

The EULAR points to consider for health professionals undertaking musculoskeletal ultrasound for rheumatic and musculoskeletal diseases

Musculoskeletal ultrasound has evolved into an important clinical decision-making tool by assisting in the diagnosis of inflammatory arthritis, monitoring disease activity and therapeutic response, and guiding interventions.¹⁻⁷ The role of the non-medical health professional has advanced, with many undertaking training and using musculoskeletal ultrasound to improve patient care and in doing so, increasing their scope of practice. Health professionals with clinical expertise and experience using ultrasound are also providing training for colleagues and medical clinicians.

As previously described among rheumatologists,^{8 9} the use of musculoskeletal ultrasound and training undertaken varies significantly between different professional groups and across Europe. Guidelines to support training for rheumatologists have been formulated¹⁰ but currently there are no recommendations to support the education and training needs of non-medical health professionals using musculoskeletal ultrasound.

A European League Against Rheumatism (EULAR) task force was established to reach a consensus on the role of, and education and training needs of health professionals undertaking musculoskeletal ultrasound for the management of people with rheumatic and musculoskeletal diseases (RMDs).

The group comprising of 18 clinical and academic experts representing 10 European countries included rheumatologists, nurses, physiotherapists, an epidemiologist, methodologist, radiologist, radiographer and podiatrist, and people with RMDs, who defined the aims and formulated 14 research questions to guide a comprehensive systematic literature search (SLR). The results of the SLR were discussed and supported the formulation of points to consider and a research agenda.

Table 1 Points to consider for health professionals undertaking musculoskeletal ultrasound for rheumatic and musculoskeletal diseases

Overarching principle All health professionals may use musculoskeletal ultrasound, following appropriate training, within their scope of clinical practice and professional background			
Points to consider	Category of evidence	Strength of statement	Level of agreement mean (95% CI)
Role and scope			
1. Health professionals may use ultrasound to detect musculoskeletal abnormalities and contribute to clinical decision-making.	3-4	D	9.2 (8.8 to 9.7)
2. Health professionals may use musculoskeletal ultrasound as a tool for research including health professional-led studies.	3-4	D	9.3 (8.7 to 9.9)
Training and competency			
3. Health professionals must be appropriately trained and assessed for competency in musculoskeletal ultrasound before applying it in clinical practice.	4	D	9.7 (9.5 to 10.0)
4. The minimal competency requirements for performing musculoskeletal ultrasound must be the same for all ultrasound practitioners. Advanced training content may be adapted according to the needs of the health professionals.	3-4	D	9.6 (9.2 to 10.0)
5. Health professionals appropriately trained may teach musculoskeletal ultrasound according to a standardised and formalised training programme.	4	D	9.5 (9.1 to 9.9)
Application and feasibility			
6. The use of musculoskeletal ultrasound by health professionals must be based on levels of competency and the individual's role within their institution/department, as directed by local and national regulations.	3-4	D	9.6 (9.4 to 9.9)
Additional value			
7. By using musculoskeletal ultrasound, health professionals may improve the clinical management of people with rheumatic and musculoskeletal diseases.	3-4	D	9.0 (8.3 to 9.7)

Box 1 Future research agenda

1. To determine the musculoskeletal ultrasound training needs of European League Against Rheumatism (EULAR) health professionals and how they intend to use ultrasound.
2. To develop a structured EULAR advanced musculoskeletal ultrasound training programme specific to the needs of health professionals.
3. To determine the provision of mentorship that health professionals will require to support their training needs in musculoskeletal ultrasound.
4. To understand the impact of health professionals performing musculoskeletal ultrasound on the care of people with rheumatic and musculoskeletal diseases.
5. To determine the cost effectiveness of models of care in which health professionals are using musculoskeletal ultrasound.
6. To determine and standardise the minimum requirements for reporting musculoskeletal ultrasound examinations performed by health professionals.
7. To evaluate the influence of the EULAR points to consider on the use of musculoskeletal ultrasound by health professionals.

Seven points to consider were formulated (table 1) encompassing the role and scope of health professionals using musculoskeletal ultrasound, including the application, feasibility and added value in daily practice, and the training and competencies required. The strength of the points to consider was rated D based on the category of evidence (3–4). A high level of agreement (range 9.0–9.7) was reached by the task force members. The task force agreed on seven topics for the research agenda (box 1).

These are the first points to consider produced by a EULAR task force for health professionals using musculoskeletal ultrasound. The task force acknowledged that there is weak evidence supporting the points to consider, which were developed using a combination of research-based evidence and expert consensus. The use of musculoskeletal ultrasound by health professionals in both clinical practice and research is increasing in popularity, hence these points to consider are timely. It is envisaged that they will need to be revisited as new evidence becomes available.

The seven points to consider are intended to support the education and training needs for health professionals using musculoskeletal ultrasound across Europe. It is important to note that these points to consider should be used in conjunction with local and national regulations. There was consensus that the role and scope of ultrasound practice for non-medical sonographers does not differ significantly from that applying to rheumatologists, and therefore the training and competency levels should be the same for rheumatologists and health professionals using musculoskeletal ultrasound in clinical practice and for research.

A full description of the SLR and points to consider development are available at <http://www.eular.org>.

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REFERENCES

- 1 Wakefield RJ, Gibbon WW, Conaghan PG, et al. The value of sonography in the detection of bone erosions in patients with rheumatoid arthritis: a comparison with conventional radiography. *Arthritis Rheum* 2000;**43**:2762–70.
- 2 Karim Z, Wakefield RJ, Conaghan PG, et al. The impact of ultrasonography on diagnosis and management of patients with musculoskeletal conditions. *Arthritis Rheum* 2001;**44**:2932–3.
- 3 Terslev L, Torp-Pedersen S, Savnik A, et al. Doppler ultrasound and magnetic resonance imaging of synovial inflammation of the hand in rheumatoid arthritis: a comparative study. *Arthritis Rheum* 2003;**48**:2434–41.
- 4 d'Agostino MA, Ayril X, Baron G, et al. Impact of ultrasound imaging on local corticosteroid injections of symptomatic ankle, hind-, and mid-foot in chronic inflammatory diseases. *Arthritis Rheum* 2005;**53**:284–92.
- 5 Brown AK, Quinn MA, Karim Z, et al. Presence of significant synovitis in rheumatoid arthritis patients with disease-modifying antirheumatic drug-induced clinical remission: evidence from an imaging study May explain structural progression. *Arthritis Rheum* 2006;**54**:3761–73.

- 6 Koski JM, Saarakkala S, Helle M, *et al.* Assessing the intra- and inter-reader reliability of dynamic ultrasound images in power Doppler ultrasonography. *Ann Rheum Dis* 2006;65:1658–60.
- 7 Naredo E, Collado P, Cruz A, *et al.* Longitudinal power Doppler ultrasonographic assessment of joint inflammatory activity in early rheumatoid arthritis: predictive value in disease activity and radiologic progression. *Arthritis Rheum* 2007;57:116–24.
- 8 Naredo E, D'Agostino MA, Conaghan PG, *et al.* Current state of musculoskeletal ultrasound training and implementation in Europe: results of a survey of experts and scientific societies. *Rheumatology (Oxford)* 2010;49:2438–43.
- 9 Mandl P, Naredo E, Conaghan PG, *et al.* Practice of ultrasound-guided arthrocentesis and joint injection, including training and implementation, in Europe: results of a survey of experts and scientific societies. *Rheumatology (Oxford)* 2012;51:184–90.
- 10 Terslev L, Hammer HB, Torp-Pedersen S, *et al.* EFSUMB minimum training requirements for rheumatologists performing musculoskeletal ultrasound. *Ultraschall Med* 2013;34:475–7.