



Comments on “Clinical utility of ultrasonography imaging in musculoskeletal conditions: a systematic review and meta-analysis”

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Dear Editor:

We read with great interest the recently published article titled “Clinical utility of ultrasonography imaging in musculoskeletal conditions: a systematic review and meta-analysis” [1]. The meta-analysis enrolled 16 randomized controlled trials. However, only four studies were further used for quantitative analysis. The authors stated that there was no conclusive evidence for application of ultrasound for musculoskeletal conditions based on the rehabilitation perspective. We want to express some concerns regarding their inclusion criteria and analytic methods.

In this meta-analysis, the authors only included physiotherapist-initiated studies. However, it is very difficult to realize by looking at the title that the review focused merely on reports from physiotherapists. Furthermore, the authors did not provide sufficient reasons why they excluded studies performed by radiologists and physicians. In most rehabilitation settings, the physicians (physiatrists) are still considered the leaders of the medical team, and they are also productive in high-quality research of ultrasound in the musculoskeletal field. Besides the diagnostic prospective, ultrasound has recently been used for the evaluation of peripheral nerve entrapment [2], swallowing muscle rheological properties [3], and rotator cuff tendon texture [4]/elasticity [5]. For rehabilitation specialists, ultrasound-guided botulinum toxin

injections benefit patients with post-stroke spasticity [6, 7], and they are also a hot topic of clinical research. Therefore, we deeply believe that the inclusion criteria used by the authors would undoubtedly narrow the clinical utility of ultrasound in musculoskeletal medicine.

Another issue is the quantitative analysis of contraction ratios of the abdominal muscles. In quantitative meta-analyses [8, 9], the outcome should be clearly defined and clinically important. We reviewed the included studies used for quantitative analysis and surprisingly found that the aim of those studies was to compare the abdominal muscle contraction ratios either between different patient groups or between various exercise regimens. The contraction ratios of the transverse abdominis and abdominal oblique muscles are two related outcome variables of the included studies. Without a prior hypothesis, the comparisons of both variables are not clinically relevant. Nevertheless, we still congratulate the authors for their scientific work published in *Journal of Medical Ultrasonics* and sincerely hope that they can consider our suggestions in their future research.

Declarations

Conflict of interest The authors declare no conflicts of interest.

References

1. Shaikh SZ, Tejashree D, Ajit D. Clinical utility of ultrasonography imaging in musculoskeletal conditions: a systematic review and meta-analysis. *J Med Ultrason*. 2021. <https://doi.org/10.1007/s10396-021-01104-3>.
2. Wu WT, Chen LR, Chang HC, et al. Quantitative ultrasonographic analysis of changes of the suprascapular nerve in the aging population with shoulder pain. *Front Bioeng Biotechnol*. 2021;9:640747.
3. Chang PH, Chen YJ, Chang KV, et al. Ultrasound measurements of superficial and deep masticatory muscles in various postures: reliability and influencers. *Sci Rep*. 2020;10:14357.

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4. Han DS, Wu WT, Hsu PC, et al. Sarcopenia is associated with increased risks of rotator cuff tendon diseases among community-dwelling elders: a cross-sectional quantitative ultrasound study. *Front Med (Lausanne)*. 2021;8:630009.
5. Hsu PC, Chang KV, Wu WT, et al. Effects of ultrasound-guided peritendinous and intrabursal corticosteroid injections on shoulder tendon elasticity: a post hoc analysis of a randomized controlled trial. *Arch Phys Med Rehabil*. 2021;102:905–13.
6. Kara M, Kaymak B, Ulasli AM, et al. Sonographic guide for botulinum toxin injections of the upper limb: EUROMUSCULUS/USPRM spasticity approach. *Eur J Phys Rehabil Med*. 2018;54:469–85.
7. Kaymak B, Kara M, Tok F, et al. Sonographic guide for botulinum toxin injections of the lower limb: EUROMUSCULUS/USPRM spasticity approach. *Eur J Phys Rehabil Med*. 2018;54:486–98.
8. Chiu YH, Chang KV, Chen IJ, et al. Utility of sonoelastography for the evaluation of rotator cuff tendon and pertinent disorders: a systematic review and meta-analysis. *Eur Radiol*. 2020;30:6663–72.
9. Chen KC, Lee TM, Wu WT, et al. Assessment of tongue strength in sarcopenia and sarcopenic dysphagia: a systematic review and meta-analysis. *Front Nutr*. 2021;8:684840.

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