

European Diploma in Musculoskeletal Radiology

ESSR Education Committee

1. Aim(s) and target group

ESSR introduced an “European Diploma in Musculoskeletal Radiology” in 2014. It will be a common European qualification for MSK radiologists and will help to standardise training and expertise across Europe. The Diploma should be endorsed by the European Society of Radiology (ESR).

The Diploma confirms specific competence of radiologists to perform, interpret and report radiography, ultrasound, MR imaging (incl. arthro-MR) and CT (incl. arthro-CT) examinations of the musculoskeletal system. In addition, it certifies skill to perform musculoskeletal system-related interventional procedures. The "European Diploma in Musculoskeletal Radiology" represents a recognised qualification in musculoskeletal imaging and will assist its holders in the promotion of their skills and experience when dealing with other clinical colleagues and with the general public.

The candidates have to be fully-trained, licensed and practicing radiologists with at least one year of subspecialty training.

2. Fee structure

The handling fee is the following:

ESSR member: € 400.00

In case a candidate did not pass the European Diploma in Musculoskeletal Radiology he/she has the possibility to retake the examination one year later. A reduced fee of € 200.00 will be granted for a re-examination.

3. Eligibility criteria

1. To be a certified radiologist (when entering the Diploma programme)

2. RIS documentation or Logbook of recorded activities certified by the Dept/MSK head of the institution where the candidate works or participates in a fellowship programme for:

Imaging procedures and reporting (real-life based/from database)

Minimum experience required in five years:



- Radiography - 150 examinations (at least 50 examinations each for upper extremity, lower extremity and spine & pelvis)
- MR imaging - 120 examinations (at least 40 examination each for upper extremity, lower extremity and spine & pelvis)
- Ultrasound - 100 examinations (at least 50 examinations each for upper extremity and lower extremity)
- Arthro-MRI - 30 examinations (incl. the shoulder and a minimum of 2 other joints regardless the respective percentage. The candidate is asked to perform procedures autonomously under supervision)
- CT (incl. arthroCT) - 20 examinations (without regional specification)
- Interventionals - 15 procedures (regardless body area, kind of procedure and imaging guidance system)

Accreditation of the Institution would be self-assessed. According to the ESR recommendations for Subspecialty Training in Radiology (Level-III), an institution would be considered optimal for teaching based on the following criteria 1) at least 2 MSK staff members in the Dept with teaching functions, 2) appropriateness of equipments, 3) medical library access.

3. ESSR membership and ESR membership during the full duration of the program.

4. In addition, the candidate is required to have completed the following items:

a. CATEGORY-1 ESSR Annual Meeting

- to attend a minimum of 3 annual meetings of the ESSR in 5 years
- to be the first author on at least one scientific presentation or exhibit (case reports excl.) at one of these ESSR annual meetings.

b. CATEGORY-2 Training Modules

(high quality teaching in one area of MSK imaging, lively interaction between registrants and speakers, promote exchange of ideas and experience amongst registrants from different countries)

- to gain 4 credit points (1 point =min. 14 hrs) within 5 years based on the ESSR list of accredited courses. At least 2 courses need to be undertaken in a country different from that of the candidate domicile.

Radiologists who have undergone a one year MSK radiology fellowship in a recognised center will be exempt from the Cat 2 training modules.

c. CATEGORY-3 Refresher Courses



(based on state of the art reviews in MSK imaging on a national and international level - prior approval by ESSR required)

- to gain 4 credit points (1 point =min. 14 hrs) within 5 years.

The candidate can apply to the Diploma when she/he has already fulfilled all requirements from Cat. 1, 2, and 3 within the term of 5 years.

5. Once met these requirements (from point-1 to point-4), the candidate can apply for the diploma and will undergo a final examination at the annual ESSR or ECR Congresses according to the ESR rules.

4. Knowledge base

To be able to:

1. have detailed knowledge of anatomy and physiology of bones and joints (incl. synovial and non-synovial) of the upper extremity, lower extremities and bone pelvis
2. have detailed knowledge of anatomy of the axial skeleton (i.e. cervical, dorsal, lumbosacral spine), intrinsic back muscles and related soft-tissues (e.g. discs, ligaments, spinal nerves)*
3. have detailed knowledge of anatomy of the soft-tissue structures that are pertinent to the musculoskeletal system (e.g. tendons, muscles, nerves, ligaments, fascial planes, vessels and connective spaces) in the upper extremity, lower extremity, pelvis, thoracic cage, abdominal wall and neck
4. have basic knowledge of biomechanics and pathophysiology of the muscle-tendon-bone unit
5. have knowledge of the main steps and timings of skeletal maturation in the paediatric age group, including ability to define skeletal age and recognize appropriate/abnormal skeletal growth
6. have basic knowledge of the most common anatomical variants, congenital and developmental anomalies of the skeleton and soft-tissue structures that are pertinent to the musculoskeletal system and recognize differences between normal variants and pathology
7. have extensive knowledge of common and uncommon musculoskeletal diseases in adults and children and of how these diseases manifest, both clinically and on imaging, including:
 - a. traumatic injuries of the axial (*) and appendicular skeleton (e.g. recognition of common and uncommon fractures and dislocations; understanding of the basic mechanisms of injury and distinguishing stable from unstable injuries; knowledge of fracture healing and complications of healing such as delayed union, malunion and nonunion, complex regional pain syndrome etc...)
 - b. overuse pathologies (e.g. labral tears, shoulder impingement syndromes, overuse tendinopathies and tears, retinacula-related disorders, exertional compartment syndromes etc...)
 - c. arthropathies and neurologic/muscular disorders and connective tissue diseases (e.g. aging, rheumatoid arthritis, psoriatic arthritis and psoriatic spondyloarthritis, ankylosing spondylitis, scleroderma, systemic lupus erythematosus, mixed connective tissue disease, juvenile idiopathic arthritis, idiopathic inflammatory myopathy, gout, crystal-related arthritis, neuropathic osteoarthritis etc...)
 - d. infectious disorders (e.g. cellulitis, pyomyositis, abscess, septic arthritis, diabetic pedal infection, HIV-related, atypical mycobacterial infections etc...)



- e. metabolic and endocrine diseases (e.g. osteoporosis, hyperparathyroidism, renal osteodystrophy, amyloidosis, Gaucher disease, storage diseases, osteogenesis imperfecta, Marfan, Paget, hypertrophic osteoarthropathy, sarcoidosis, tuberous sclerosis etc...)
 - f. congenital syndromes (e.g. flatfoot and clubfoot, osteochondrodysplasia, failure of growth and development of cartilage and fibrous tissue, anomaly in density and modeling, dysostosis, chromosomal anomalies etc...)
 - g. bone and soft-tissue tumors and tumor-like conditions (i.e. systematic assessment of a solitary lesion of bone and its categorization as aggressive or nonaggressive; appropriate differential diagnosis based on patient's age, lesion location and characteristics - boundaries, matrix, periosteal reaction, soft-tissue extension; knowledge of systematic, safe and cost-effective radiologic work-up of bone lesions, including biopsy approach and compartmental anatomy etc...)
8. recognize normal postoperative findings and complications of common orthopaedic procedures and hardware placement, including findings of loosening and infection of orthopaedic hardware
 9. recognize skeletal and soft-tissue injuries (incl. sports injuries, skeletal manifestations of child abuse), common congenital syndromes and clinically relevant developmental dysplasias (e.g. focal growth disturbances, DDH, coalitions, dysplasias, irritable hip, spinal deformity) in the paediatric age group
 10. have detailed knowledge of interventional MSK procedures, including interventions of the spine such as discography, nerve root injections, epidural injections, facet/SI joint injections, vertebroplasty, kyphoplasty (if there procedures are operated)*
 11. have an appreciation of the role of nuclear medicine and densitometry techniques in the musculoskeletal system

*Imaging of the axial skeleton doesn't characterize the activity of musculoskeletal radiologists in many countries across EU.

5. Examination structure

The examination takes place twice a year, once at the ESSR congress and once during ECR.

The examination consists of written and oral components, both contributing 50% of the total score for the exam. Both parts of the examination (oral and written) have to be passed.

Each candidate will be examined by ESSR representatives.

a) Written Exam

- 40 multiple choice questions (1 correct /4 answers per quiz)
- The exam lasts 60 minutes
- Candidates will be tested in all aspects relevant to MSK radiology

b) Oral Exam

- Examiners will test the candidate discussing two cases at the workstation in a 20 min long session.
- The exam will be held in English.

- Publications and research projects in which the candidate has participated actively (optional) will be taken into account during the evaluation process. Research activities need to be certified by the Dept/MSK head of the institution where the candidate works or participates in a fellowship programme.

6. Renewal

The ESSR Diploma certification has 5 years validity.

If required, renewal will be automatic and free of charge with completion of the following items during the 5 years of Diploma validity:

- attendance at a minimum of 1 annual meeting of the ESSR in 5 years
- 150 CME Points over 5 years from attendance at CME recognised meetings (up to 40 CME points may be achieved by a full paper published in peer-reviewed indexed journals or a book chapter; 30 CME for an invited lecture; and 10 CME for any published abstract or EPOS poster)

No written/oral exam will be done for renewal.

ESSR and ESR memberships need to be in good standing.

The certification will not be renewed if the above items have not been completed during the 5 years of Diploma validity.

7. Transfer from the Old to the New Diploma

Those who possess the 'old' diploma and wish to transfer to the 'new' diploma have to satisfy the requirements for renewal and pass the examination for the 'new' diploma. The opportunity to transfer in this way will expire at the ESSR meeting in 2019. Transfer fee € 200,-

8. Terminology

Successful candidates will be awarded the **European Diploma in Musculoskeletal Radiology**.