

CHAPTER 5

DISCUSSION

The activity of the trunk muscles is critical for control of the lumbar spine during activities with huge force such as weightlifting. Poor neuromuscular control of the trunk induces insufficient protection of the spine from injury. The characteristic of trunk muscles and its role on LPS were investigated among Thai weightlifters.

The establishment of reliable measures of the LAM thickness and LM CSA are the first step towards investigating muscle size and function. The measurement of LAM thickness and LM CSA using B-mode ultrasound can be performed reliably. The current study demonstrated an average of three measures produced high reliability. This may help to assess LAM thickness in clinical setting.

The effects of Olympic weight training program resulted in increase IO muscle thickness in Thai female weightlifters, whereas, TrA was not hypertrophy when compare to matched controls. These findings provide references thickness of LAM in female Thai national weightlifters. The results can be used to screen athletes or determine the effect of competitive weightlifting program on LAM size adaptation.

Focusing study to the characteristics and function of LAM demonstrated symmetry in LAM thickness and contraction ratio among elite female Thai weightlifters. In the analysis of LBP influence indicated that TrA muscle thickness was not significantly different between elite weightlifters with and without LBP.

However, elite female weightlifters with LBP exhibited deficits in contraction ratio of TrA muscle when compare to those without LBP.

Similar results were founded in LM size and function. Elite Thai weightlifters with LBP did not show specific deficits in the CSA of the LM muscle when compared to those without LBP. In addition, symmetry between sides of LM muscle was found among elite weightlifters. The type of training adopted by elite weightlifters may affect the LM muscle function. The ability to voluntary contract LM muscle in weightlifters may improve the motor control of LPS. The study demonstrated specific deficit in contraction ratio of the LM among elite weightlifters with bilateral LBP at the level of L5-S1 zygapophyseal joint

In summary, the trunk muscles which provide LPS especially TrA and LM are not deficit in size but deficit in function in terms of contraction ability among elite weightlifters with LBP. The deficit of TrA and LM function may be markers of motor control dysfunction or adaptation to pain in elite weightlifters. This characteristic is differed from general LBP patients that demonstrate muscle atrophy and deficit in contraction ability. The results suggested further investigation on the effect of stabilization training of trunk activation to improve efficient protection of the spine during weightlifting event.