Sports and exercise medicine and rheumatology

Sports and physical inactivity occupy two extremes in modern life. Organized sport has long played a central role in our society, its culture and in our national identity, and sports men and women are often given iconic status. Paradoxically, physical inactivity of the general population has become a major public health problem and is a contributing factor in several chronic diseases and conditions [1–4]. The recognition of the importance of physical activity for health-related benefits has prompted the development of public health strategies and has provided an additional focus in the management of a spectrum of chronic diseases. Such issues have resulted in the increasing profile of sports and exercise medicine (SEM) as a specific field of medical practice. It is timely to review the relevance of SEM to rheumatologists, and current developments relating to training.

SEM is not a new field. Systematic teachings of exercise therapy are found in the Chinese book of Gung Fu (c. 1000 BC). Olympic competition, inspired by Pheidippedes with his run from Marathon to Athens in 490 BC, has been dedicated to the glory of Zeus, the mind, body and spirit; sound principles upon which any physician may base their practice. The father of sports medicine was Galen, a Greek doctor who studied in Egypt then returned to Greece, where he was appointed physician to the gladiators in 157 AD. Musculoskeletal medicine was, even then, a core component of the field.

In modern times, SEM has become a rapidly expanding, multi-layered discipline, addressing all medical issues relating to sport and exercise—an enormous field. The benefits of physical activity in relation to the prevention and management of a vast spectrum of medical complaints makes SEM an important component of training for all primary and secondary care physicians, including rheumatologists.

Rheumatology is of course a broad specialty, incorporating both general medicine and musculoskeletal diseases. The potential benefits of exercise in a wide number of generalized musculoskeletal diseases are now well recognized [5–9]. Activity-related, regional musculoskeletal injuries are commonly seen in rheumatology clinics, and an insight into applied biomechanics, mechanisms of injury and advanced rehabilitation techniques are all vital in the management and prevention of recurrence of such conditions. Applied biomechanics involves (i) evaluation of the effects of forces upon the body and its ability to adapt in response; (ii) assessment of the effects of deranged mechanics (due to weakness, joint deformity, etc.) on the musculoskeletal system, both at rest and during movement; and (iii) the development of treatment approaches, in particular rehabilitation regimes but also orthotics and other supportive devices, using knowledge of the magnitude and frequency of the forces being applied. Advanced rehabilitation aims to return the patient to optimal levels of performance. It involves input from a multidisciplinary team, the core of which includes physicians, physiotherapists, strength and conditioning experts and biomechanists, but will variably include nutritionists, osteopaths, psychologists, physiologists and others, depending upon the patient’s needs. These areas all represent the basic components in SEM that are otherwise often poorly addressed in the rheumatology curriculum [10]. Exercise prescription in patients with generalized joint disease, in particular in those with multi-system involvement, requires in-depth knowledge of both the disease itself and the physiological responses to exercise. In many situations, more can be learned from the body during exercise than at rest, and an understanding of exercise testing (of both cardiorespiratory responses and muscle function) can be invaluable in optimizing clinical care and interpreting and developing research (Table 1).

Rheumatologists have much to offer in the field of SEM. The ability to recognize an array of articular disorders, multisystem diseases, neurological injuries and myopathies in the context of a sports clinic is vitally important, as many conditions may masquerade as sports injuries. Aspects of management of musculoskeletal diseases and the advanced management of pain itself are central areas of rheumatological expertise, and multidisciplinary care is the accepted standard of practice.

Diagnostic imaging, in particular dynamic musculoskeletal ultrasound, has become an important, rapidly developing component of the rheumatology training curriculum, and diagnostic and interventional ultrasound has become the gold standard in the approach to many musculoskeletal disorders in the rheumatological setting.

The Royal Colleges of Physicians and Surgeons of Ireland established a Faculty of Sports and Exercise Medicine in 2002. In the UK, consideration is currently given to the development of SEM as a defined specialty, with its own defined 4-yr training structure, with a new network of interlinked and coordinated training sites. This will create a clear career path, in keeping with the current structure of Modernising Medical Careers [11]. Current training involves education and skill acquisition in core areas: sports injuries (prevention, assessment, treatment and rehabilitation), biomechanics, podiatry, exercise physiology, medical problems in sport, team care, doping and therapeutics, ethics and the law, psychology, environmental issues in relation to exercise, and resuscitation and emergency care. There are well-established courses aimed at achieving a diploma or MSc in SEM. In addition, the Intercollegiate Academic Board of Sport and Exercise Medicine was created in 1997 and its diploma examination may become the most widely accepted basic qualification in the UK [12].

There is also scope for the further development of SEM within allied specialist fields, one of which is rheumatology. Subspecialist training would involve at least one extra year of training, to encompass the core areas addressed above. The primary purpose of such subspecialist training in sports medicine within rheumatology is to promote the development of physicians with the knowledge, skills and attitudes to address SEM issues within specialist services. The need for further training will vary depending on the type of service within which they are practising.

### Table 1. Application of SEM in rheumatology: some examples

<table>
<thead>
<tr>
<th>Area</th>
<th>SEM Examples</th>
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<tbody>
<tr>
<td>Recognition and management of regional musculoskeletal injuries</td>
<td>Applied biomechanics</td>
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<tr>
<td>Rehabilitation techniques</td>
<td>Monitoring of muscle function and response to therapies</td>
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<tr>
<td>Specialized exercise prescription and monitoring</td>
<td>Understanding of physiological response to exercise in musculoskeletal disease.</td>
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<td>Participation in sport with rheumatological diseases</td>
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After satisfactory completion of subspecialty training in SEM, trainees could then be eligible to have the subspecialty included in their entry in the GMC’s Specialist Register, after the award of a CCST (CCT) in rheumatology.

For such goals to be achieved, a core curriculum will be necessary and training posts will be required in centres that can offer the appropriate expertise in the core areas for rheumatologists. This is a significant task, but the potential advantages to the advancement of our specialty are significant.

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References