

Introduction to dissection

We assume that the specimen available for study is a human head and torso that has been properly embalmed. Students should be aware that the actual cadaver they dissect may have individual characteristics such that the dissection procedure specified here has to be modified. Often muscles that are described in text books cannot be found in a given individual. Sometimes they are much more prominent on one side than another. The cadaver may not have teeth. People end up in an anatomy lab because they died of some cause, which may have involved a collapsed lung, or a carcinoma of some sort. They are nearly always old, and their muscles may not be as prominent as they once were.

Aside from the sights and the smells, there are the emotional issues attached to working closely with a cadaver. Starting with the torso and leaving the head covered is the easiest approach to a situation that some may find difficult. Instructors are advised that they should see that the lab is set up in this way. However, they should also encourage students to take an active part in the dissection. After a while the task will become more fascinating than unpleasant. But it should always be remembered that there are times when some students may need to take a step back and take a few minutes to adjust to the dissection that is going on. At these times it is suggested that students simply pause and take notes or make drawings of the dissection process. Some people find that a 20-30 minute walk after a dissection class minimizes the effects that the sights, smells and embalming fluids may be having on their brain.

Latex-free gloves should always be worn during a dissection. The tools needed for dissection are a scalpel, a blunt-ended probe, a pair of scissors, and a pair of blunt-pointed forceps. In addition, larger tools such as a bone saw, a pair of shears, a mallet and a chisel are occasionally necessary. The availability of an electric autopsy saw is invaluable in speeding up certain procedures such as the opening up of the skull. If the anatomy lab does not have proper lighting that can be pointed in different directions, then a flashlight is useful. Students should dress appropriately, in clothes that they do not mind getting messy. Everybody dissecting should wear a laboratory coat and perhaps a scarf over the hair so that they can emerge less smelly. Those with long hair should tie it back. Copies of this manual and other books taken into the lab should be protected by slip on plastic covers.

It is useful to have a plastic or real skull available. Anatomical reference books are also needed. There are several books that describe the anatomy and the physiology of the vocal apparatus, notably Hardcastle (1976), Zemlin (1981), and Dickson and Maue-Dickson (1982). Students are encouraged to study relevant parts of these books before each dissection in order to gain a theoretical understanding of the speech production mechanism. Further suggestions for reading appear in the annotated bibliography in Appendix C. There is an excellent atlas specifically for speech and hearing scientists by Kahane and Folkins (1984). We hope that this manual will help students take a small step towards preparing dissections like those shown in the wonderfully detailed photographs in that book. They illustrate model dissections that students should try to emulate.

After any dissection some parts of the cadaver will have been cut away. If they are definitely of no further interest, they can be disposed of in the proper container. In most cases the

laboratory staff will arrange for them to be incinerated. Whenever possible, the skin should be retained and simply folded back. The skin of the specimen is a good protection against drying. When parts of the skin are not available, care should be taken to prevent the body from becoming too dry by wrapping it in cheesecloth dampened with a suitable preserving fluid. When the cadaver has been put away for the next dissection, all the dissection tools should be cleaned and stored safely, Needless to say, everyone working on the dissection should also wash thoroughly before leaving the lab.

A glossary of anatomical terms will be found in Appendix A. We will use the standard anatomical convention of referring to the cadaver as if it were standing erect with the arms straight down by the sides. This is not the position of the cadaver during dissection or in most of the illustrations, but it allows for a common basis for all descriptions. Thus, even if the cadaver is shown as lying on its back, the sternum (breast bone) is described as being inferior to (below) the head. The terms for the different directions are illustrated in Figure 0.1

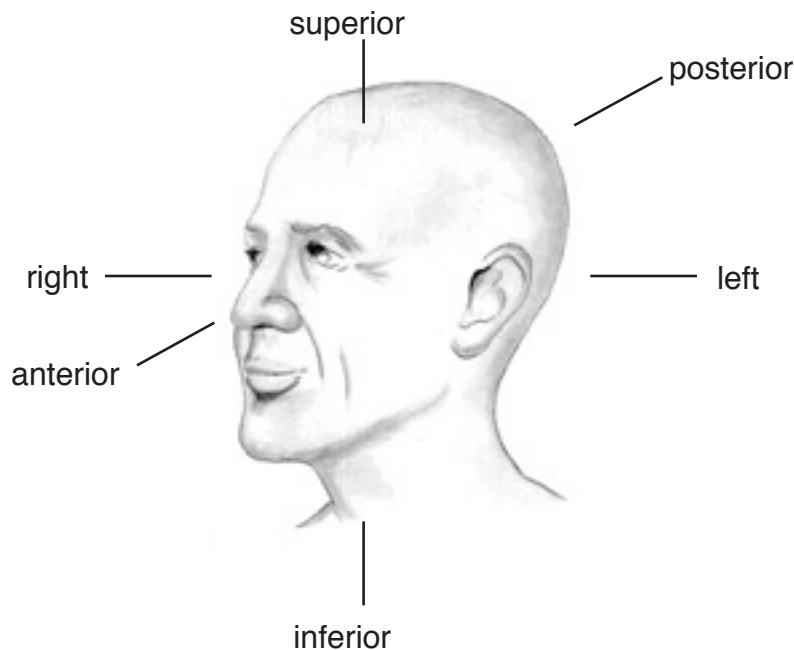


Figure 0.1 The directions used in describing the position of one anatomical structure relative to another.

Other terms related to directions are: Medial, which is defined as nearer to the center, the midline of the body; Lateral, which is defined as away from the midline (a fixed line that could be drawn along the center of the cadaver, from the head downwards); Deep, which is defined as more internal than something else; Superficial, which is defined closer to the surface of the body than something else.

There are also names for slices through a cadaver. The most familiar to students of speech is the sagittal section, shown in figure 0.2. Note that a sagittal section is any slice in parallel to the one shown. The slice that is most well known to us is the one in the mid-line, a mid-sagittal section.

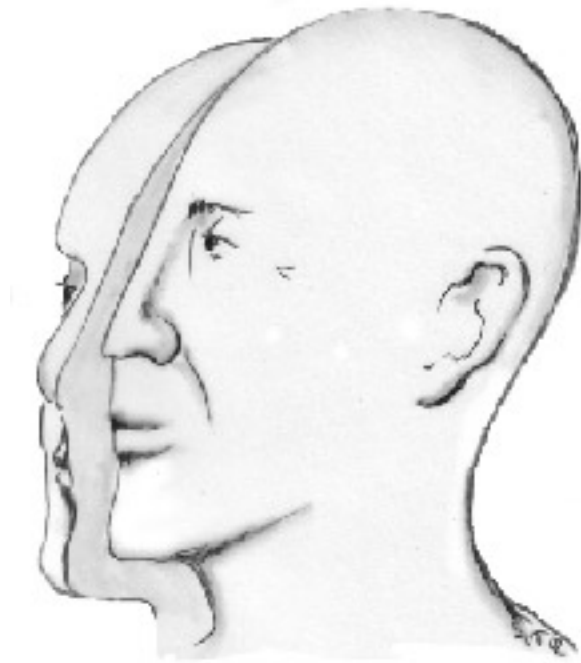


Figure 0.2. A sagittal section.

There are two other sections that are less familiar to students of speech, the coronal section and the transverse section. A coronal section is one that goes from side to side (perhaps ear to ear), vertically, as shown on the left in figure 0.3. Note that this use of ‘coronal’ is different from the linguistic use, in which articulations made with the crown of the tongue are called ‘coronal’. A transverse section, also shown in figure 0.3, is a horizontal slice.

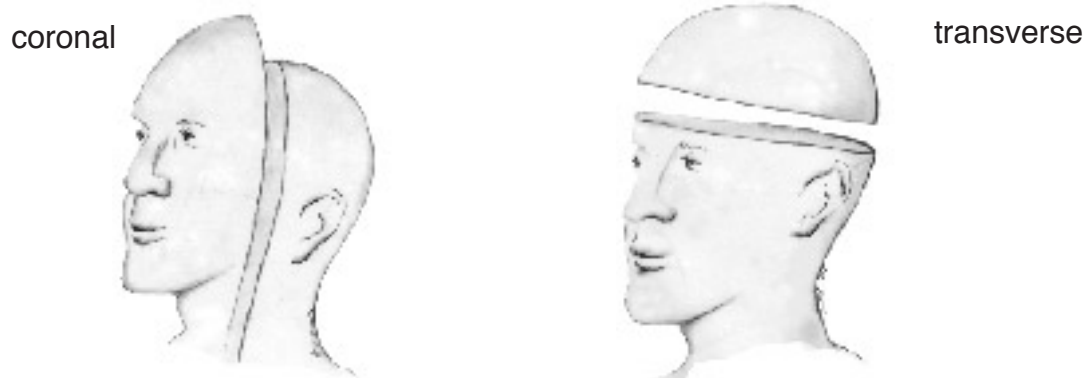


Figure 0.3. Coronal and transverse sections.

Appendix B contains a list of all the most important muscles of the speech production mechanism, arranged in accordance with their function. Students should review appropriate sections of this list periodically, so as to ensure that they have seen all the muscles named. The annotated bibliography in Appendix C contains references to some useful supplementary materials.