

# The Longitudinal Muscle System

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The Longitudinal Muscle-Channel System (LMS) is a practical acupuncture approach to visualizing, diagnosing and treating canine lameness. It is a logical and anatomically based system that can be used in conjunction with the Eight Principles or the Five Elements theories to achieve an effective treatment strategy.

The muscle channels are an adaptation of the meridian system that connects the muscles in longitudinal channels. By connecting the meridians with different muscle groups, a longitudinal system is formed that can be utilized to observe, diagnose and treat lameness. This chapter will describe the LMS, identifying the meridians involved and the principles of treatment.

The LMS distribution courses with the nerves, the blood vessels, the lymphatics and the corresponding collateral branching. This anatomical system then correlates with the muscle system. Each meridian has a longitudinal course that can be traced along the body and successfully used in treatment. The practitioner can use his or her knowledge of veterinary anatomy, along with the meridian system and the LMS, to visualize the meridians on the canine body. These muscle channels are pathways that connect the energetic principles of Qi flowing through the body.

The LMS has been expanded from the Chinese muscle channel theory by Dr. D.E. Kendall, O.M.D., Ph.D., L.Ac. Dr. Kendall has successfully developed this system for treatment of human musculoskeletal problems. This chapter is an adaptation of his work *Traditional Acupuncture Orthopedics – Systemic Application of Acupuncture for Treatment of Pain and Musculoskeletal Problems*, which was presented to the International Veterinary Acupuncture Society Advanced Course in Veterinary Acupuncture 1997 and is used with Dr. Kendall's express permission.<sup>1</sup>

## Basic Principles

Three basic principles are applied in successfully treating a case of canine lameness. These principles require a full knowledge of the meridian system.

1. Correctly isolate the muscles and meridians to pinpoint the primary lameness.
2. Treat the local and adjacent points, along with the proper distal and proximal points.
3. Treat the corresponding Wei and Bi Syndromes to tonify the Qi, remove stagnation and balance the body.

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## Notes

There are two different methods for grouping the body's muscle system. Either of the following systems can be used in the treatment of lameness.

1. Regional classifications that divide the body into anatomical regions.
2. Longitudinal muscle-meridian system that traces the muscles from the origin of the muscle meridian to the end.

When speaking of meridians in terms of muscle channels, it must be understood that the classical names of the meridians are utilized for the channels. For instance, the Kidney meridian classically is thought of as running from the hindlimb, along the ventral abdomen and terminating on the chest. Actually, the Kidney channel ascends the lumbar spine and enters the kidney and bladder. The meridian passes through the diaphragm, ascends the throat, and terminates at the root of the tongue. The muscle channel influences the deep spinal muscles.

### **Regional Classifications:**

#### **Cervical**

Lameness of the forelimb can often be traced to the cervical region. Seven meridians course through the cervical area: the Kidney, the Bladder, the Gallbladder, the Small Intestine, the Large Intestine, the Triple Heater and the Stomach. The dorsal cervical area is affected by the Bladder, Kidney and Small Intestine meridians. The Bladder and Kidney meridians continue caudally along the back and continue into the hindlimbs. The lateral cervical area is affected by the Large Intestine, Small Intestine, Triple Heater and Gallbladder meridians. The first three meridians continue distally into the forelimb, while the Gallbladder meridian continues into the hindlimb. The meridians of the ventral cervical area are the Lung and Stomach. The Lung meridian continues into the forelimb, while the Stomach meridian continues into the hindlimb.

#### **Forelimb**

The Large Intestine, Triple Heater, Small Intestine, Lung, Heart and Pericardium meridians traverse the forelimb. The Large Intestine meridian is located on the cranial aspect of the forelimb. The Triple Heater and Small Intestine meridians are found on the caudal aspect of the humerus.

The meridians more cranial and medial are the Lung, Heart and Pericardium. The Pericardium meridian continues deep to the carpal tendons.

The elbow can be used to understand the pathways of the meridians. At the elbow, Large Intestine 11 (LI 11) is found on the lateral aspect, cranial to the humeral condyle. Triple Heater 10 (TH 10) is lateral and caudal to the humerus. Continuing on the lateral side and moving medially over the olecranon is Small Intestine 8 (SI 8). Traversing the elbow from caudal to cranial is the Heart meridian at Heart 3 (HT 3) and the Pericardium meridian at Pericardium 3 (PC 3). These points may all be used as local points for treatment.

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### **Notes**

The meridian pathways continue to the distal carpus and forepaw. The meridians end with Ting points found on the forepaw: SI 1 on the lateral side of the 5<sup>th</sup> digit; HT 9 on the medial side of the 5<sup>th</sup> digit; TH 1 on the lateral side of the 4<sup>th</sup> digit; PC 9 on the lateral side of the 3<sup>rd</sup> digit; LI 1 on the medial side of the 2<sup>nd</sup> digit; and LU 11 on the medial aspect of the 1<sup>st</sup> digit or dewclaw.

### **Thoracolumbar**

The Bladder meridian continues parallel to the spine and the Gallbladder meridian continues along the lateral aspect of the thorax. The back is involved in almost all cases of lameness. In clinical practice, many animals with joint problems are first recognized because they cannot jump or move normally. Always palpate the muscles and Back Shu points carefully. The Gallbladder meridian influences the lateral oblique muscles of the trunk. The Kidney meridian affects the deep spinal muscles of the back.

### **Hindlimb**

The Gallbladder, Bladder, Stomach, Spleen, Liver and Kidney meridians influence the hindlimb. The Gallbladder meridian is located on the lateral aspect of the coxofemoral joint and hindlimb. This is very important in hip dysplasia cases because the meridian crosses the joint between GB 29 and GB 30. The Bladder meridian is on the superficial aspect of the hip and continues on the superficial muscles of the hindlimb. The Kidney meridian courses through the deeper muscles of the limb. The Stomach meridian is found traversing the stifle and then continuing distally to the hindpaw. The Spleen meridian is located in the ventromedial aspect of the coxofemoral joint and continues down the medial aspect of the stifle to the paw. The Liver meridian is the most medial pathway. It continues through the inguinal area and runs caudal to the medial aspect of the femur. The stifle area contains several acupuncture points: LV 7 caudal to the femoral condyles; SP 9 caudal to the tibial condyles; ST 36 on the lateral tibia; GB 34 between the tibia and head of the fibula; and BL 40 caudal to the stifle in the popliteal fossa.

The Ting points of the hindlimb are BL 67 on the lateral aspect of the 5<sup>th</sup> digit; GB 44 on the lateral aspect of the 4<sup>th</sup> digit; ST 45 on the lateral aspect of the 2<sup>nd</sup> digit; LV 1 on the lateral aspect of the 1<sup>st</sup> digit or dewclaw; SP 1 on the medial aspect of the 1<sup>st</sup> digit.

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### **Notes**

### LMS Application

As was stated previously, LMS is a practical approach for locating and treating canine lameness. It requires a working knowledge of the flow of Qi through the meridians and of veterinary anatomy. Selection of acupuncture points for treatment is based on the use of the following:

1. Local and adjacent points
2. Proximal points – Choose points close to the spinal segment that corresponds to the area or association point (e.g.: BL 19 is used to treat pathological conditions along the Gallbladder meridian pathway pathology; GB 20 is the proximal point for the Triple Heater meridian in the forelimb)
3. Distal points – use points at the musculotendinous junction and the muscle channel (e.g.: SI 3 used for the Small Intestine meridian; BL 58 used for the Bladder meridian).

In treating a case, the clinician should first identify the muscle channel involved and then treat the lowest point at the musculotendinous junction on that channel. The next point to treat is the association point of the meridian (the top of the meridian at the spinal segment). The last treatment is given locally in order to remove the channel obstruction.

### Muscle Review

#### Cervical Spine and Forelimb

The muscles of the dorsal cervical area relate to the Bladder and Kidney (remember in terms of the muscle channel, the Kidney meridian runs along the spine and terminates at the skull). When evaluating the dorsal cervical spine, one must discern where the meridians are located.

The Kidney meridian relates to the **semispinalis capitis** or the **biventer cervicis** muscles, which are members of the **transversospinalis** muscle group. This group is the most medial and deep, epaxial muscle mass. The muscles extend from the skull to the thoracic vertebrae and are the very deep muscles of the neck.<sup>2</sup>

The Bladder meridian relates to the dorsal cervical muscles; **sternooccipitalis**, **sternocephalicus**, and the **sternomastoideus**. These are superficial cervical muscles, which assist in lateral cervical flexion.

When examining the lateral cervical area, the three meridians found are the Gallbladder, Large Intestine and Triple Heater. With each meridian, you would examine the corresponding muscles.

The muscles corresponding to the Gallbladder meridian, found on the lateral aspect of the neck, are the **anterior superficial scalenus** and the **serratus dorsalis**. The anterior superficial muscle attaches to the cervical vertebrae and the first few ribs thus flexing the neck. These muscles provide for side bending and rotation of the cervical spine.

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### Notes

The muscles related to the Large Intestine meridian are the **posterior deep scalenus**, the **subscapularis** which adducts and extends the shoulder, and the **rhomboid capitis** and **cervicis**, which are muscles to elevate the foreleg.

The Triple Heater meridian muscle group includes the **posterior deep scalenus**; the **lateral head of triceps** and **ulnaris lateralis** and **lateral digital extensor**, which extends the shoulder; the **rear deltoid**, which flexes the shoulder; and the **triceps lateral head**, which extends the elbow.

The shoulder is a common site for canine lameness. Osteochondrosis and chronic arthritis are more evident with the large breeds.

Three Yang meridians traverse the shoulder. They are the Large Intestine, the Small Intestine and the Triple Heater. The muscles related to the Large Intestine meridian are the **middle deltoid**; the **biceps brachii** which flexes the elbow and extends the shoulder; and the **subscapularis** which adducts and extends the shoulder. It should be noted that the biceps brachii muscle has only one head in small animals. The Large Intestine meridian is found on the cranial aspect of the forelimb. Many lameness problems in canines affect the muscles on the caudal aspect.

The muscles involved with the Triple Heater meridian are the **caudal deltoid**, the **lateral head of the triceps**, and the **anconeus**, which extends and abducts the forearm. The triceps muscle in the canine consists of four heads instead of three.

For the Small Intestine meridian, the muscles that relate to the shoulder are the **infraspinatus**, which extends and flexes the joints; **teres minor**, which flexes the shoulder; and **teres major** and the **long head of the triceps brachii** which extend the elbow and flex the shoulder.

The channels on the lateral side of the elbow that would be used in treatment are the three Yang muscle-distribution channels of the elbow: Large Intestine, Triple Heater and Small Intestine.

The muscles associated with the Large Intestine meridian on the lateral aspect of the elbow are the **biceps brachii**, **supinator**, and **extensor carpi radialis**. The muscles that affect the Small Intestine meridian are the **flexor carpi ulnaris** and the **triceps**; whereas the Triple Heater meridian is involved with the **extensors**, the **carpi ulnaris** and the **lateral head of the triceps**.

Other meridians to consider when evaluating foreleg lameness are the Heart meridian, which governs the **superficial digital flexor**; the Pericardium meridian, which influences the **pectorals major** and the **digital flexors**; and the Lung meridian, which affects the **pectoralis minor** and the **dorsal deltoid**.

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## Notes

### Back and Spine

The back and spine are mainly influenced by the Bladder and Kidney meridians. The dorsal trunk musculature associated with the vertebral column may be divided into three longitudinal muscle masses bilaterally: the lateral **iliocostalis system**, **intermediate longissimus system** and the **medial transversospinalis system**. These muscles are the extensors of the vertebral column, and also produce the lateral movement of the trunk when contracting on only one side. The **iliocostalis** and the **longissimus systems** are mainly associated with the Bladder meridian.

The Bladder meridian also influences the superficial back muscles, the **trapezius** and the **serratus ventralis**. These muscles work together to stabilize the scapula. The **latissimus dorsi**, which adducts and extends the foreleg, and raises the trunk and pelvis, is also influenced by the Bladder meridian. The channel then follows the muscles caudally over the lumbar area and to the **superficial gluteal**. The muscles of the hindlimb also associated with the Bladder meridian are the **piriformis abductor**, **gemellus**, and **quadratus femoris**.

The Kidney meridian influences the deeper muscles of the **transversospinalis system**: **semispinalis capitis**, **multifidus**, and **intertransversarius**. This system extends caudally along the back. The **quadratus lumborum** flexes the trunk laterally and ventrally. The **adductor brevis** and **adductor longus** adduct the limb and extend the hip. The Kidney meridian muscles are deep to the Bladder meridian muscles and continue ventrally along the posterior aspect of the hindlimb. The muscles include the **semimembranosus** and the **medial gastrocnemius**.

The Bladder meridian influences the **semitendinosus** and the **long head of the biceps femoris**. The channel then affects the **peroneus longus** and into the **extensor digital brevis**.

### Thorax, Abdomen and Hindlimb

In addition to the muscle channels of the Bladder and Kidney meridians, the hindlimb is influenced by several other meridians. The Gallbladder channel continues along the lateral side of the thorax and abdomen, and is associated with the lateral muscles. In the trunk area, the Gallbladder channel affects the **internal oblique** and the **external abdominis muscles**. The muscles of the hip are the **middle** and **deep gluteal**, which abduct the hip. They are found beneath the **superficial gluteal muscle**. The large **tensor fasciae latae**, which connects the deep fascia to the knee, inserts on the **iliotibial tract** and attaches to the lateral tibia and head of the fibula. This is very important in the locomotion and strength of the hindlimb. This muscle abducts, flexes and medially rotates the thigh. The insertion of the tract is anatomically at GB 34.

The Gallbladder is vital to the strength and health of the tendons and sinews, and the location of the channel shows the direct relationship in TCM Zang Fu theory. This channel is important in the ability to stand and is vital to hindlimb locomotion.

The Gallbladder channel continues with the **tensor fasciae latae** and the **short head of the biceps femoris**, on the lateral side of the leg. The **biceps femoris** is the longest and widest of the thigh muscles. This portion flexes the stifle and helps extend the hip and hock.

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### Notes

*Clinical significance: Trace the meridian from GB 25, over both internal and external oblique muscles, and circle the coxofemoral joint. Continue ventrally over the thigh to GB 31, GB 34 and GB 44. Observe the patient for pain along the meridian and for muscle tightness.*

The Stomach channel starts just ventral to the eye and continues along the ventral aspect of the throat and along the chest. It plays a major role in the stability of the abdomen and the hindlimb. The abdominal muscles involved are the **rectus abdominis**, **obturator externus**, **iliopsoas**, which flexes the trunk and thigh. The major group of the **quadriceps** are the **rectus femoris**, **vastus lateralis** and the **vastus intermedius**. They are the extensors of the stifle. The Stomach meridian also influences the **cranial tibial** and the **long digital extensor**.

*Clinical Significance: While lying on the floor, try to get up without using your abdominal muscles. The Stomach meridian affects the abdomen, the back and the legs (hindlimbs). No wonder ST 36 is so effective in treatment!!*

*Clinical Significance: Find the transverse spinous process and check ventral to the processes for trigger points in the quadratus and psoas muscles. Trigger points can cause many back problems and even mimic disc problems.*

Stifle lameness is a major problem in the canine. Luxating patellas are commonly seen in the examination room. The Spleen meridian comes into play with the medial stifle. The muscles for the Spleen channel are the **pectineus**, **sartorius**, part of the **quadriceps**, **vastus medialis** and the **long digital flexor**. The Spleen channel involves the medial thigh. The **pectineus** muscle can be very tight in cases of hip dysplasia and is sometimes incised to help with pain control. It is an adductor of the hip, with its origin at the lateral pubis and insertion on the lesser trochanter of the femur.

The tibiotarsal joint is influenced by the Stomach, Spleen, Gallbladder, Bladder and Kidney meridians. The Bladder meridian is caudal. The Spleen meridian is craniomedial and the Stomach meridian is cranial. The Gallbladder meridian is lateral and the Kidney meridian is caudomedial.

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## Notes

### Clinical Presentations

The following are possible clinical presentations for each meridian and its muscle channel.

Stomach meridian – Hindlimb tremors may extend up the leg to the *cranial tibial* muscle. There are spasms in the *quadriceps* and *rectus abdominis*. The *iliopsoas* can become contracted and can result in an ipsilateral curve. This can be seen with back pain and in geriatric animals which walk as if curved to one side. The forward stride of the hindlimb can be shortened. There can be problems with the postures to defecate and urinate.

Spleen meridian – There may be pain on palpation of the medial stifle and sensitivity along the medial thigh. The medial cruciate is directly affected by the Spleen meridian. There is pain along the intercostal muscles and surrounding area, causing the animal to show pain upon being picked up.

Gallbladder meridian- There may be pain around the coxofemoral joint and extending along the lateral side of the body. The stifle is tight and the animal is unable to flex or extend the hindlimb. The lateral side of the thigh can be tight and sore. The deep lateral cervical area can be tight, and impair the lateral motion of the neck. The lateral abdomen is tight due to involvement of the *oblique abdominis*.

Liver meridian- When there is pain in the medial thigh that extends dorsally into the perineal area, consider involvement of the Liver meridian. The pubic area may also be sensitive to the touch.

Large Intestine meridian- There can be an inability to turn the head either direction and/or signs of pain between the shoulder blades and the along the cranial forelimb. There can be resistance and pain upon flexion of the elbow.

Lung meridian- Trigger points are common in the *pectinous muscles* and relate to the Lung meridian. The animal may have problems abducting the forelimbs. There can also be spasms along the medial elbow.

Triple Heater meridian- There can be pain over the shoulder and along the spine of the scapula, especially while moving the neck. The forelimb strides are shortened. Trigger points can be present in the *triceps muscles*.

Heart meridian- Pain may be found around the chest, with the animal acting as if the chest is sore. The pain can radiate ventrally along the medial forelimb into the lateral carpus.

Pericardium meridian- The patients have pain in the cranial chest. The ventral caudal carpus has increased deep pain under the tendons of the *digital flexor muscles*.

Small Intestine meridian- Pain can be exhibited in the forelimb from the shoulder ventrally to the first toe. Trigger points and soreness in the *triceps muscle* causes a shortened forward stride. Lateral cervical pain may sometimes be traced over the shoulder blades and into the *triceps muscles*.

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### Notes

Bladder meridian- The patient looks like a triangle, with a kyphotic curve of the back; the head is tucked down and is very sensitive to dorsal flexion. The stifles are tight and difficult to flex. There is a generalized back pain that can cause muscle trigger points and a palpation reaction from the shoulder to the 4<sup>th</sup> toe of the hindlimb.

Kidney meridian- The spine resists dorsal and ventral flexion. The deep spinal muscles are tight and sensitive to pressure.

### **TREATMENT**

The LMS has three principles. The first is to isolate the muscles and meridians to pinpoint the primary lameness. The second is to treat the local and adjacent points, along with the proper distal and proximal points. The treatment charts in Tables 12-1 and 12-2 are designed for easy reference to find the correct meridian points. Dry needles are used in the human acupuncture treatment. Electroacupuncture treatment is used successfully in small animals. Many veterinarians use aquapuncture, and other techniques. After completing the acupuncture treatment, remember to palpate the muscles involved for residual trigger points. These points are deep in the muscle and need to be relieved to finish the treatment.

The third principle is to treat the corresponding Wei and Bi Syndromes to tonify the Qi, remove stagnation and balance the body. This is where the basics of Traditional Chinese Medicine are applied. The Eight Principles or the Five Elements can be used in conjunction with the LMS. The entire patient is to be considered. Good observation, palpation, and pulse and tongue exams can complete the TCM diagnosis.

The LMS is a practical acupuncture approach to visualizing, diagnosing, and treating canine lameness. The LMS approach can improve the treatment of canine lameness.

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### **Notes**

## References

1. Kendall D: *Traditional Acupuncture Orthopedics: Systematic Application of Acupuncture for Treatment of Pain and Musculoskeletal Problems*, 1997, p 15.
2. Maciocia G: *The Foundations of Chinese Medicine*, 1997, Churchill Livingstone, New York, p 426.

Meridian	Proximal	Distal
Large Intestine	BL 11, BL 13	LI 4
Triple Heater	GB 20	TH 3
Small Intestine	SI 15, BL 10	SI 3
Bladder	GV 20, BL 28	BL 65, BL 60, BL 58
Kidney	GV 20, BL 23	KI 9, KI 3
Gall Bladder	GV 20, GB 34, BL 19	KI 3, BL 58, GB 41
Stomach	ST 36, BL 21	ST 43

Region	Local
Cervical	GB 20, GB 21, and SI 15
Shoulder	GB 20, TH 17, SI 16, GB 21, LI 16, SI 9, SI 10
Elbow	LI 11, LU 5, TH 10, SI 8
Back	Bladder association and GV points
Hip	BL 54, BL 36, GB 34, ST 34, GB 29, GB 30
Stifle	ST 35, Xiyan and Hedong, GB 34, SP 9
Tibiotarsal joint	ST 41, SP 5, GB 40, BL 60, KI 3

Outline of PowerPoint presentation on Longitudinal Muscle System:

Longitudinal Muscle System

- Local points
- Proximal Points
- Distal Points

Triple Heater Channel

- Muscles
  - Supraspinatus
  - Triceps
  - Aconeus
  - Lateral Digital Extensors
  - Ulnaris Lateralis
- Supraspinatus
  - Origin: Supraspinious fossa
  - Inserts: Tubercle of Humerus
  - Action: Extends shoulder and is part of the Human Rotator Cuff
- Triceps
  - 4 Heads
  - Lateral Head
  - Actions-Extends the elbow
  - Much more important in the four legged than the human
- Aconeus
  - Inserts- Ulna
  - Origin- Humerus
  - Extends elbow
  - Tennis Elbow
- Lateral Digital Extensor
  - Origin- Humerus
  - Inserts- Digits
  - Extends the digits
- Ulnaris Lateralis
  - Origin- Humerus
  - Inserts- Metacarpal
  - Abduct and Flex Carpus

Triple Heater Channel

- Local Points: TH 14 TH 10 and TH 5
- Proximal: GB 20
- Distal TH 3, TH 5

Triple Heater Points

- Local point : TH 14, TH 10, TH 5
- Proximal GB 20,
- Distal TH 3, TH 5

**Small Intestine Channel**

- Muscles:
  - Auricularis
  - Levator Scapula
  - Infraspinatus
  - Teres Minor and Major
  - Triceps- Long head
  - Flex Carpi ulnaris
- Infraspinatus
  - Origin – Scapula
  - Inserts- Humerus
  - Extends and flexes joint
  - Collateral ligament
  - SITS group
- Teres Major and Minor
  - Origin- Scapula
  - Inserts- Humerus
  - Flexes Shoulder
  - SITS Group
- Triceps
  - Long Head
  - Very Important in the Quadruped
  - Extends the foreleg
- Flexor Carpi Ulnaris
  - 5<sup>th</sup> metacarpal on the ulnar side
  - Flexes and Abducts carpus

**Small Intestine Channel**

- Points:
  - Local- SI 9, SI 10
  - SI 15
  - Proximal- BL 10
  - Distal- SI 3
  -

**Small Intestine Channel**

- Points:
  - Local- SI 9, SI 10, SI 15
  - Proximal- BL 10
  - Distal- SI 3

**Large Intestine Channel**

- Muscles
  - Subscapularis
  - Biceps
  - Extensor Carpi Radialis
  - Scalenes
  - Rhomboidius
  - Large Intestine Channel

- Subscapularis
  - Adduct and extend the shoulder
  - Inside the shoulder blade
  - Origin: subscapular fossa
  - Insertion- Tubercle of humerus
- Biceps
  - Only one head in canine
  - Flexes elbow and extends shoulder
  - Insertions- Ulnar and Radial Tuberosities
  - Origin: Supraglenoid Tubercle
- Extensor Carpi Radialis
  - Extends the carpus

#### Large Intestine Channel

- Local Point: LI 16, LI 15, LI 11
- Proximal: BL11, BL13, GB 20
- Distal: LI10, LI 11, LI 4

#### Large Intestine Channel

- Local LI 16, LI 15, LI11
- Proximal BL11, BL 13 GB 20
- Distal LI 10, LI 11, LI 4

#### Stomach Channel

- Masseter, Hyoids,
- Rectus Abdominis
- External Obturator
- Iliopsoas
- Rectus Femoris
- Vastus lateralis
- Vastus Intermedis
- Cranial Tibial
- Long Digital Extensor

#### Stomach Channel

- Masseter
- Orbicularis oris
- Hyoid and thyroid muscles
  - Important in eating and chewing
  - Muscles for the thyroid
- Rectus Abdominis
  - Origin- Ribs
  - Inserts- Pubis
  - Flexes and Bends the vertebral column to one side
  - Compresses abdomen
- External Obturator
  - Fan shaped

- Origin- Ventral pubis and ischum
- Inserts- femur trochanter fossa
- Rotates hip outward
- Psoas Major-
  - Origin- Transverse process of the last thoracic and all lumbar vertebrae
  - Inserts- Lesser Trochanter of femur
- Psoas Minor-
  - Origin- 13<sup>th</sup> and 1<sup>st</sup> lumbar
  - Inserts- Iliopectineal turberosity
- Iliacus- Flexes and rotates the Thigh
  - Origin – Iliac fossa
  - Inserts- Iliac spine
  - Together make up the Iliopsoas muscle
  - VERY IMPORTANT IN THE BACK
  - “C” CURVED DOGS
- Rectus Femoris
  - Origin-Iliac spine
  - Inserts- Patellar ligament
- Vastus Lateralis
- Vastus Intermedius
- Quadriceps –made up of the Vastus lateralis, intermedius and Rectus femoris. Are the Stomach channel
  - They cross the hip and make up the patella ligament
  - Extend the Leg and flex the hip
- Cranial Tibial Muscle
  - Origin- lateral and cranial tibia
  - Inserts- Metatarsals
  - Muscle is important for righting the rear foot
  - ST 36 location in the muscle belly

#### Stomach Channel

- Points
  - Local points- ST 36, ST 35, XiYan, Hedong
  - Proximal- BL 21
  - Distal – ST 40, ST 36
  - ST 43
  -
- Points
  - Local SP 9, SP 6
  - Proximal BL 20
  - Distal SP 6, ST 41

#### Spleen Channel

- Muscles of the Spleen Channel
  - Intercostals
  - Pectineus
  - Vastus Medialis
  - Sartorius
  - Long Digital Flexors

- Pectineus
  - Origin- Pubic ligament
  - Inserts- Femur
  - Adducts Limb
  - Keeps hip into the body
  - IMPORTANT with HIP DYSPLASIA
- Vastus Medialis
  - Quadriceps group medial head
  - Origin- Femur
  - Inserts- Tibial tuberosity
  - Extends the Stifle
  - IMPORTANT with CRANIAL CRUCIATE
- Sartorius
  - Longest muscle
  - Origin- Crest of the ilium and the thoracolumbar fascia
  - Inserts- Patella
  - Hip Flexor

#### Gall Bladder Channel

- Gall Bladder Muscles
  - Obliques
  - Middle and Deep Gluteal
  - Biceps Femoris short head
  - Tensor Fascia lata
  - Iliotibial tract
  - Gall Bladder Channel
- Obliques
  - Origin- Lower 8 ribs
  - Inserts- Iliac crest
  - Contracts abdomen
- Biceps Femoris
  - Origin at the Femur
  - Inserts into the lateral tibia and fibula
  - Flexes and rotates the thigh
  - With the Bladder channel
- Middle and deep Gluteal
  - Origin body of ilium, the ischiatic spine
  - Insertion greater trochanter
  - Extends and abduct the hip
- Tensor Fascia Latae and Iliotibial Tract
  - Origin at the Anterior iliac crest
  - Inserts into Lateral condyle of tibia
  - Steadies femur and provides deep fascia stabilization

**Gall Bladder Channel**

- Points – Local: GB 29, GB 30, GB 30
- Proximal BL19
- Distal GB 41, GB 42 GB 34

**Bladder Channel**

- Bladder Channel Muscles
  - Occipitalis
  - Trapezius
  - Latissimus Dorsi
  - Superficial gluteal
  - Piriformis
  - Gemellii
  - Semitendinosus
  - Biceps Femoris
  - Quadratus femoris
  - Gastrocnemius
- Gemellii
  - Origin at the Ischial spine
  - Inserts into the Greater Trochanter
  - Rotates thigh outward
- Quadratus Femoris
  - Origin- Ischial tuberosity
  - Inserts- Intertrochanter ridge
  - Rotates thigh outward
- Biceps Femoris
  - Origin- Ischial tuberosity
  - Inserts- Lateral condyle of tibia and fibula
  - Flexes knee and rotates the thigh
  - Hamstrings
  - Makes the popliteal fossa

**Bladder Channel Points:**

- Local- BL 54, BL 40
- Proximal- BL 28
- Distal- BL 60

**Kidney Channel**

- Kidney Channel Muscle
  - Intertransversarii
  - Multifidus
  - Quadratus Lumborum
  - Adductors
  - Semimembranosus

- Gastrocnemius
- Intertransversarii
  - Flexes vertebral column
- Multifidus
  - Rotates spinal column
- Quadratus Lumborum
  - Flexes trunk laterally and forward
- Adductors
  - Adducts the thigh
  - Holds leg to the body
  
- Semimembranosus-
  - Origin- Ischial tuberosity
  - Inserts- Medial condyle of femur
  - Extends the thigh and flexes the leg
- Gastrocnemius- Medial head
  - Origin- Medial condyle of femur
  - Inserts- Tendocalaneus
  - Flexes foot and flexes leg

#### Kidney Channel

- Kidney Points
  - Local- KI 9, KI 3
  - Proximal- BL 23
  - Distal- KI 3