Preface

This manual is to be utilized by a group of dissectors simultaneously dissecting multiple regions over the course of a 4 day period. Dissecting as a group requires detailed conversation and clear understanding of the group desired outcome. Each group member dissects a region to its completion in a way that will result in a learning opportunity for every member of the group. As a contribution to those you will be dissecting with, please read manual before attending cadaver lab. Thank you.

**Contents**

* Day 1: Introduction to anatomy lab, dissection instruments and cadaver. Observe surface anatomy of the cadaver. Note any past surgical sites that may provide information and help create a dissection plan. With the cadaver in the supine position, reflection of superficial tissue, and dissection of superficial veins, cutaneous nerves, inguinal and axillary lymph nodes. Skin refection of head and anterior neck. **\*\*\*Dissection Note:** As a result of the 1st days dissection the fascia profunda as a whole body layer will be made visible with the cadaver in a supine position. **Page 2 - 5**
* Day 2: Cadaver in the prone position. Reflection of the superficial tissue. Dissection of the cutaneous nerves, and reflection of external and internal abdominal oblique muscles. Continue skin reflection of head and neck. Begin preparation for removal of mandible, pharynx & larynx. **\*\*\*Dissection Note:** As a result of the 2nd days dissection the fascia profunda as a whole body layer will be made visible. **Page 5 - 7**
* Day 3: Cadaver in the Supine Position. Dissection of torso musculature, upper and lower extremities. Continue anterior neck dissection of hyoid, scalene muscles, and brachial plexus. Dissection of femoral nerve, artery and vein. **\*\*\*Dissection Note:** As a result of the 3rd days dissection the thoracic and peritoneal cavities will be open, and observation of viscera made in situ. **Page 7 - 13**
* Day 4: Cadaver placed in supine position, complete evisceration of peritoneal and thoracic organs. Cadaver placed in prone position complete dissection of posterior neck musculature, upper extremities, erector spinae muscle group, multifidus, glute muscles, deep hip rotator muscles, hamstring muscles, sciatic nerve, superficial and deep posterior leg muscles, and muscles of sole of foot. **Page 13 - 21** Open cranium, dissection of brain, cranial nerves, and eyes. Dissect and disarticulate bones and joints of upper, lower extremities, pelvis and vertebral column. Spinal cord observed in situ. Page 18 – 21. **Notes, and a poem page 22**

**Day 1: Epidermis, Dermis and Hypodermis reflection, and preservation of fascia profunda:** Before making skin incisions, visually identify the sharp edge of the scalpel blade. The sharp edge of the blade has a slightly different surface texture from the remaining 90% of the blade. The sharp edge of the blade is a very useful measuring devise as it is approximately the same thickness of the skin. This point is made because in some areas of the body the epidermis, dermis and hypodermis need to be reflected as a single structure while leaving the fascia profunda intact. In other areas of the body the epidermis and dermis are removed as a single structure while retaining the hypodermis in its entirety to clearly locate and identify superficial veins, arteries, cutaneous nerves, and lymph nodes that are embedded within the hypodermis layer. Using the sharp edge of the scalpel blade as a measuring devise, the dissector is always sure of the depth of their incision that will avoid cutting too deeply to fast. **\*\*\*Dissection Note:** Always use a pair of hemostats or tweezers to hold tissue with one hand while dissecting with a scalpel in the other. The dissectors proper hand hold when using a hemostat is to take the instrument with an open palm (supinated hand), place one ring of the hemostat on the thumb and the second ring on the middle finger. Both rings of the hemostat are to be placed at the distal phalangeal joint. This positioning of the hemostat ensures skillful and precise dissection.

**\*\*\*Dissection Note:** Dissectors that utilize this manual will be dissecting cadavers/tissue that is in its natural state, referred to as “un-treated”. Dissection of un-treated cadaver/tissue requires a high level of focus because the tissue is very resilient and is changed very easily while dissecting. Therefore, use dissection instruments slowly with great detail and pausing often to allow time for visual observation.

With the cadaver in the supine position the superficial structures to be preserved as a result of the hypodermis being retained (left on the body) are: cephalic vein, basilic vein, median cubital vein, great saphenous vein, inguinal and axillary lymph nodes. From the anatomical position the approximate location of these structures are: Cephalic vein, between the anterior deltoid and pectoralis major muscles and slightly lateral to the biceps brachii muscle as the vein continues down the arm. The basilic vein is medial from the biceps brachii muscle, and the median cubital vein at the cubital fossa connecting the cephalic and basilic veins. The great saphenous vein is superficial to the adductor muscles of the thigh, then crossing the medial aspect of the knee to the tibia and continuing down to the medial malleolus and then to the great toe. The Inguinal lymph nodes extend from the upper medial border of the sartorius muscle slightly inferior from its attachment at the A.S.I.S. and superficial to the medial portion of the pectineus muscle. The axillary lymph nodes are embedded in the axillary adipose/fat. **\*\*\*Dissection Note:** The dissection technique to retain the superficial structures within the hypodermis is to use scissors in a reverse action. This is done by repeatedly inserting the point of the closed scissors into the hypodermis and opening the scissors as a spreading instrument. By spreading the hypodermis apart rather than cutting it will ensure full retention of the desired structure.

**Superficial Head and Anterior Neck:** With the cadaver supine, the dissectors position needs to be directly at the center of the head end of the cadaver/table. Start by removing the skin over the Platysma muscle by making a very shallow skin incision at the inferior border of the body of the mandible that extends the full width of the mandible, working in a caudal direction. Clearly identify the muscle fiber in a small area before dissecting further. Make every effort to keep the skin being reflected (removed) in a single piece as it will assist as necessary lifting mechanism to know the muscle is being preserved. The size of the platysma muscle varies, typically extending from the mandible to the clavicles. Having successfully reflected the skin from the platysma a clear consistent skin line has been created at the inferior boarder of the body of the mandible that makes seeing the depth of the skin very clear.

Using the created skin line from the inferior border of the body of the mandible, reflect the skin of the face in a head-ward (cephalad) direction. **\*\*\*Dissection Note:** The dissectors working position needs to be from the side of the cadaver, working across the midline. Stand on the right side to reflect skin from the left side of the face, and left side to reflect the skin from the right. **\*\*\*Dissection Note:** Using a hemostat always apply tension to the tissue by lifting the reflected edge of the skin. This lifting technique ensures that only the skin is being removed.

**Skin reflection and preservation of the muscles of the face: (mimic muscles/muscles of facial** **expression).** The skin must be reflected perpendicular to the direction of the muscle fiber to be retained. This dissection approach will require the dissector to change their standing/working position to apply a lifting tension to the reflected edge of the skin in a perpendicular direction of the muscle fiber. Expose the parotid/saliva gland that is anterior to the ears using the same skin reflection technique to ensure the preservation of the parotid gland, parotid duct and the branches of the facial nerve that emerge at the surface of the parotid gland. **\*\*\*Dissection Note:** The external ears are to remain intact throughout the dissection.

 **Reflecting the skin from the eyelids and the orbicularis oculi muscles:** Make a very superficial incision at the level of the upper eyelash, then lift the reflected edge of the skin with a hemostat and use just the tip of the scalpel to apply a gentle continuous incision that follows the natural rounded shape of the eye from the medial corner of the eye to the lateral corner. **\*\*\*Dissection Note:** Visually confirm that the fine muscle fibers of the orbicularis oculi are being retained. Having reflected the skin form the upper portion of the eye, use the same dissection technique for the inferior portion of the eye starting at the lateral corner and dissecting to the medial corner of the eye. **\*\*\*Dissection Note:** The eyes remain intact to be dissected from inside the cranium after the brain has been removed.

Having preserved the orbicularis oculi muscles leads to the delicate reflection of the skin over the frontalis muscle that must be kept intact in order to preserve the galea aponeurotica/scalp.

Having completed the skin removal of the facial muscles and the platysma muscle reflect the platysma muscle from the inferior attachment at the level of the clavicle keeping the muscle attached to the mandible. While reflecting the platysma retain the external jugular vein that is immediately deep to the platysma and superficial to the sternocleidomastoid/SCM muscles.

**Skin removal and direction of incisions of the torso, pelvis, upper and lower extremities:** Make a skin incision from the lateral 3rd of the clavicle in a downward and lateral direction to the axilla that crosses the pectoralis major muscle, then extend the skin incision from the axilla along the lateral aspect of the ribs to the anterior superior iliac spine (A.S.I.S.) of the ilium. Reflect the tissue from the ventral side of the body from lateral to medial following the muscle fiber direction as much as possible at all times. From the lateral 3rd of the clavicle make a skin incision laterally in a horizontal plane across the anterior and middle deltoid muscles while preserving the cephalic vein. Reflect the skin of the upper extremity in a downward direction following the muscle fiber direction.

**Continuing skin reflection of the lower extremities:** Make incision from A.S.I.S. to lateral aspect of the knee. Continuing down from the lateral aspect of the knee make skin incision 2 inches lateral to the anterior ridge of the tibia. Continue skin incision down/across ankle slightly medial to the lateral malleolus and extending down to the fifth toe/little toe. Removing the tissue of the lower extremity is accomplished by reflecting the tissue in a medial direction and a lateral direction simultaneously. Think of it as un-wrapping the extremity. **\*\*\*Dissection Note:** Fascia profunda remains completely intact as a whole body layer.

As the epidermis, dermis and hypodermis are being reflected from both the right and left sides of the body, a connection needs to be made that crosses the midline. Make a horizontal skin incision that produces as connection from left and right sides at the level of the clavicles, and from the left and right A.S.I.S. **\*\*\*Dissection Note:** Thus far all dissection has taken place with the cadaver in the supine position. In preparation for turning the cadaver to the prone position, advance tissue reflection in the direction of the back of the body whenever possible. Only do so when the visual field of dissection is completely clear. When necessary have the assistance of a fellow dissector hold/stabilize the upper and lower extremities in a medial or lateral rotation to ensure a clear visual field of what is to be reflected.

 **\*\*\*Dissection Note:** The specific identification of superficial veins, cutaneous nerves, inguinal and axillary lymph nodes requires the hypodermis/adipose/fat layer needs to be initially left intact by precisely reflecting the skin/epidermis and dermis separately from the hypodermis. This dissection approach will be followed by the eventual reflection of the hypodermis as a whole body layer or region by region where it has been preserved for the identification of the structures listed within this dissection note.

 **Skin of the fingers and toes:** To reflect the skin from the fingers and toes make incisions slightly lateral of the midline extending the length of the appendage. Apply tension to the reflected edge and continue reflection by dissecting from proximal to distal. This application of dissecting technique will require the dissectors standing position/direction to be adjusted from time to time to accommodate the confined area being reflected. **\*\*\*Dissection Note:** The median and ulnar nerves of the fingers and the branches of the plantar and peroneal nerves of the toes are within the hypodermis. These nerves are to be retained for further study by reflecting only the skin (epidermis and dermis) until the nerves are identified.

**Day 2: Reflection of Epidermis, Dermis and Hypodermis with cadaver in prone position:** To ensure a clear visual field the cadaver needs to be supported with the use of supportive props to reduce lordosis of the low back, and create cervical flection of the neck. One prop placed at the level of the 2nd and 3red ribs to allow cervical flection, and the second prop placed across the pelvis at the level of the A.S.I.S. to reduce the lordosis of the low back. **\*\*\*Dissection Note:** Props are supplied at every dissection table.

Applying the same dissection techniques as previously stated, reflect the epidermis, dermis and hypodermis as a single structure while retaining the fascia profunda as an intact whole body layer. **\*\*\*Dissection Note:** Also previously stated, the study of cutaneous nerves is made possible by reflection of the epidermis/dermis leaving the hypodermis on the body either as a whole body layer or at the very least in the regions of the body where cutaneous nerves, superficial blood vessels and lymph nodes are to be identified. The hypodermis that contains the structures just listed can be reflected later as a whole body layer or region by region.

**\*\*\*Dissection Note:** **Cadaver in the prone position:** locate the lateral supraclavicular nerve, dorsal rami of C4 – T6 that are superficial to the trapezius muscle, and the superior, middle and Inferior cluneal nerves that are superficial to the gluteus maximus muscle. **\*\*\*Dissection Note:** Visually observe the details of the fascia profunda as a whole body layer, the different directional patterns within it, where it is thicker and thinner from region to region. Also introduce movement to the upper and lower extremities to observe fascial responses to abduction, adduction, flexion, extension and rotations.

**Next:** **Utilizing incisions previously made with the cadaver in the supine position:** Continue the reflection of the superficial tissue from the middle deltoid muscle to the posterior deltoid. Reflect the superficial tissues in a direction that follows the muscle fibers toward the elbow. Utilizing the incision made at the posterior deltoid muscle reflect superficial tissues that’s over lying the middle part of the trapezius muscle from lateral to medial, the inferior part of the trapezius in a downward oblique direction from lateral to medial following muscle fiber direction, and the upper part of the trapezius from the occipital bone inferiorly.

**Next:** Reflection of the superficial tissue of the latissimus dorsi muscle requires a delicate approach. The lateral edge of the latissimus dorsi muscle has a loose attachment to the serratus anterior muscle and the upper posterior border of the external abdominal oblique muscles, these attachments must be dissected away from each other while still retaining the latissimus dorsi in its entirety.

**Next: Make a connection from torso to pelvis:** Having reflected the superficial tissue away from the latissimus dorsi muscle and the thoracolumbar aponeurosis, the reflection of superficial tissue over the gluteus maximus follows. **\*\*\* Dissection Note:** For reflection of the tissue over the gluteus maximus the dissector works from the opposite side of the cadaver from medial to lateral. Make initial incision slightly lateral of the sacrum extending from the crest of the ilium inferiorly to the gluteal line. Reflect superficial tissue following the muscle fiber direction. At the greater trochanter completely remove the superficial tissue that has been reflected from over the gluteus maximus.

 **Next:** Utilizing the previously dissected line at the lateral aspect of the thigh that continues down the leg, ankle and foot. Reflect the superficial tissue from lateral to medial which will make the iliotibial tract/band visible. Continue reflecting from lateral to medial crossing over the posterior thigh, knee and leg into the midline. **\*\*\*Dissection Note:** The fascia profunda becomes very thin and delicate in the region of the adductors muscles of the thigh. Make every effort to retain the fascia profunda in its entirety.

**Plantar surface of the foot:** With the cadaver in the prone position place a support prop under the anterior ankle enabling the ankle and toes to be in a neutral position. Reflect epidermis and dermis/skin retaining the hypodermis. As noted previously, initially retaining the hypodermis creates the opportunity for further study of the cutaneous nerves. **Dissection Note:** Within the sole of the foot the superficial nerves are the plantar digital, the superficial branch of the lateral plantar nerve and the medial calcaneal branches of the tibial nerve.

 **Next:** Reflect the hypodermis from the plantar aponeurosis starting at the calcaneus and reflect to the distal slips of the plantar aponeurosis of the toes.

**Posterior Head:** Utilizing the precise reflection initiated from the frontalis muscle that preserved the galea aponeurotica in its entirety, continue reflecting over the cranium from front to back making the occipitalis muscle and the upper trapezius muscles visible.

**Next:** Partially reflect the sternocleidomastoid muscles from midline retaining a slight attachment at the mastoid process. **\*\*\*Dissection Note:** Identify the greater auricular and lesser occipital nerves that are superficial to the posterior aspect of the sternocleidomastoid muscle.

 **Next:** Having reflected the sternocleidomastoid muscles locate the left and right greater occipital nerves as they become more superficial by penetrating through the trapezius muscle at its attachment on the occipital bone and traverse into the scalp.

**Next: Reflection of the trapezius muscle as a single structure:** Starting from the lateral 3rd of the clavicles, dissect a clear boarder up to the occipital bone. Reflect the muscle from the left and right attachments at the clavicles, acromion, and the spine of the scapula. Dissect the fascia at the deep surface of the muscle while folding the left and right sides to the midline and the remaining attachments of the spinous processes and the ligamentum nuchae/nucal ligament.

 **Next:** Starting at the distal attachment of the spinous process of T-12 and dissecting up to the occipital bone reflect the muscle by folding the left and right sides to the midline and apply a slight lifting traction that enables dissecting from the deep surface cutting it free as a single structure from the body. **\*\*\*Dissection Note:** When reflecting the trapezius from the scapulae in the medial direction visually identify the levator scapulae muscle located deep to the trapezius and contained within the fascia of the deep side of the trapezius muscle. Retain the levator scapulae muscles in their entirety.

 **In preparation for removing the mandible, tongue, pharynx and** **larynx as a single unit**: Reflect the temporalis muscles from the cranium, and the masseter muscles from the zygomatic arch.

**Next:** With the cadaver in the prone position reflect the lateral borders of the latissimus dorsi muscle in order to clearly identify and reflect the external and internal abdominal oblique muscles from their attachments on the posterior and lateral aspects of the ribs. **\*\*\*Dissection** **Note:** The remaining anterior attachments of the abdominal oblique muscles will be reflected on day 3 with the cadaver in supine position.

Having reflected the oblique muscles, the posterior and lateral portions of the transversus abdominis are is in clear view. **\*\*\*Dissection Note:** Leave the transversus abdominis intact, it will be dissected on day 3.

**Day 3: Cadaver in the supine position.** Visually observe the fascia profunda as a whole body layer. Also identify the specific regions of the fascia profunda by name, the clavipectoral fascia, fascia lata, crural fascia. **\*\*\*Dissection Note:** The iliotibial tract/band is part of the fascia lata of the thigh, and the superior and inferior extensor retinaculum is part of the crural fascia of the leg.

 **Next:** **Identify the following cutaneous nerves**, supraclavicular, lateral and anterior branches of intercostal nerves 1 – 11 that are located superficial to the external abdominal oblique, and the pectoralis major muscles. The branches of the lateral femoral cutaneous nerve, infrapatellar branch of the saphenous nerve and the superficial peroneal nerves. **\*\*\*Dissection Note:** To retain the structures listed above use a pair of scissors in a reverse action as a spreading instrument. Insert the closed tip of scissors in to the hypodermis tissue and open/spread the hypodermis away from the structure to be retained.

 **Next:** Locate and retain the great saphenous vein of the lower extremity, and the superficial inguinal lymph nodes.

**Next:** Make a vertical incision in the fascia lata from the medial superior border of the rectus femoris extending to the medial border of the patellar tendon. Having reflected the fascia lata to the medial boarder of the patellar tendon, dissect the fascia lata horizontally across the patellar tendon while retaining the entire structure. **\*\*\*Dissection Note:** Retain the fascia lata and iliotibial band/tract in its entirety from the pelvis to the tibia as they are joined structures.

**Next:** Having reflected the greater portion of the fascia lata laterally, reflect the medial portion of the fascia lata from the iliopsoas, pectineus, sartorius, gracilis, vastus medialis, adductor longus, adductor brevis, and adductor magnus muscles.

**Next:** **Clear distinction of each muscle** needs to be made by removing the individual fascial container of each muscle. The tensor fasciae latae muscle is best observed attaching to the iliotibial tract/band by making a vertical incision through the ventral and slightly medial portion of the fascia containing it, while retaining the much thicker fascial banding over the lateral portion of the muscle. **\*\*\*Dissection Note:** The fascia containing each individual muscle is much thinner and more delicate than the previously reflected fascia lata. Retention of muscles in their entirety is best accomplished by using the scalpel more like a paint brush being gently applied rather than a knife for cutting.

**Next:** **Reflect the adductor longus, and adductor brevis** from their bony attachments at the pelvis to expose the obturator externus muscle and obturator nerve. **\*\*\*Dissection Note:** Retain the femoral nerve, artery and vein while reflecting the fascia of the iliopsoas muscle. The femoral artery is to be dissected and retained as it continues down the lower extremity from region to region as the deep femoral, perforating, popliteal, anterior and posterior tibial and dorsalis pedis artery.

**Next:** **At the medial aspect of the knee** dissect the fascia of the sartorius, gracilis and semitendinosus muscles while retaining the tendons of all three to reveal the pes anserinus as it attaches to the upper medial shaft of the tibia.

**Next**: **At the ankle** using a scalpel cut an outline of the superior and inferior extensor retinaculum. Having created an outline of the retinaculum, reflect the remaining portions of the crural fascia while retaining the retinaculum. Using the extensor tendons at the ankle as a dissecting guide, separate the muscle bellies of the tibialis anterior, extensor hallucis longus, extensor digitorum longus, extensor digiti minimi, peroneus longus, and peroneus brevis muscles from each other by gently spreading the muscles away from each other with hemostats while dissecting the fascia between each muscle. After the muscles are clearly visible as individual structures reflect them from their attachments on the tibia, interosseous membrane and fibula. **\*\*\*Dissection Note:** The anterior tibial artery, superficial and deep peroneal nerves, and the interosseous membrane of the leg are to be retained in their entirety.

**Next:** **Distal to the inferior extensor retinaculum of the ankle** reflect the fascia of the dorsum of the foot that covers the extensor hallucis longus and brevis, extensor digitorum longus and brevis muscles and the tendon of the peroneus tertius muscle. **\*\*\*Dissection Note:** Dissect and retain the dorsalis pedis artery, and the lateral branch of the deep peroneal nerve that are located between the tendons of the extensor halluces longus and brevis muscles and slightly distal and medial of the inferior extensor retinaculum. Also dissect and retain the dorsal digital branches of the deep and superficial peroneal nerves located between the toes.

**Anterior Neck:** Having reflected the platysma muscle on day 1 from its distal attachments, reflect the sternocleidomastoid muscle from its attachments at the clavicles and sternum. Reflection of the sternocleidomastoid creates a clear view of the hyoid muscles, thyroid cartilage, thyroid gland, anterior scalene muscles, common carotid artery, and the internal jugular vein. Also in this region covered by the corpus adiposum colli (body of fat in the neck) and fascia is the brachial plexus. **\*\*\*Dissection Note:** Anterior to the brachial plexus is the anterior scalene muscle. The phrenic nerve that innervates the respiratory diaphragm is located on the anterior surface of the anterior scalene muscle and must be carefully preserved while reflecting the fascia of the scalene group. Continue reflecting the fascia of the scalene muscles to create a clear visual field of the subclavian arteries, and the deeper portion of the brachial plexus. Both structures the subclavian artery and brachial plexus are situated between the anterior and middle scalene muscles.

 **Next:** **The vagus nerve** is between the common carotid artery and the internal jugular vein, the artery is medial to the vein. All three structures are wrapped together by fascia/connective tissue and need to be dissected apart from each other. Using a pair of scissors in a reverse action, insert the tip of the closed scissors into the fascia/connective tissue and gently open in a spreading action. Separate the tissue apart the full length of the artery and vein to preserver the nerve while expanding the visual field. **\*\*\*Dissection Note:** The hyoid muscles are contained in a specific fascial compartment that also includes the bifurcation of the common carotid artery into the internal and external carotid arteries, the carotid sinus, internal jugular vein and vagus nerve. The omohyoid muscles serve as the lateral aspect of this compartment.

**Next:** **The sternohyoid, sternothyroid and thyrohyoid muscles** are made clear by dissecting the individual fascial compartment. Start by dissecting the medial borders in a vertical direction. Following the initial vertical incision gently lift the medial edge of the muscle and continue dissecting under the muscle. Continue dissecting the fascia of each muscle laterally to the point that the muscle is visualized as a single structure. **\*\*\*Dissection Note:** The omohyoid muscles extending downward in a lateral oblique direction from the hyoid bone to the posterior surface of the clavicle and then continuing down to the ventral surface of the scapula serves as the lateral borders of the fascial compartment of the hyoid muscle group, the common carotid artery, carotid sinus, internal jugular vein and the vagus nerve.

**Next:** Dissect a clear visual distinction of the trachea and the esophagus by dissecting the two apart from each other starting at the lateral surface of the trachea and gently separating the esophagus from its posterior surface.

**Next:** Having identified the structures of the anterior and lateral neck in situ, reflect the sternohyoid, sternothyroid and omohyoid muscles off of their distal attachments as preparation for dissection and removal of the mandible, tongue, pharynx, larynx, thyroid cartilage and gland.

**Next:** **Remove the left clavicle at the acromioclavicular and sternoclavicular joints** to further dissect the brachial plexus, subclavian artery and vein, as well as the following muscles, scalenes, serratus anterior, levator scapulae, splenius cervicis, iliocostalis cervicis, and the longissimus cervicis. **Dissection Note:** Reflect the clavicular head of the pectoralis major muscle off of the clavicle. Palpate joint spaces while physically introducing movement to each joint. When the joint space is identified insert scalpel to joint space and cut the follow ligaments, anterior sternoclavicular, acromioclavicular, coracoclavicular. Lastly dissect the subclavius muscle from the medial attachment at the coastal cartilage of the first rib.

 **Next:** **Dissect the loosely attached fascia connecting the deep surface of the pharynx and larynx** to the prevertebral muscles within the cervical spine. In preparation for removing the mandible, tongue, pharynx and larynx as a single unit, cut the trachea and the esophagus in the horizontal plane 1 inch above the manubrium while retaining the thyroid gland.

 **Next:** **\*\*\*Dissection Note:** Have a fellow dissector hold the mouth closed to identify the anterior and posterior bellies of the digastric muscles, and the stylohyoid muscles. Reflect the posterior belly of the digastric muscles off the attachments at the mastoid process, and the stylohyoid muscle from the styloid process as closely as possible.

**Next:** **Make an incision at the soft palate of the mouth** that extends from one side to the opposite side that will make it possible to retain the uvula with the mandible, tongue, pharynx and larynx as a single unit. Making the incision at the soft palate is to cut the palatoglossus muscle that is deep to the soft tissue. **\*\*\*Dissection Note:** The dissection approach being taken is to obtain a intact complete set of structures that include the platysma muscle, mandible, submandibular glands, digastric muscles, mylohyoid muscle, geniohyoid muscle, genioglossus muscles, tongue, uvula, superior, middle and inferior pharyngeal constrictor muscles, epiglottis, vocal folds, upper portion of the esophagus, hyoid bone, hyoid muscle group, thyroid cartilage, cricoid cartilage, thyroid gland, and the upper portion of the trachea. This set of structures is identified as the visceral portion of the neck.

 **Next:** **Dissection and creating a clear visual field of the pterygoid muscles:** Using electric bone saw remove 1 square inch of the ramus of the mandible. Gently remove the 1 inch square of bone to obtain a clear visual field of the pterygoid muscled from outside of the oral cavity. Having previously cut the tissue of the soft palate, extend the cut further lateral if necessary to create a clear visual field of the medial pterygoid muscles from inside the oral cavity. Cut the pterygoid muscles off of their attachments as close as possible at the pterygoid plates**. \*\*\* Dissection Note:** Both medial and lateral pterygoid muscles are to be preserved on the mandible.

**Next:** **Removal of mandible, tongue, pharynx and larynx as a single unit:** Reaching under the trachea and esophagus at the horizontal cut previously made 1 inch above the manubrium, physically reach up to the horizontal cut previously made at the soft palate. **\*\*\*Dissection Note:** By sweeping two fingers side to side the dissector ensure that the pharynx and larynx are completely separated from the anterior vertebral column and the posterior roof of the oral cavity.

**Complete the removal of the mandible, tongue, pharynx and larynx** by making an incision through the buccinators muscle from the corners of the mouth to the temporomandibular joint. Apply downward traction to the mandible to disarticulate the temporomandibular joint and identify any remaining tissue connections.

 **Thoracic cavity and organs in situ:** Having dissected to the depth where the pectoralis major muscle is visible, reflect the pectoralis major from the right humerus. Before cutting the muscle from its attachments start by gently lifting and dissecting the superior and inferior borders of the pectoralis major from the ribs to free the deep side of the muscle so that it is no longer attached to the torso by its fascia. When cutting the pectoralis major free from its attachment on the humerus leave approximately 2 inches of the muscle on the humerus. The remaining 2 inches of muscle left on the humerus provides an accurate landmark as more and more muscles are reflected from bony attachments within the shoulder. The pectoralis minor is now visible. Reflect the pectoralis minor from its attachments on the ribs. Having reflected the pectoralis major and minor muscles use hand clippers to open the thoracic cavity by clipping the ribs starting at the lateral aspect of the 3rd rib and clip down to the 7th rib on both sides of the ribcage. Make a connection to left and right sides by clipping across the mid line 2 inches above the xiphoid process and through the middle of the manubrium. **\*\*\*Dissection Note:** From having clipped the ribs they are very flexible. From the lateral aspect of the ribcage flex the clipped ribs in an upward direction to create a clear visual field of the lungs and heart.

**Next**: Using a scalpel make an incision through the mediastinal tissue as close to the deep side of the sternum as possible. Gently remove the clipped ribs and sternum to be sure the respiratory diaphragm is retained in its entirety. Clearly identify the lungs, left and right main bronchus, the heart within the pericardium and descending aorta.

**Viscera of the peritoneal cavity in situ:** The external and internal abdominal oblique muscles were previously reflected from their posterior and lateral attachments on the ribs and ilium. **Next:** Cut the rectus abdominis muscle from its attachments on the ribs and the pubic bone.

 **Cadaver in side lying position:** Dissect and reflect the transversus abdominis at its attachment sights of the low back, crest of the ilium and costal arch. When reflecting the transversus abdominis from the costal arch, be sure the respiratory diaphragm muscle remains completely intact. **\*\*\*Dissection Note:** All abdominal muscles are to be kept intact and removed from the body as a single connected unit.

**Next:** **Visual observation of peritoneal organs in situ:** Clearly identify parietal peritoneum, liver, gallbladder, stomach, spleen, small intestine, colon, urinary bladder, uterus and ovaries. Also observe the respiratory diaphragm with the liver attaching to it by way of the coronary and triangular ligaments. **\*\*\*Dissection Note:** Identify the mesocolon of the ascending and descending colon. The mesocolon is an extension of the parietal peritoneum that attaches the ascending and descending colon to the body wall. Using a scalpel, make an incision through the mesocolon that is slightly lateral of the ascending and descending colon. Gently lift the colon away from the body wall to expose the retroperitoneal organs, blood vessels and the muscles quadratus lumborum, iliacus, and the psoas.

 **Upper Extremities:** Reflect the deltoid muscles on the right side of the body from the clavicle and acromion. When reflecting the deltoids from the clavicle and acromion, leave the glenohumeral joint capsule intact.

**Next:** Separate the long and short heads of the biceps brachii by cutting the fascia that joins the two at the midline of the muscle. Identify the lateral border of the long head of the biceps brachii that is in contact with the brachialis muscle and separate the two muscles by cutting the fascia and spreading them away from each other with hemostat and identify the musculocutaneous nerve located between the two.

 **Next:** Make an incision of the fascia at the medial border of the coracobrachialis muscle to increase visual clarity of the muscle itself, and the brachial artery and the median nerve that are medial to it.

**Next:** Introduce abduction to the arm and visually identify axillary lymph nodes that are within the axillary adipose. Visual clarity of lymph nodes and lymph vessels is best done by using a pair of scissors to disrupt the continuity of the axillary adipose. Do this by using the scissors in a reverse action, not to cut the adipose but to spread it apart and leave the lymph structures intact. Having identified axillary lymph nodes and vessels remove the axillary adipose to begin clear identification of the ulnar, median, radial and musculocutaneous nerve that extend from the brachial plexus of the neck.

**Antebrachial region/Forearm, Hand and Wrist:** Visually identify the extensor and flexor retinaculum of the wrist. Using a scalpel make an outline of the retinaculum, this will make it possible to retain the retinaculum after reflecting the fascia that is proximal and distal of the retinaculum.

**Next:** **19 Muscles of the forearm:** Using the tendons at the wrist and hand as a dissecting guide, dissect parallel to the length of the tendons from distal to proximal. Separate the muscles from each other by cutting the fascia over and between each muscle. Use the hemostats as a spreading instrument to preserve each muscle in its entirety while dissecting the fascia away.

 **Next:** As each muscle is dissected clearly, reflect the muscle from its proximal attachment while retaining the interosseous membrane and the distal attachments of the muscles at the wrist and fingers.

 **Next: The carpal tunnel and median nerve:** From proximal to distal in the midline of the wrist cut through the transvers carpal ligament while retaining the flexor muscles and the median nerve in their entirety. **\*\*\*Dissection Note**: Having dissected the flexor muscles and cut the transvers carpal ligament make a clear visual example of the carpal tunnel by lifting the muscles out of the carpal tunnel and allowing the intact median nerve to remain in the tunnel and continuing to its end point of the thumb, 1st and 2nd fingers. Complete the dissection of the flexor muscles before dissecting the extensors. The supinator, pronator teres and pronator quadratus muscles remain completely intact. **\*\*\*Dissection Note:** Preserve the following structures within the forearm, wrist and hand the radial and ulnar arteries, musculocutaneous, radial, ulnar and median nerves.

**Day 4: Cadaver in supine position:** Complete the evisceration of the thoracic and peritoneal cavities.

**Evisceration of the thoracic organs:**  Identify the left and right phrenic nerves that are extending from the neck at the anterior surface of the anterior scalene muscles. In the thorax the phrenic nerves are embedded in the superficial surface of the fibrous pericardium lateral of the midline. Using a pair of scissors as a spreading instrument dissect the nerves away from the pericardium and retain them as continues structures from neck to heart to respiratory diaphragm.

**Next:** Using large hemostat clamp off the inferior vena cava outside of the pericardial sac and cut the vessel. Cut the superior vena cava, no clamping necessary. **\*\*\*Dissection Note:** When cutting the inferior vena cava, retain the respiratory diaphragm intact.

 **Next:** Using a hemostat gently lift the pericardial sac and make a vertical incision exposing the heart. Utilizing the vertical incision reflect the pericardial sac laterally by making horizontal incisions at the level of the right atrium above and the apex of the heart below. **\*\*\*Dissection Note:** Retain the respiratory diaphragm in its entirety when reflecting the pericardial sac.

**Next:** Cut the left common carotid artery, left subclavian artery 1 inch from the arch of the aorta. Cut the brachiocephalic trunk. Cut the descending aorta at the level of the left main bronchus. The heart and lungs are to be eviscerated together. Separate the tissue connection from the back side of the heart to the ventral surface of the esophagus. **\*\*\*Dissection Note:** The esophagus is to remain in place after having removed the heart and lungs as a single unit. **\*\*\*Dissection Note:** Having completed the evisceration the organs will be dissected individually at a separate dissection table.

**Evisceration of the peritoneal organs:** Using two large hemostats clamp the rectum placing the hemostats 2 inches apart. Cut the rectum between the hemostats. From the lateral body walls lift the descending and ascending colon from the previously made dissection of the mesocolon. **\*\*\*Dissection Note:** While lifting the colon from the pelvic region and the lateral body walls identify the ureters. The ureters, urinary bladder, kidneys, and reproductive organs are to remain in situ.

**Next:** Apply traction to the liver to create a clear visual field of the ligaments attaching the liver to the respiratory diaphragm, and cut the ligaments. Lifting the liver away from the posterior body wall cut the vena cava.

**Next:** Apply traction to the stomach to create a clear visual field of the esophagus from the esophageal hiatus, using a large hemostat clamp the esophagus. Cut the esophagus above the hemostat. **\*\*\*Dissection Note:** The respiratory diaphragm is to remain intact when cutting the esophagus.

**Next:** Apply traction to the spleen to create a clear visual field of the splenocolic ligament that is an extension of parietal peritoneum that attaches the inferior part of the spleen to the lateral body wall. Cut the splenocolic ligament.

**Next:** Lift the small intestine, colon, liver, stomach and spleen away from the posterior body wall creating a clear visual field of the root of the mesentery. Cut the root of the mesentery, celiac trunk, superior and inferior mesenteric arteries 1 inch from the abdominal aorta.

**Next:** Lift all organs that have been cut from the cavity as a single intact group to create a clear visual field of the kidneys. Cut the remaining extensions of parietal peritoneum from the kidneys to the deep side of the liver, stomach, spleen and respiratory diaphragm. Lift the organs out of the body as a single intact group. Dissection Note: The respiratory diaphragm is to be retained intact after having cut the parietal peritoneum extensions attaching to the kidneys.

**Next:** Lift the kidneys, adrenal glands and ureters away from the cavity by dissecting the remaining parietal peritoneum that attaches the structures to the deep surface of the cavity.

**Next:** Reflect the urinary bladder from the pubic bone. Cut the parietal peritoneum between the remnant of the rectum and the uterus or prostate gland. Cut the urethral connection from inside the pelvis, ventral of the prostate gland in the male, and ventral of the vagina in the female. **\*\*\*Dissection Note:** The rectum remnant is to remain in situ.

**Next:** Apply traction to the urinary bladder, uterus or prostate gland to create a clear visual field of any remaining tissue to be cut. Lift the organs out of the body as a single intact group. **\*\*\*Dissection Note:** Having completed the evisceration the organs will be dissected individually at a separate dissection table.

 **Dissect the muscles of the pelvic diaphragm, and the sacral plexus:** Create a clear visual field within the pelvic space by cutting the remnant of the rectum shorter than initially required for evisceration. **\*\*\*Dissection Note:** Retain the pelvic diaphragm muscles in their entirety by leaving the rectum approximately 1 inch in length.

**Next:** Dissect the abdominal aorta, the inferior vena cava, the common, external and internal iliac arteries and veins away from the body wall.

 **Next:** Cut the internal iliac arteries and veins from within the pelvic space. Utilizing the fascial dissection of the internal iliac arteries and veins reflect the fascia of the pelvic diaphragm muscles from lateral to medial. **\*\*\*Dissection Note:** Reflecting the fascia of the pelvic diaphragm muscles will also reveal the left and right lumbosacral trunk, obturator nerve and the lumbosacral plexus.

**Continuation of upper extremity:** With the cadaver in prone position complete the reflection of the deltoid muscle by reflecting the posterior deltoid from the spine of the scapula. Having reflected the deltoid muscle the infraspinatus, teres minor muscles are now visible. Separate the infraspinatus from the teres minor by dissecting away the fascia between the two muscles. This is best accomplished by using a pair of hemostats to gently spread the two muscle bellies away from each other while cutting the fascia between the two. Having reflected the trapezius muscle, identify the supraspinatus muscles, levator scapulae muscles, rhomboid major and minor. Continue dissecting the posterior aspect of the upper extremity by reflecting the fascia of the triceps muscles. **\*\*\*Dissection note:** Utilizing the clearly dissected lateral border of the latissimus dorsi muscle, starting from the thoracolumbar aponerosus dissect into the axillary region. Using the tendon of the latissimus dorsi attaching on the humerus as visual confirmation of correct location reflect the fascia between the superior border of the latissimus dorsi and the teres major muscle while retaining the long head of the triceps muscle that is in a vertical direction between the teres major and teres minor muscles.

**Next:** **Reflection of the rhomboid major and minor:** On one side of the body reflect from the spinous processes, and on the opposite side reflect from the scapula. When reflecting the rhomboid muscles preserve the serratus posterior superior muscles that are located immediately deep to the rhomboids. Reflect the serratus posterior superior from spinous processes and retaining the costal attachments. With the serratus posterior superior muscles reflected the portion of the erector spinae muscles in the upper thorax are made visible. The lumbar segment of the erector spinae muscles is made visually clear by reflecting the latissimus dorsi muscle.

**Next:** Reflect the left side of the latissimus dorsi by dissecting at the midline, cutting the thoracolumbar aponeurosis 1 inch lateral of the spinous processes. Reflect the left side from the humerus. **\*\*\*Dissection Note:** When reflecting the latissimus dorsi by cutting the thoracolumbar aponeurosis retain the two structures that are immediately deep to the thoracolumbar aponeurosis, the serratus posterior inferior, and lumbodorsal fascia. This is accomplished by starting the dissection at the superior portion of the thoracolumbar aponeurosis and dissecting inferiorly to the sacrum and then laterally to the crest of the ilium.

**Next:** Reflect the splenius capitis, and splenius cervicis muscles from the midline while retaining the muscle attachments at the head and neck. **\*\*\*Dissection Note:** The longissimus cervicis and capitis are within the fascia of the deep surface of the splenius capitis and cervicis muscles retain the longissimus in its entirety when reflecting the splenius muscles.

**Next:** Reflect the fascia from between the erector spinae muscles iliocostalis, longissimus and spinalis using a scissors as a spreading instrument beginning in the thorax and dissect up to the neck and head.

**Multifidus muscle in the lumbar region:** Make a vertical incision through the erector spinae tendon slightly lateral of the midline from mid sacrum up to T-10, reflect the erector spinae muscle group laterally. **\*\*\*Dissection Note:** Having reflected the splenius capitis and cervicis muscle from the midline, the semispinalis capitis and semispinalis cervicis muscles are visible.

**Next:** Reflect the left and right semispinalis capitis from midline to lateral, doing so will make the suboccipital muscle group, rectus capitis posterior minor, rectus capitis posterior major, obliquus capitis inferior and obliquus capits superior visible. **\*\*\*Dissection Note:** Retain the suboccipital muscle group in their entirety, only dissect and remove the adipose tissue between each muscle.

**Posterior pelvis:** Reflect the gluteus maximus from its midline attachments at the sacrum and the sacrotuberous ligament. Retain the bony and soft tissue attachments of the gluteus maximus laterally.

 **Next:** Make a vertical incision through the fascia profunda/fascia lata from the inferior border of the gluteus maximus extending down to the calcaneus bone in the midline. **\*\*\*Dissection Note:** Retain the iliotibial tract in its entirety by reflecting the posterior aspect of the fascia lata as a single structure laterally.

**Next:** **Within the popliteal space:** Identify the popliteal artery, vein and the bifurcation of the sciatic nerve into the common peroneal and tibial nerves by removing the adipose within the popliteal space.

 **Next:** From the popliteal space follow the sciatic nerve upward to the point where it emerges from the pelvis. In most cases the sciatic nerve emerges from the pelvis between the inferior border of the gluteus medius and the superior border of the piriformis muscles.

 **Next:** Starting from the inferior border of the piriformis muscle locate the gemellus superior, obturator internus, gemellus inferior and quadratus femoris muscles. **\*\*\*Dissection Note:** In most cases there is a small amount of muscle fiber from the gemellus superior and gemellus inferior wrapping the tendon of the obturator internus that needs to be reflected to create a clear view of the obturator internus.

**Next: Hamstring muscles:** Reflect the fascia of the semitendinosus, semimembranosus and biceps femoris muslces to create a clear visual field of the different shapes of the three muscles and the slightly different attachments at the ischial tuberosity. **\*\*\*Dissection Note:** The sciatic nerve passes between the two heads of the biceps femoris muscle.

**Next:** Identify the perforating arteries emerging from the posterior surface of the adductor magnus and continuing to the hamstring muscles. The perforating arteries are branches from the femoral artery.

 **Next:** Cut the semitendinosus, semimembranosus and the long head of the biceps femoris off of the ischial tuberosity to create a clear visual field of the posterior surface of the adductor magnus that includes the superior portion of the muscle identified as the adductor minimus.

**Next:** Identify the two heads of the gastrocnemius muscle within the popliteal space of the knee. Reflect the fascia of the gastrocnemius muscle at its lateral border separating it from the soleus muscle. **\*\*\*Dissection Note:** When dissecting the gastrocnemius and soleus muscles away from each other retain the tendon of the plantaris muscle that becomes convergent with the calcaneal tendon at the medial aspect.

**Next:** Reflect the two heads of the gastrocnemius muscle from its attachments on the femur, the soleus muscle from its attachments on the posterior tibia and fibula, and the plantaris muscle from its attachment on the femur. Retain all the muscles as a single structure attaching on to the calcaneus bone. Having dissected the three muscles free of their superior bony attachments move the group to the side and reflect the fascia between the muscles of the deep posterior compartment of the leg, the flexor hallucis longus, tibialis posterior and flexor digitorum longus muscles.

 **Next:** Having reflected the fascia of the muscles of the deep posterior compartment of the leg, reflect each one off of their attachments at the tibia, fibula and interosseous membrane. **\*\*\*Dissection Note:** Retain the interosseous membrane, posterior tibial artery and vein, and the tibial nerve in their entirety.

**Sole of the foot:** 2 inches forward from the calcaneus bone reflect the flexor digitorum brevis muscle from the deep surface of the plantar aponeurosis starting medially and dissecting completely through to the lateral border. Dissect the plantar aponeurosis and the flexor digitorum brevis muscle off their calcaneal attachments while retaining the attachment of both near the toes.

**Next: Having previously reflected flexor halluces longus, flexor digitorum longus and tibialis posterior:** Create a clear visual field of the structures within the 3rd layer of the sole of the foot by cutting the flexor retinaculum at the medial malleolus and applying traction to the flexor halluces longus, flexor digitorum and tibialis posterior as a single unit toward the toes to expose the 3rd layer of structures of the sole of the foot. **\*\*\*Dissection Note:** The distal attachment of the quadratus plantae muscle onto the tendon of the flexor digitorum is to be retained, cutting the quadratus plantae from its calcaneal attachment.

**Day 4 cont. Cadaver in supine position:** Dissection and removal of the brain. Using electric bone saw a total of 4 cuts will be made which will leave a strip of bone approximately 1 inch wide remaining in the midline from front to back. This 1 inch strip of bone is necessary to retain the falx cerebri, and the tentorium cerebelli. First two bone cuts are made from anterior to posterior each cut starting 1 inch above the bony orbit of the eye and 1 inch lateral of the sagittal suture extending to mid occipital bone. The second two bone cuts to be made are in the horizontal plane from front to back connecting the cut made above the bony orbit of the eye and the occipital bone. **\*\*\*Dissection Note:** Dissect and remove the right cerebral hemisphere first.

 **Next:** Remove the bone while leaving the dura mater intact with the brain. Identify the middle meningeal artery within the dura mater. Next, using a scalpel cut the dura mater from front to back along the same lines the bone has been cut from the bony orbit of the eye to the occipital bone. With the dura mater remaining intact laterally bend the dura mater laterally and identify the arachnoid mater and the cerebral veins. **\*\*\*Dissection Note:** The arachnoid mater must be retained to maintain the integrity of the brain.

 **Next:** With the head in a neutral position allow the brain to slightly settle to the back of the cranial vault which will make the optic nerves and optic chiasm visible. Cut the optic nerves anterior to the optic chiasm.

**Next:** Using a hemostat gently spread the left and right hemispheres of the brain creating sufficient space to cut the corpus callosum directly in the midline, this cut will also include cutting the septum pellucidum, and the body and the commissure of the fornix. Continue cutting toward the cranial base veering slightly lateral to the right through the thalamus. **\*\*\*Dissection Note:** Veering slightly lateral when cutting through the thalamus makes it possible to retain the pineal gland with the left hemisphere of the cerebrum and two cranial nerves, number 4 the trochlear nerve, and number 5 the trigeminal nerve with the right brain stem. **\*\*\*Dissection Note:** The brain is very soft and must be controlled by rotating the head and neck in specific directions to utilize the cranial vault as a supportive holding devise.

 **Next:** To complete the removal of the left hemisphere of the brain have the head rotated to the left, reach through from right to left under the retained bone strip with the falx cerebri remaining attached and cut horizontally through the superior portion of the thalamus leaving the pineal gland in situ.

**Eyes:** Having removed the cerebrum, dissection of the eyes is accomplished by cutting the superior portion of the bony orbit of the eyes from inside the cranium. Identify the optic nerve and gently remove the thin portion of bone covering the nerve. As the bone becomes thicker at the orbit use electric bone saw to cut and remove the top part of the orbit.

 **Next:** Dissect and remove the adipose tissue around the eye. Retain the portion of bony orbit that has the trochlea/sling for the superior oblique muscle. The trochlea/sling is to be located by dissecting the belly of the superior oblique muscle from posterior to anterior.

**Next:** Having identified the extrinsic eye muscles make an incision through the sclera between the lateral rectus and the superior rectus muscles from front to back. Allow vitreous humor to drain.

 **Next:** Extend the incision made to the sclera to increase the visual field, and use the tip of a scalpel to gently reflect the lens and iris from the inside of the sclera.

**Cerebellum and Cranial Nerves:** Cadaver in prone position, the cerebrum removed, and muscles that attach to the occipital bone reflected. Using electric bone saw, 3 cuts need to be made. First make a horizontal cut through the occipital bone below the tentorium cerebelli that is the same width as the lateral bone cuts made to remove the cerebrum. **\*\*\*Dissection Note:** The tentorium cerebelli is to be retained in situ with the falx cerebri.

**Next:** The second 2 cuts are to be made at an angle starting laterally and continued in a downward oblique direction toward the foramen magnum that will create clear access to the cerebellum. Remove the cerebellum in two equal left and right hemispheres by making a first cut from superior to inferior directly at the midline, and then the separation from the brain stem by cutting at the cerebellar peduncles. **\*\*\*Dissection Note:** Retain all cranial nerves when cutting at the cerebellar peduncles.

**Dissection and disarticulation of upper, lower extremities, pelvic and vertebral column bones and joints:** Remove musculature from each bone one muscle at a time as close as possible to each muscles attachment site. **\*\*\*Dissection Note:** When removing the erector spinae muscles reflect them as a complete group from the lumbar region. Remove the multifidus muscle separately.

**Next: Dissect and opening joint capsules of the glenohumeral, elbow, knee and hip:** Introduce movement to the joints in every plane possible to clearly identify the joint space.

**Next:** Make horizontal incisions through the middle part of the joint capsules that will create two equal half’s. With the joint capsules open, introduce movement again to observe articulating surfaces and internal ligaments and meniscus. **\*\*\*Dissection Note:** Retain the labrum of the glenohumeral and hip joints.

**Joints of hand, wrist, ankles and feet:** Introduce movement into each joint to identify specific joint spaces from the dorsum of the hand wrist/carpal, and foot ankle/tarsal joints. Cut into the dorsal joint spaces by inserting the tip of the scalpel to the space and cut the ligaments from bone to bone by following the shape of each bone. **\*\*\*Dissection Note:** Retain the ligament at the palmar surface of the carpal bones, and plantar surface of the tarsal and metatarsals of the foot.

 **Spinal cord:** Having removed the occipital bone that includes the posterior portion of the foramen magnum, use either electric bone saw or hand clippers to remove the posterior portion of the vertebral column. If using hand clippers place one side of the clipper in the vertebral canal/foramen and clip both left and right lamina of each vertebra. Continue exposing the spinal cord/cauda equina by clipping or cutting inferiorly to the sacrum. **\*\*\*Dissection** **Note:** Be sure to clip or cut far enough laterally to create a clear visual field of the spinal cord.

**Joints of the pelvis, and vertebral column:** Cadaver supine, using a scalpel make a horizontal cut through the fibrocartilage disc at the pubic symphysis.

**Next:** Cadaver supine: Identify the lateral margins of the sacrum articulating with the left and right ilium and cut the ligaments joining the two.

**Next:** Cadaver prone: Identify the lateral margins of the sacrum articulating with the left and right ilium and cut the two: **\*\*\*Dissection Note:** Once the fibrocartilage disc at the pubic symphysis has been cut, careful handling of the pelvis is necessary to retain the surfaces of the sacroiliac joints.

**Joints of the vertebral column:** From posterior identify the joint spaces of the facet joints by introducing flexion and extension to the vertebral column. Using a scalpel insert the tip into the joint space and cut the fibrous capsule of each left and right facet joint.

**Next:** From anterior identify the intervertebral discs by gently inserting the tip of a scalpel into the disc to identify the soft disc from the hard bone. Next: Cut the discs into equal half’s. **\*\*\*Dissection Note**: Identify the anulus fibrosus, and the nucleus pulposus.

**Bone dissection:** Using electric bone saw cut bones in the midline longitudinally to expose the greatest internal surfaces. **\*\*\*Dissection Note:** To create a clear visual field of the trabeculae of the spongy bone use a water spray bottle to spray the bone marrow out of the bone.

Notes

A poem: I keep looking inside to see what kind,

And I find the same every time,

So off I go to build a shrine,

In hopes of changing this mind of mine

TJG