

A P P E N D I X O N E

OVERVIEW OF THE SIX FLEXIBILITY HIGHWAYS

THE ANTERIOR FLEXIBILITY HIGHWAY



FIGURE A1.1 ANTERIOR FLEXIBILITY HIGHWAY

KEY INTERSECTIONS

- *Anterior tibialis to distal quads*
- *Proximal quads to distal hip flexor*
- *Proximal hip flexor to distal abdominals*
- *Proximal abdominals to distal pectorals*
- *Proximal pectorals to distal delts*
- *Opposite obliques to opposite shoulder*

STRETCHING THE ANTERIOR FLEXIBILITY HIGHWAY



PHOTO A1.1A AND B STRETCHING THE ANTERIOR FLEXIBILITY HIGHWAY

The Anterior Flexibility Highway runs from the south to the north—the bottom to the top of the body—or along the sagittal plane with flexion and extension movements occurring on this Highway.

The myofascial tissues of this Highway begin at the dorsal surface of the foot with the toe extensors, and interchange with the anterior compartment of the ankle and tibia. This runs from the anterior tibialis north, connecting to the distal quadriceps near the patellar tendon.

The next interchange north is the patellar tendon and the quadriceps attachment northward to the hip flexors. To enhance function of both the quadriceps and hip flexors, it is important to lengthen both structures together.

The hip flexors intersect with the abdominals that travel to the ribs, sternum, and the sternochondral fascia, and venture into the pectorals, anterior shoulder, and the sternocleidomastoid.

From there, an angular detour takes our journey to the mastoid process of the Anterior Flexibility Highway, which enhances extension moments.

POSTERIOR FLEXIBILITY HIGHWAY

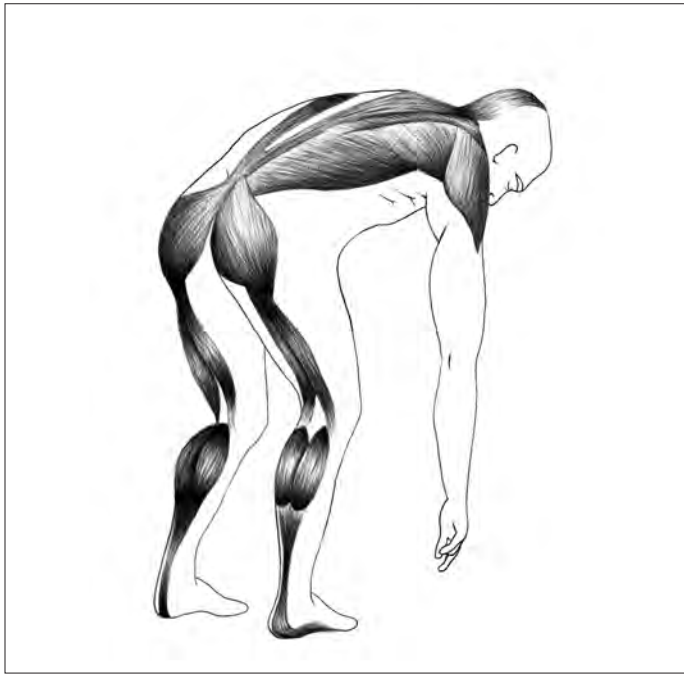


FIGURE A1.2 THE POSTERIOR FLEXIBILITY HIGHWAY

KEY INTERSECTIONS

- *Plantar fascia to calcaneus to Achilles*
- *Posterior calf to distal hams*
- *Proximal hams to distal glutes*
- *Proximal glutes to distal erector spinae*
- *Opposite glutes and lats*
- *Distal erector spinae to occipital to epicranial fascia*

STRETCHING THE POSTERIOR FLEXIBILITY HIGHWAY



PHOTO A1.2 STRETCHING THE POSTERIOR FLEXIBILITY HIGHWAY

The Posterior Flexibility Highway runs from the south to the north or along the sagittal plane with flexion movements occurring on this highway. The myofascia of this highway begins at the plantar surface of the foot from the toe flexors, moves through the posterior compartment of the ankle, and meets at the Achilles tendon. Through the posterior calf group of the gastrocnemius, soleus, and posterior tibialis northward, the knee interchange meets the hamstrings.

The gastrocnemius attaches at the femoral condyles and conjoins with the descending hamstrings that attach at the tibial condyles. In fact, the gastrocnemius and hamstrings connect with each other, forming the “trapeze artists of the body.”

The hamstrings attach below and around the knee on the tibial condyles. The hamstrings run north, attaching at the ischial tuberosity, and merging into the sacrotuberous ligament. In this region, a major interchange emerges as the sacrotuberous ligament meets the lumbosacral fascia,

and passes into the gluteal complex, as well as the erector spinae.

The erector group travels north to connect with the occiput and conjoins with the epicranial fascia to the forehead.

It is important to stretch the union of the gluteals and the erector spinae musculature in an integrated fashion, as any functional lumbar movement pattern includes the gluteals. The relationship of these structures should be developed together.

The final posterior journey terminates at the scalp fascia.

LATERAL FLEXIBILITY HIGHWAY

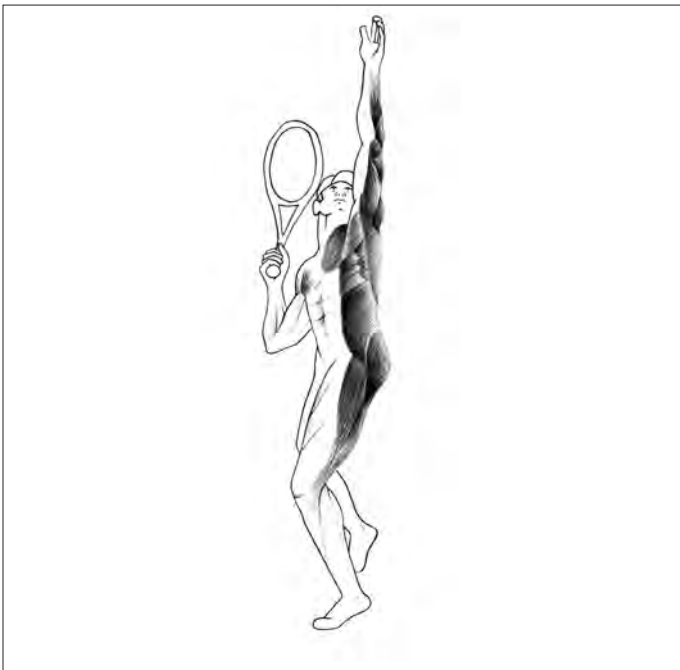


FIGURE A1.3 THE LATERAL FLEXIBILITY HIGHWAY

KEY INTERSECTIONS

- *Peroneals to ITB and TFL*
- *ITB and TFL to lateral gluteals*
- *Lateral gluteals to QL and obliques*
- *Obliques to opposite pectorals and shoulder*

STRETCHING LATERAL FLEXIBILITY HIGHWAY



PHOTO A1.3 STRETCHING THE LATERAL FLEXIBILITY HIGHWAY

The Lateral Flexibility Highway is commonly overlooked in discussions on function. The Lateral Flexibility Highway runs from the south to the north along the frontal plane with abduction and adduction movements occurring along this line.

Running from the lateral ankle and the peroneal group, the Lateral Highway goes north to the lateral tibial condyle and the iliotibial band. Moving upward from this taut structure, the IT band merges with the tensor fascia lata, the gluteus medius and minimus, and then meets with the gluteus maximus.

When analyzing the multidirectional fibrous “routes” of the gluteal complex, we know to include these sections of the Highways with all Flexibility Highway stretching. The gluteals are the “command central” of our center of gravity, balance, and power. They are used in all functional movement patterns, and thus are the hub of tri-plane movement patterns.

Along the Lateral Flexibility Highway, the lateral gluteals are adjacent to the QL and then the obliques.

The obliques merge with the external and internal intercostals toward the anterior aspect and the latissimus dorsi in the posterior aspect. Additionally, these structures are close neighbors to the transverse abdominis by way of fascial anatomy.

From this point north, the lats will meet up with the posterior rotator cuff. There is a bypass at the junction of the latissimus dorsi and the trapezius group, whereby the journey northbound traverses through the trapezius group to the sternocleidomastoid.

THE ANTERIOR X-FACTOR



FIGURE A1.4 THE ANTERIOR X-FACTOR

KEY INTERSECTIONS

- *Opposite adductor to pubic ramus*
- *Pubic ramus to opposite obliques*
- *Obliques to serratus anterior to pectorals*
- *Pectorals to the shoulder*

STRETCHING THE ANTERIOR X-FACTOR



PHOTO A1.4 STRETCHING THE ANTERIOR X-FACTOR

All motions involving rotation and extension run along the Anterior X-Factor (AXF). When viewing the anatomy of the adductors to the opposite pectoral and shoulder region, there is a somewhat parallel line along these tissues. This Flexibility Highway runs from the adductor insertion on the linea aspera on the posterior femur and originates at the pubic ramus on the pelvis.

At this point, there is a close fascial relationship between the origin of the adductors to the rectus abdominis as it traverses along the abdominals to the opposite intercostals and obliques, upward to the serratus anterior, into the pectorals, and into the opposite shoulder complex. Therefore, any motion that involves extension and rotation of the opposite side runs along the AXF.

Additionally, when we abduct and extend an arm, similar to a throwing motion or a golfer's backswing, the tissue from the deltoid into the biceps and forearm is included in the AXF.

It is crucial to possess ample mobility in the adductors, abdominals, and pectoral regions to enhance motions through the AXF.

Likewise, it is important to maintain good range of motion in the hamstrings, as these tissues are the neighbor of the adductors, and highly affect them.

POSTERIOR X-FACTOR

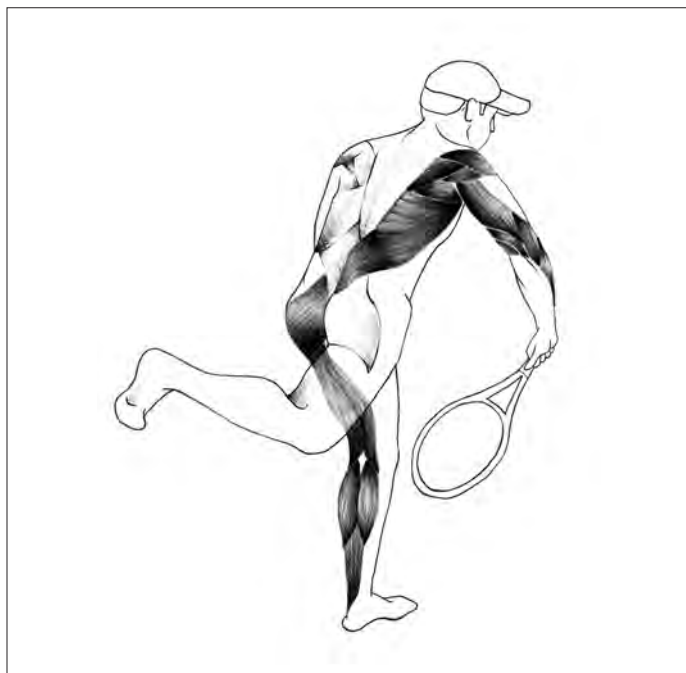


FIGURE A1.5 THE POSTERIOR X-FACTOR

KEY INTERSECTIONS

- *Calf to hamstrings*
- *Hamstrings to gluteals to sacrotuberous ligament to lumbar fascia*
- *Lumbar fascia to opposite latissimus dorsi to the shoulder*

STRETCHING THE POSTERIOR X-FACTOR



PHOTO A1.5 STRETCHING THE POSTERIOR X-FACTOR

As you view the posterior architecture of the soft tissue, the Posterior X-Factor (PXF), notice the nearly parallel line between the opposite gluteal complex and the latissimus dorsi. Both tissues entwine into the lumbosacral fascia, thereby joining the opposite hip and shoulder.

The importance of the PXF comes into play during flexion and rotational actions, such as the follow-through in a throw, the backswing during a golf swing, tennis swing follow-through, or simply picking up an object within reach and lateral to you.

THE TURNPIKE

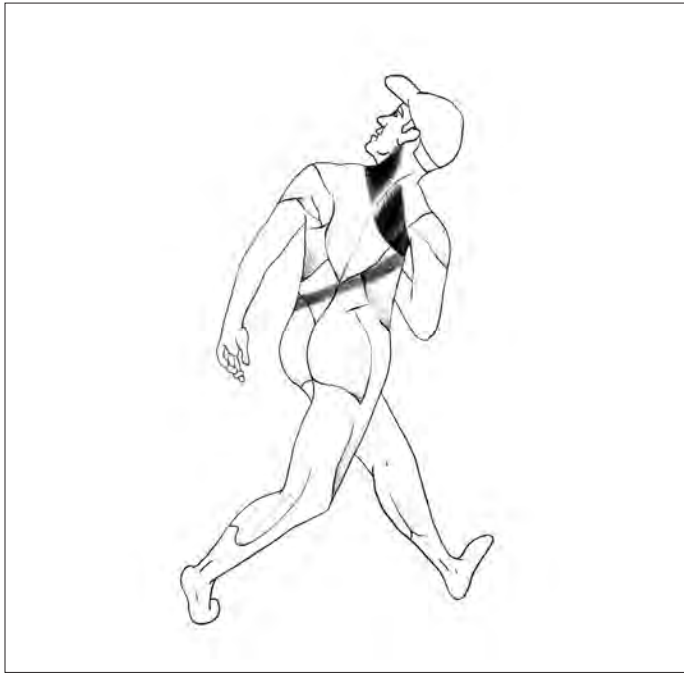
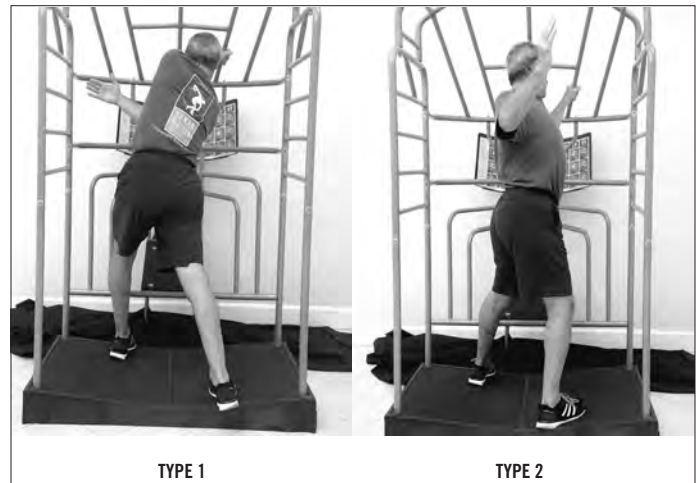


FIGURE A1.6 THE TURNPIKE

KEY INTERSECTIONS

- *Scalenes and cervicis capitis to the opposite rhomboid*
- *Rhomboid to subscapularis to serratus anterior*
- *Serratus anterior to external oblique to the opposite hip*

STRETCHING THE TURNPIKE



PHOTOS A1.6 A AND B STRETCHING THE TURNPIKE

This unique Highway system forms a relationship with the cervical spine and the hip via the opposite shoulder girdle. Running from the opposite scalene and capitis cervicis, these tissues conjoin with the rhomboids on the same side. The rhomboids attach to both scapulae, but due to the angulation of the rhomboid, these tissues attach to the opposite scapula. The rhomboid runs laterally to connect with the subscapularis approximately one-third from the medial border.

The subscapularis travels laterally to merge with the serratus anterior about 20 percent from the lateral border. The serratus anterior wraps around the side of the body, connecting with the pectorals and external obliques.

The external oblique runs on an angle toward the linea alba of the rectus abdominis to the opposite hip. This “turnpike” creates the indirect attachment from the same-side posterior cervical spine to the opposite shoulder, and diagonally back to the same-side hip on the anterior side.