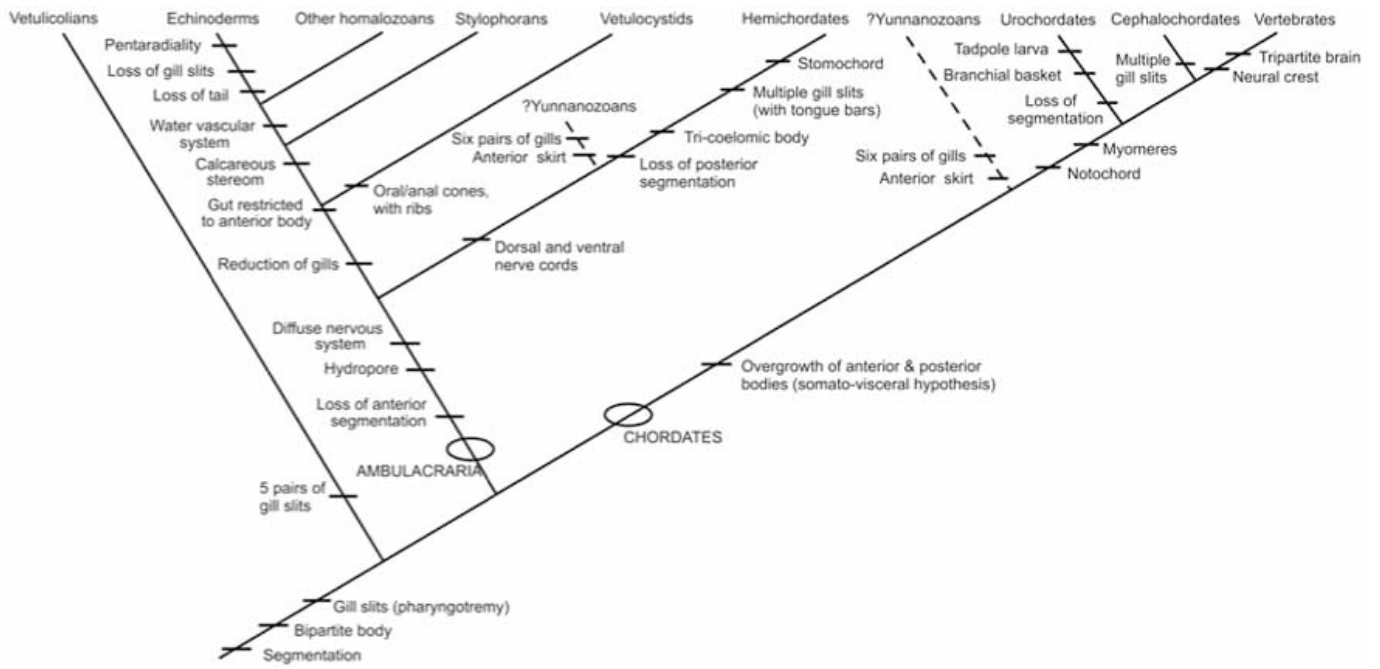


COMPARATIVE VERTEBRATE ANATOMY REVIEW FOR CHAPTER 5

1. Be able to explain the concept of a life cycle, and discuss the different appearances of a sample of organisms as they progress through their lives. You should be able to cite examples of animals with life cycles that include metamorphosis as well as those that do not, and from all of the different vertebrate groups.
2. Be able to discuss the difference in cleavage patterns in different vertebrate groups and cite examples of each cleavage type for these groups (i. e., fishes, amphibians, reptiles, birds and mammals).
3. Be able to discuss the pattern of cleavage in an organism from the single-celled zygote stage to the start of organogenesis. Be able to discuss each stage of development between these conditions and how these stages differ in organisms with different amounts of yolk in their eggs, or in the case of mammals, where they have in utero (and for marsupials in pouch) development.
4. Discuss the classification of epithelia, connective tissues and other tissue types and be able to give examples of the kinds of adult tissues that arise from each.
5. Discuss the regions of a bone and the patterns of growth, developmental types and repair of bone injuries.
6. Be able to discuss the effects the difference in the timing of developmental events (= heterochrony) causes in the appearance and function of different species, as well as changes in developmental patterns that can occur within a single species. Be able to define all of the different terms that describe timing of development (some are in the word list below, but not necessarily all).
7. Be able to define and discuss the Biogenetic Law and von Baer's Law.
- 8 Describe the effects of Hox genes.

Be able to define, understand and explain each of the following terms that are used in this chapter, and perhaps elsewhere in the book. You should be able to discuss in which animals the structures and processes among the list of terms, occurs.

Allantois, animal pole, amnion, blastocoel, blastopore, blastula, chordamesoderm, chorion, cleavage, coelom, compact bone, dermal (= intramembraneous) bone, discoidal cleavage, dorsal lip of blastopore, ectoderm, ectodermal placodes, endochondral bone, endoderm, epimere (= paraxial mesenchyme), epithelia, gametes, extraembryonic membranes, gastrula, germ layer, haploid, Haversian system, heterochrony, holoblastic cleavage, hypomere (= lateral plate mesoderm), inner cell mass, isolecithal, macrolecithal, meroblastic cleavage, mesenchyme, mesoderm, mesolecithal, mesomere (= intermediate mesenchyme), metamorphosis, microlecithal, morula, neoteny, neural crest, neural fold, neural groove, neural plate, neurula, ontogeny, organogenesis, osteon, ovum (=ova, plural), peramorphosis, placenta, primitive streak, primitive node, primitive groove, somites, sperm, splanchnic mesoderm, spongy bone, teleolecithal, trophoblast, vegetal pole, Volkmann's canals, yolk, yolk sac, zygote.



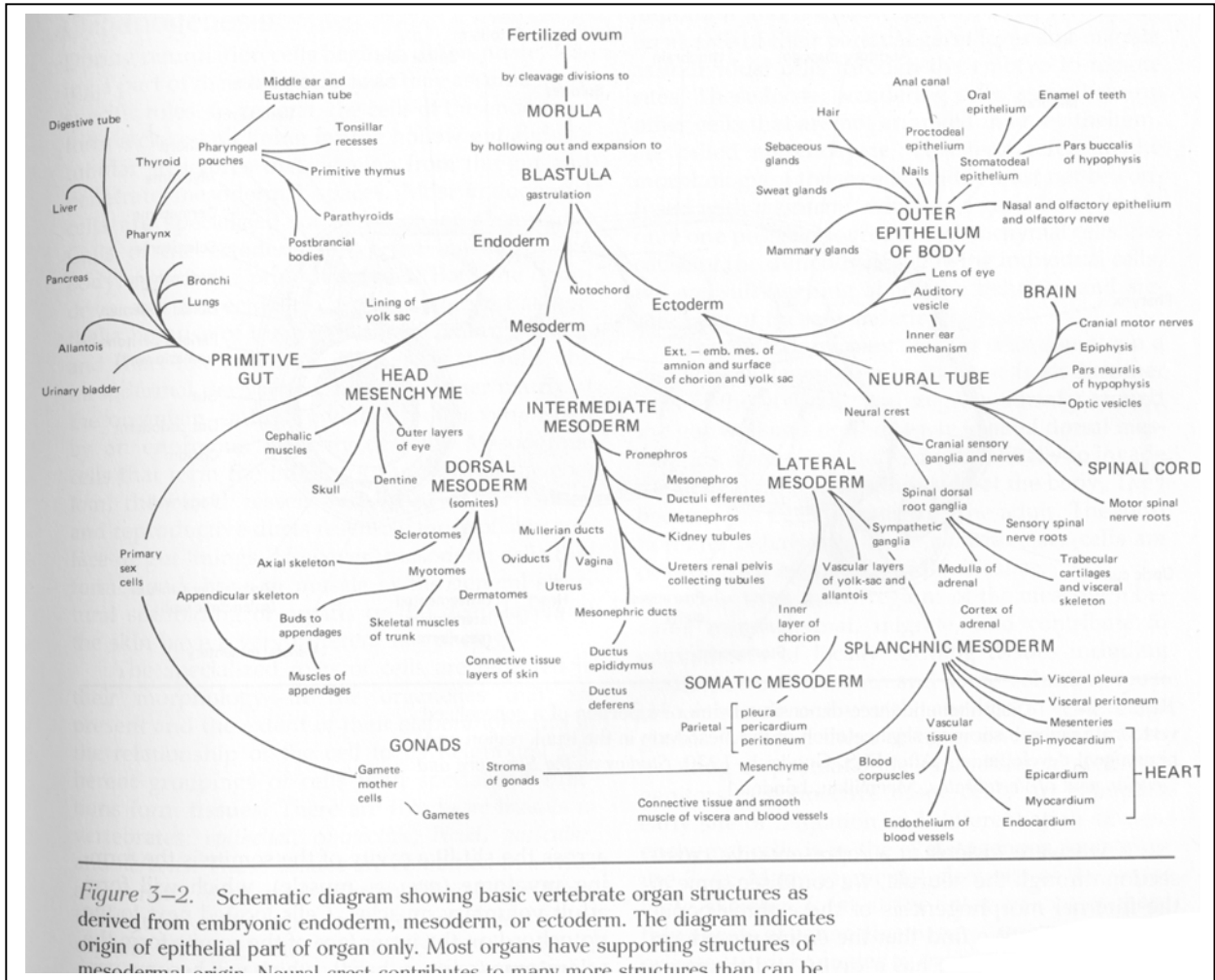


Figure 3-2. Schematic diagram showing basic vertebrate organ structures as derived from embryonic endoderm, mesoderm, or ectoderm. The diagram indicates origin of epithelial part of organ only. Most organs have supporting structures of mesodermal origin. Neural crest contributes to many more structures than can be