injections in a large animal made in the cranial or middle third of the jugular groove?

ANSWER Because the **omohyoid** separates the external jugular vein from the common carotid artery only there. In the caudal third the artery is unprotected, and the cutaneous muscle covers the vein and can deflect the needle as it contracts.

9 Name the three parts of the flank in the large mammals, in dorsoventral order.

ANSWER The **paralumbar fossa**, the **cord of the flank** and the **slope of the flank**. Note that the 5th edition of the *N.A.V.* names nothing specific distal to the cord: “slope” is conventional usage.

10 Give all three boundaries of the paralumbar fossa.

ANSWER Dorsally the **lumbar transverse processes**; ventrally the part of the **internal abdominal oblique** that runs from the tuber coxae to the last rib — the cord of the flank; and cranially the **last rib**.

11 Where is the rumen auscultated in a standing cow, and how many contractions are normal over five minutes?

ANSWER At the **left paralumbar fossa**, and seven to twelve wave-like contractions over five minutes in a normal animal. The same site is used for trocarisation in bloat.

12 Where does the abdominal cavity begin and end?

ANSWER It begins cranially at the **diaphragm** and ends caudally at the **terminal line**, which marks the transition to the pelvic cavity.

13 What is the *intrathoracic part of the abdominal cavity*, and why does it matter?

ANSWER The space caudal to the diaphragm but still inside the rib cage. The ribs cover abdominal organs for a surprising distance, so a wound between the caudal ribs may be an abdominal wound, and a needle placed low and far back may not be in the chest at all.

14 Which structures lie retroperitoneally against the roof of the abdominal cavity?

ANSWER The roof is the vertebral column and its muscles, and the **kidneys**, **adrenal glands**, **aorta**, **caudal vena cava**, lumbar lymphatic trunks and lumbar nerves all lie against it in the retroperitoneal space.

15 In ruminants, which half of the abdomen does the rumen occupy, and what does that do to the topography of the two flanks?

ANSWER The rumen occupies the **left half** of the abdomen and pushes the intestines to the right. So the left paralumbar fossa is a window onto the rumen and the right one onto intestine, with the liver further forward under the ribs. The regions are symmetrical; the topography is not.

16 Name the four aspects of regional anatomy Dyce, Sack and Wensing list — and say what they add about defining them.

ANSWER **Surface**, **applied**, **surgical** and **radiographic** anatomy. They add that these are terms “whose connotations overlap but hardly require definition” — they are regional anatomy with an aim attached, not four separate disciplines.

17 Why is the mammalian region map not applied to birds on this page?

ANSWER Because it does not transfer. Birds have no diaphragm, their body cavity is arranged around air sacs, and the surface region names were written for a mammalian body wall. Using the same list would be worse than leaving them out.

18 What is a fascial plane, and why does it matter beyond the dissection room?

ANSWER The connective-tissue sheeting between the layers of a region, so a fascial plane is where one layer stops and the next begins — which is why regional accounts are written outside-in. It is a route and a barrier at once: the fasciae of the neck can obstruct drainage if an injection site becomes infected.

13 Veterinary gross anatomy — frequently asked questions

What is gross anatomy in veterinary medicine?

Gross anatomy — also called macroscopic anatomy — is the study of the structures of the animal body that can be seen with the unaided eye: bones, joints, muscles, organs, vessels and nerves. It is what a dissection room teaches, and it is defined by contrast with microscopic anatomy (histology), which studies what is invisible to the eye.

What is the difference between gross, systemic and regional anatomy?

Gross describes the *depth* you are working at — naked-eye rather than microscopic. Systemic (systematic) and regional describe the *arrangement* of the same material: systemic goes system by system, regional goes part of the body by part of the body. Both are gross anatomy, and most courses teach systemic first because it is easier to follow. Our note on the eleven body systems is the systemic half.

What is a region in anatomy?

A named part of the body surface with a defined boundary, used as the unit of description in topographic anatomy. The *Nomina Anatomica Veterinaria* lists them under *Regiones corporis* and gives each one its boundary along with its name — the paralumbar fossa, for instance, is bounded dorsally by the lumbar transverse processes, ventrally by the cord of the flank and cranially by the last rib.

Where does the abdominal cavity begin and end in animals?

It begins cranially at the diaphragm and ends caudally at the terminal line, which marks the transition to the pelvic cavity. The part of it that still lies within the rib cage — because the diaphragm domes forward — is called the intrathoracic part of the abdominal cavity. For the membranes lining it, see our guide to the body cavities and serous membranes.

What is the paralumbar fossa?

The hollow of the flank: the dorsal part of the lateral abdominal region, bounded dorsally by the lumbar transverse processes, ventrally by the internal abdominal oblique running from the tuber coxae to the last rib, and cranially by the last rib. In cattle practice the left paralumbar fossa is where the rumen is auscultated and palpated, and where a trocar is placed to relieve bloat.

Is topographic anatomy the same as regional anatomy?

Yes — two names for the same approach, used interchangeably. *Topographic* emphasises the map, *regional* the unit being described. Both mean: take one part of the body and describe everything in it.

Do I have to learn all the Latin region names?

Not as a list. Learn the boundary of each region you actually use and the Latin follows, because most of the names describe their own position. The roots behind the terms make the rest readable.

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