

Classification of Muscles into Meridian Sinew: a Literature Review

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1. Background

In Korean Traditional Medicine, Meridian Sinew or Meridian Muscle shares most of the superficial pathways of the Principal Meridians and was thought to be relatively more concrete than meridians in its anatomical constituents; meridian sinews were generally considered as a combination of connective tissue i.e. fascia, nerve, ligament and tendon, with its main element being muscle [1] [2]. This study discusses the results of previous studies that were conducted to classify muscles into specific meridian sinew and investigate the degree of consistency and the point of consensus.

2. Method

We searched six domestic databases (Oasis, KoreanTK, KoreaMed, KmBase, KISS, NDSL). Search terms were “경근”, “meridian sinew” and “meridian muscle”. Studies published until April in 2014 which classified anatomical muscles into meridian sinew were included. Any clinical studies of meridian sinew-related therapies or *in vivo* studies were excluded. Included articles were analyzed in terms of basis for classification and consistency of the results.

3. Result

Our searches generated 596 records, of which 22 articles met our inclusion criteria. Included articles classify muscles into meridian sinew on the basis of distribution of meridians or acupoints (54.5%), distribution of meridian sinews (36.4%) and both of them (9.1%). Among those 22 articles, 17 articles that focused on a limited number of specific meridian sinews and 4 articles that referred to previous study results were excluded in the evaluation of consistency of the classification results. In the five articles that were included in the classification results analysis, 59 muscles were investigated in three or more articles. Of those, 58 (98.3%) muscles were classified into same meridian sinews in two or more articles (40% consistency). Also, 48 (81.4%) muscles were classified into same meridian sinews in three or more articles (60% consistency) (Table 1).

4. Discussion

Muscles were not classified into meridian sinews in the same way; however, they showed some degree of consistency. Although meridian sinews were indicated, in many previous studies, as reflective of musculoskeletal function, rather than discrete anatomical structure, objective findings can be obtained through researches with concrete anatomical subjects and be used as a basis for future studies to develop Meridian Sinews theory. Additional efforts are needed to analyze and reduce the gap between studies to evaluate the relationship of muscles and meridian sinews.

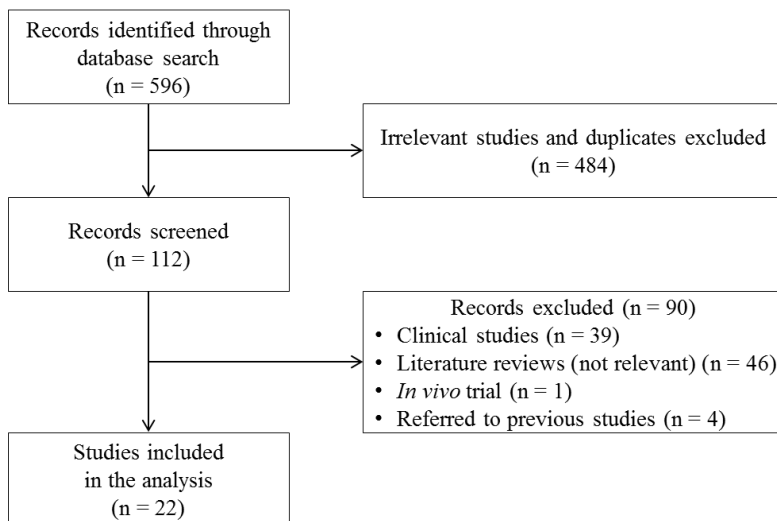


Figure 1. Flow chart of screening process

5. References

- [1] MS Hwang, JH Yoon, "Study of the Meridian Muscle Theory", The Journal of Korean Acupuncture & Moxibustion Society, 2005, 22(1): 29-39
 [2] SJ Cha, CK Im, KJ Kim, "Study on Relationship between Meridian Muscles and Modern Manual Therapy centered on Positional Release Therapy and Muscle Energy Techniques", Korean Journal of Oriental Physiology & Pathology, 2012, 26(5): 630-640

[Table 1] Muscle and corresponding meridian sinew which shows consistency of 60% or more in five studies

Muscle	Corresponding meridian sinew	Muscle	Corresponding meridian sinew
Frontalis	FGYa	Flexor digitorumprofundus	HLYi
Occipitalis	FGYa	Flexor carpi radialis	HRYi
Orbicularis oculi	FGYa, FLYa, FBYa	External oblique	FLYa
Temporalis	HLYa	Latissimusdorsi	FGYa
Zygomaticus	FBYa, HGYa	Rectus abdominis	FGYi
Trapezius	FGYa, HBYa	Gluteus Maximus	FGYa
Deltoideus	HLYa, HBYa, HGYi	Tensor Fasciae Latae	FLYa
Infraspinatus	HGYa	Iliotibial tract (band)	FLYa
Pectoralis major	FLYa, FBYa, HGYi, HRYi, HLYi	Rectus femoris	FBYa
Pectoralis minor	HRYi	Vastusmedialis	FGYi
Rhomboid	HBYa	Vastuslateralis	FLYa, FBYa
Sternocleidomastoid	FLYa, HGYa, HLYa, HBYa	Biceps Femoris	FGYa
Biceps Brachii	HGYi, HRYi	Piriformis	FLYa
Triceps Brachii	HGYa, HLYa, HBYa	Semimembranosus	FLYi
Abductor digitiminimi (hand)	HGYa	Adductor magnus, longus, brevis	FRYi
Brachioradialis	HBYa, HGYi	Iliacus	FGYi
Brachialis	HRYi	Pectineus	FRYi
Dorsal interosseus (hand)	HLYa	Sartorius	FGYi, FBYa
Extensor carpi radialislongus	HBYa	Tibialis Anterior	FBYa
Extensor carpi radialisbrevis	HBYa	Gastrocnemius	FGYa, FGYi, FLYi
Extensor carpi ulnaris	HGYa	Abductor digitiminimi (foot)	FGYa
Extensor digitorum m.	HLYa, HBYa	Dorsal interossei (foot)	FLYa
Extensor indicis	HBYa	Extensor digitorumlongus	FLYa, FBYa
Flexor digitorumsuperficialis	HRYi	Flexor digitorumlongus	FLYi

FGYa, Foot Greater Yang; FLYa, Foot Lesser Yang; FBYa, Foot Bright Yang; FGYi, Foot Greater Yin; FLYi, Foot Lesser Yin; FRYi, Foot Reverting Yin; HGYa, Hand Greater Yang; HLYa, Hand Lesser Yang; HBYa, Hand Bright Yang; HGYi, Hand Greater Yin; HLYi, Hand Lesser Yin; HRYi, Hand Reverting Yin