THE VIDEO ATLAS OF HUMAN ANATOMY

Tapes 1 – 5
Robert D. Acland.
Williams & Wilkins, Baltimore, 1996.
(PAL Format)

Anatomy is what we, as clinicians, use every minute of our working lives. It is the basic tool of manual medicine, and all of us have varying degrees of expertise in the area. Some will have learned their anatomy prior to the introduction of university courses, while others have science degrees with anatomy majors. Regardless of our individual backgrounds, it is difficult, at times, to quickly recall all the details that we need for a particular patient's problem. These tapes can fill this void.

In particular, the main bonus of these tapes is that they use fresh un-embalmed cadavers! Those of us who studied university anatomy with embalmed cadavers will find these video tapes much more interesting, especially since the various tissues have not been distorted or discoloured by time.

Each video-tape runs for about 2.5 hours, and there are adequate review sections. I particularly liked the small 30 page booklets, included with each separate tape, which lists the contents and the tape counter references for quick access to areas of interest.

The video author, and demonstrator, is a surgeon from the University of Louisville School of Medicine, who has a pleasant and almost neutral speaking accent that is easily understood. He obviously has anatomical knowledge in excess of what is shown in the tapes and is very comfortable with his presentations.

The anatomical specimens are immaculately prepared, with layers removed or added as necessary. Another point that I liked was the frequent addition of small box screens to highlight specific areas. Three-dimensional views are used and the camera moves around, and inside the specimens to give best vantage points of view. This approach is vital for the clinician, and is a vast improvement on an anatomical atlas. Both male and female specimens are shown in this series and the numerous dissections used to provide excellent detail.

John Clutterbuck

BOOK REVIEWS
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This series of videos can be purchased separately at a cost of about $75.00 (includes GST), or as a five tape package. Considering that the entire package can be purchased for the price of a seminar, they represent excellent value for money. These tapes are suitable for the undergraduate studying anatomy, the postgraduate who wants to fill in gaps in anatomical training, or the clinician who needs a ready reference.

**Tape 1: The Upper Extremity**
This tape starts with the shoulder, showing the articulated bones as a complex, then as individual components (clavicle, scapula) with all relevant parts pointed out. The shoulder complex is shown with all its ligaments. The shoulder movements are shown with the muscles removed, and biomechanics are discussed. I found it interesting to see the weakness of the shoulder joint capsule itself, stressing the importance of the rotator cuff muscles in shoulder stability.

The tendon of the long head of biceps is shown with its course through the shoulder capsule. Individual muscles of the rotator cuff are discussed and anatomical movements simulated by manually approximating the origin and insertions of the muscle. This same simulated muscle action is shown for every individual muscle discussed in the whole series of tapes. Another excellent point is the individual muscle origins and insertions shown prior to discussing the muscle in situ. In addition, there are demonstrations of muscles with complex motions. For example, the various parts of deltoid and serratus anterior have different actions depending on which part of the muscles contracts.

The clinically important blood vessels are shown by removing different layers of tissues to follow their entire course in a lot of detail. The brachial plexus is well demonstrated with adequate detail of its branching and re-combinations. The terminal branches of the plexus are shown dissected away from adjacent tissues for maximum clarity, and so are the scalene muscles. After viewing these sections it is much easier to appreciate compression of the neurovascular bundle as they pass through the scalene muscle.

The second part of this tape covers the arm and forearm. The elbow joint is discussed and is then further dissected to reveal details of the annular ligament and proximal radio-ulnar joint. The elbow joint stability obviously depends upon the fit of the bones and integrity of its ligaments, because the actual joint capsule is quite thin and lax. The distal radio-ulnar joint and carpal bones are shown next, assembled as a complex, then separated into rows. Movements of the wrist in vivo is simulated in dry specimens and with successive layers of ligaments and muscles attached.

The numerous forearm muscles are well described. The tape shows the nerves, arteries and veins which are important for those doing soft tissue work, or acupuncture.

**Part 3: The Hand** is covered in a lot of detail including the fibrous retinaculum which the tendons and nerves pass under, plus the ligaments, muscles, tendons, nerves and blood vessels. There is far more coverage and detail than the above suggests.

**Tape 2: The Lower Extremity**
Part 1. This tape begins with discussing the hip region including the bony pelvis. The hip joint capsule is quite strong as one would expect, being the opposite to the weak capsules in the upper extremity. The clinically troublesome piriformis, and other small femoral rotators are well shown. The lower limb muscles are shown according to their function, which is ideal for the clinician. The inguinal ligament and underlying vessels are discussed in detail, which is especially important for those clinicians working around and at the hip. The actions of the hip extensors are simulated when working individually or as part of a movement pattern. An example of this is hip extension caused by contraction of the hamstring muscles when co-contraction of the quadriceps prevents knee flexion.

The lumbar, sacral and sciatic nerves are discussed in detail. With the emphasis on finding faulty movement patterns (expounded by authors such as Liebensen, Jandra, etc) these tapes aid in the understanding of this clinically important topic.

Part 2: shows the knee joint in good detail, going as far as lifting the menisci to show their attachments, shape and relationship to the joint capsule. I particularly liked the section on the collateral ligaments, where the medial collateral ligament is shown as a thickening of the joint capsule, with its inner fibers attached to the medial meniscus. In comparison, the lateral collateral ligament is much smaller and is external to the joint capsule.

Part 3: Covers the leg and ankle. The complex joints of the ankle, sub-talar joint and tarsal joints are well shown. I particularly liked the section on the ankle ligaments, which included joint biomechanics in vivo, and the relative sizes of the medial and lateral ligaments. After viewing this section one can more easily appreciate the directions required to test each individual components of the lateral ligament, and why the anterior-talo-fibular ligaments is so often injured in an ankle sprain. The talo-calcaneal-navicular joint is shown, making its complex movements much more understandable than trying to come to grips with text books discussions.

After viewing the section on the plantar digital nerves one can readily appreciate the neuro-cutaneous symptoms experienced by the patient with Morton’s metatarsalga (neuroma).

**Tape 3: The Trunk**
Part 1 will be of special interest to the musculoskeletal clinician with a detailed section on the vertebral column with the unique movements, and vertebral shape at each functional section. The intervertebral discs are shown with consistency of the nucleus pulposus demonstrated. Then follows numerous sections, and cross-sections, of the spine showing all the spinal ligaments. The facet joint capsules are surprisingly quite thin and somewhat lax.
The short spinal rotators, multifidus and erector spinae are well demonstrated. The spinal canal, spinal nerves and leptomeninges are shown, with the robust dura contrasted to the thin, transparent arachnoid and pia. The dural sac is shown from the foramen magnum to the sacrum. Of particular interest is the section showing the split dura with the cord, arteries and course of the nerve roots. This section is quite comprehensive.

Part 2 of this tape covers the thorax, pleural cavity, diaphragm and muscles of respiration. Biomechanical models are used to demonstrate the movements of the ribs caused by contraction of the intercostals muscles. The heart, lungs and their relationship to the sternum and mediastinum are shown. This is important for those doing diaphragmatic releases.

Part 3 is an excellent work on the muscles of the lateral and anterior abdominal wall.

Next, the vessels inside the thorax are covered, with a short section on the female breast.

Part 4 covers the pelvis with the massive sacroiliac and all remaining ligaments. The muscles of the pelvic wall, those of the pelvic diaphragm, the blood vessels and nerves are all included.

**Tape 4: The Head and Neck, Part 1.**

This tape starts with the skull and its separate bones. Three-dimensional rotating views are used with excellent results to show areas discussed, and their scope and relationship to other structures. Movements of the upper, and lower cervical spinal segments are shown, with details of the different vertebral morphology. The facet joints are shown complete and then in longitudinal sections. The spinal ligaments are shown and the movements that they limit. Relative sizes of the anterior and posterior longitudinal ligaments are shown. How the intervertebral discs permit movement is an interesting point. Of particular interest is ligaments of the upper cervical complex. The transverse ligament is quite an impressive structure. The alar ligaments are massive and function to limit rotation of the head on the neck. This is an excellent clinically relevant section for all those working on the upper cervical spine. Clinically testing for instability of these ligaments is very important in patients who have had cervical trauma, and after viewing this tape the testing of the individual ligaments should be relatively easy. The clinically important suboccipital, anterior cervical and scalene muscles are well demonstrated. After viewing this segment differentiating between facet pathology and scalene muscle insertion tenderness would be better appreciated. The slender levator scapula is compared to the massive upper trapezius muscle. In this reviewers opinion, this tape is worth purchasing just for the above segments, and everything else is a bonus.

The facial skeleton is covered, and the internal cranial fossae are included. All the foramen of the skull are shown with their respective contents. Quite a lot of discussion follows on the individual bones that form the skull. There follows a good discussion of the contents of the nasal, and oropharynx. The undergraduate student of anatomy will find the serial sections, and details of the skull bones, shown in considerably more detail than some university anatomical facilities can demonstrate. One can only admire the incredible amount of work that the authors have undertaken to transform these tapes into a comprehensive learning program.

Detail includes the nose shown in parasagittal, and then sagittal section. The sinuses are shown in many views, and the muscles of the palate are included right down to tensor palati. Then follows a discussion of the mandible and the TMJ, with its thin and loose capsule; its lateral thickening, and the articular disc (shown in situ, and as a separate structure demonstrating its flexibility).

A lot of detail is given for the muscles of mastication including the pyergoids. This tape includes the supra- and infrahyoid muscles which are difficult to appreciate in an anatomical atlas, but easy to do so in the numerous views given in this tape. The tongue, and its muscles, are covered in detail, and so are the gums and muscles of the oral cavity.

The various ducts, and salivary glands, are shown with the muscles that surround the pharynx and larynx. The final section covers the small muscles of phonation, and the vocal ligaments, epiglottis and arytenoid cartilages. This latter section will be of special interest to the undergraduate student who is required to learn all these individual components, which are much easier to remember when seen in vivo and physiological motion. This is a masterful tape and an important addition to your clinical library.

**Tape 5: The Head and Neck, Part 2.**

This tape starts with the facial muscles and their actions, then the scalp and its coverings. The brain and its surroundings are discussed next and this is another instance where the use of rotating three-dimensional views, and small box screens, are used to such superb effect. Once again we see the sturdy dura mater, with the underlying flimsy arachnoid and pia.

The third part of this tape allocates 45 minutes to the cranial nerves, which I particularly enjoyed. After viewing this tape you will readily appreciate that when testing for olfactory nerve function you must not use substances that can irritate that part of the nasal mucosa innervated by the trigeminal nerve. The upper cranial nerves that run through the cavernous sinus are shown in good detail, including the massive trigeminal ganglion. There is a lot of detail on the course of the trigeminal nerve and its branches. There is also a lot of detail on the contents of the orbital cavity, the extra-ocular muscles and relevant nerves. Unfortunately, sulci and gyri of the brain are only briefly covered. However, when the ventricles are mentioned, computer-generated images show their location and shape in situ. Thereafter there is a detailed discussion of the blood vessels of the head and neck. The clinically important vertebral, basilar and carotid arteries are...
shown with this specimen demonstrating asymmetry of the vertebral arteries. The circle-of-Willis in this specimen has diffuse patches of atheroma in its walls. The final section of this tape is on the external ear, the tympanic membrane and auditory ossicles.

Summary
These five tapes are a magnificent learning aid for both the student and clinician. This reviewer has prepared a small specimen for university display, and his mind boggles at the enormity of preparing so many magnificent specimens. One can only congratulate the author and colleges on their work and take full advantage of their labours by purchasing the full set and having them at hand for ready review.

This reviewer has read many books on anatomy and considered that Moore’s Clinically-Oriented Anatomy to be near the top of the list. However, after viewing these five video tapes a few times, Moore’s book has dropped down a few notches.

We can only hope that the publisher coaxes Acland et al to produce an accompanying textbook, and a CD-ROM with interactive questioning. If this does occur Professors of anatomy may end up on the dole queue…. ?

There is an upcoming addition to the series that will cover the internal organs in detail. I will certainly obtain a copy of this as soon as it is available.

Footnote: This reviewer has suggested to the publisher that they consider making another tape that demonstrates the clinical findings in musculoskeletal pathology. Anyone who has viewed some of the video tapes available through the RACGP in Victoria would appreciate the clinical usefulness of a 2.5 hour tape devoted to demonstrating eg, upper and lower motor neurone lesions, spasticity, clonus, cranial nerve palsies, vertebrobasilar insufficiency, etc. Wishful thinking you say? Lets hope that Williams and Wilkins consider the potential market large enough to produce such a tape.

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