

## WARM UP

# What is sports and exercise medicine?

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There is no universally accepted definition of sports and exercise medicine (SEM). The nature of the discipline has changed over time and continues to do so as SEM begins to clarify its scope more clearly and delineates itself from the traditional medical specialties.

This lack of a universal concept of SEM raises a number of dangers for the future development of the specialty that is starting to become apparent. By its very nature, the process of recognition of SEM as a new medical specialty means that the scope of the field has to be defined in government regulations.

This formalised definition then has the potential to be hijacked by competing priorities between clinical SEM practitioners who have evolved the specialty over time and health department civil servants who are looking for ways and means to obviate the growing public health burden associated with inactivity. Although the two views share common ground, the underpinning philosophy is fundamentally different and this subtle bureaucratic re-focussing directly influences training and how the field of SEM evolves in the future.

Current day clinicians need to be clear that this process of SEM governance serves their view of the specialty correctly. Governing councils and faculties should reflect clinical SEM rather than the view of SEM that other specialties and civil servants think should be in place. It is a very real danger that we could finish up training public health physicians with little in the way of SEM competency rather than what we need, which is SEM specialists with competency in public health medicine.

## TRADITIONAL VS NEW MODELS OF SEM

Emerging and novel concepts, a new generation of trainees untrammled by history and the overwhelming desire for SEM to take its place amongst the panoply of mainstream specialties all help drive the evolution of the specialty in new directions. The fact that this emerging discipline is not organ, system or disease specific both allows these possibilities and creates some of the very

real dangers that threaten the existence of the specialty.

The traditional role of SEM began as a form of individual athlete and team care particularly at the elite level. Not surprisingly the emergence of the discipline has been closely linked to the Olympic movement and more recently the proliferation of professional sport and their needs for high quality medical coverage. Throughout the world, a generation of SEM physicians has developed from either a primary care or orthopaedic background and the specialty itself has then developed into an independent consultant level of expertise and broadened to encompass the management of a range of medical problems associated with exercise.

This role of the SEM specialist utilising their underpinning musculoskeletal medicine skills treating complex or chronic medical conditions remains a promising development but is likely to have a limited take up unless the specialty is recognised more widely, numbers of consultant level SEM specialists increase substantially and existing cognate disciplines buy into this model of care.

The broader public health engagement of SEM practitioners to promote health and prevent disease at a population level remains difficult to judge at this time. The UK Department of Health recognised this role as one of the key reasons for the recognition of SEM as a specialty. Given the relatively small numbers of SEM physicians, the limited training of SEM practitioners in public health medicine (when compared to existing public health practitioners) coupled with the lack of SEM specific representation at a policy level, it remains to be seen whether this promise will be ultimately fulfilled.

This then raises a disturbing issue that in countries where the training is orientated to public health concepts (eg UK) the risk is that this model of training will not adequately equip SEM practitioners for a future leadership role in public health and their core musculoskeletal sports medicine skills will be limited due to the needs of their curriculum to cover such public health and other skills. Conversely countries with an exercise and injury focus (eg

Australia/New Zealand) may have better clinical competency to deal with the medical problems of exercise as well as utilising exercise in the treatment of complex medical problems, but would be relatively less equipped to deal with the public health aspects of SEM.

It is a brave experiment by the health bureaucrats in different countries where the core competency of individual SEM practitioners will reflect these disparate views of just what the scope of SEM entails. With the various models of SEM training that exist in different countries, there is a brief window for harmonisation of skills and training that will rapidly pass. The risk is that SEM practitioners will have little in the way of “transportable” skills given the widely differing models of practice in different countries.

## WHO ACTUALLY DOES SEM?

SEM is practised in a variety of settings. The vast majority of sports injuries are currently managed by primary care practitioners and this is unlikely to substantially change in the foreseeable future given the current low numbers of SEM consultants and the relatively small numbers of specialists that can be trained annually.

Clearly there is an argument to be made for the health system or the existing SEM colleges and faculties to strengthen this situation either by upskilling general practitioners and/or advocating for the development of a two-tiered system of care with a network of specialists supporting general practitioners for the management of complex and difficult cases.

The role and scope of specialist SEM can be seen conceptually on three levels (fig 1) within the continuum of health or wellness. The areas in which SEM specialists cover includes:

- Suboptimal health—the problems of injury related to exercise or where exercise is part of the management of medical problems either at an individual or population level.
- Optimal health—the use of exercise to maximise wellness at either individual level (exercise prescription) or at a population level (public health).
- Supra-optimal health—the use of SEM skills to enhance performance in an athletic population.

SEM by not being confined to a body system or organ exists as an area that has a range of knowledge and skills that are not unique to the discipline. Overlapping disciplines include the principal specialty areas related to musculoskeletal medicine (eg orthopedic

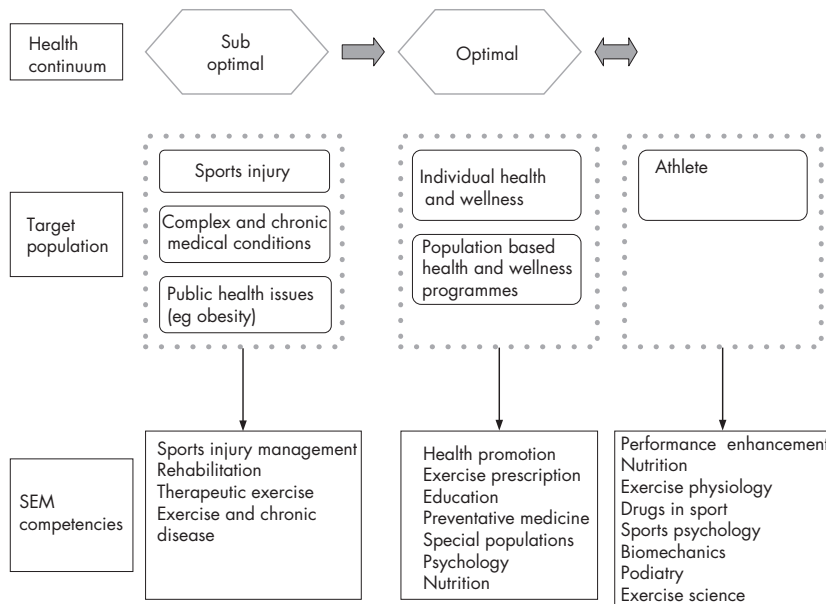


Figure 1 SEM health and performance continuum (adapted from Matheson & Pipe, 1995).

surgery, rheumatology, rehabilitation medicine, emergency medicine, occupational medicine), primary care, public health medicine as well as a range of other specialties involved in specific problems (eg cardiology and neurology).

In some cases, cognate disciplines such as rheumatology and rehabilitation, recognise that their practitioners require skills and training in both musculoskeletal and sports medicine; however, existing specialists have largely not taken up the challenge of developing this area and few have established sub-specialty practices in SEM.

Although SEM is a distinct area of medicine, with such overlap being present and the shared clinical focus within a number of specialties, there is the potential for mutually beneficial relationships to develop with the possibility of shared training and education opportunities. Existing specialties having much to learn from SEM and vice versa.

**TOWARDS A UNIFIED DEFINITION OF SEM**

As previously mentioned, there is no consistent view on the definition and priorities in sports medicine. Some definitions reflect this core element of injury management and injury prevention.

The International Federation of Sports Medicine (FIMS) has defined SEM as:

“...embodying theoretical and practical medicine which examines the influence of exercise, training and sports, as well as the lack of

exercise, on healthy and unhealthy people of all ages to produce results that are conducive to prevention, therapy and rehabilitation as well as beneficial for the athlete himself”.

Similarly the Royal College of Physicians (UK) uses the following definition:

“SEM is the discipline that addresses medical conditions and injuries that occur in those who wish to participate in sport or to exercise in other ways. It also covers the role of physical activity in the treatment and prevention of illness”.

The Medical Council of New Zealand has listed a bureaucratic definition of SEM for the purposes of vocational registration and states that:

“The medical care of the exercising individual, including the assessment and management of patients with musculoskeletal injuries and medical problems arising from sporting activity. Sports physicians possess expertise in general medicine, orthopedics and rehabilitation plus allied sports sciences including nutrition, biomechanics, exercise physiology and sports psychology”.

In Australia, the Australasian College of Sports Physicians reflect the traditional vies; however, they have broadened the scope of SEM by defining it as:

“a wide ranging discipline incorporating aspects of disease and injury prevention, the management of the medical problems of exercising individuals, the management of soft tissue injuries sustained with exercise and the prescription of exercise for both improving physical fitness and treating disease. It also looks at the discrete exercise needs of certain population groups such as the elderly, those with disabilities and children. It provides expertise in the medical needs of sporting individuals, sporting teams and sporting events. It covers aspects of the medical care of individuals exercising in extreme environments and deals with pharmacological and ethical issues involved in drugs and doping in sport. Research in SEM is particularly concerned with injury prevention, enhancing physical function, understanding and improving impairment and enhancing the rehabilitation of injuries”.

By contrast, the UK Intercollegiate Board of Sport and Exercise Medicine has used the following definition in its submission to the UK Dept of Health in its application for SEM specialty recognition and reflects more of a public health element than the traditional views:

“SEM is a discipline that draws upon basic and applied biomedical and clinical sciences for the furtherance of knowledge and ensuring best practice in the diagnosis and management of SEM clinical problems. The discipline is relevant to the whole population and seeks to promote health, to prevent disease or injury, to apply optimal treatment and rehabilitation and to measure outcomes”.

**A NEW DEFINITION OF SEM**

By taking elements of the definitions above, the conceptual understanding of SEM and examining the evidence for the specific roles of SEM physicians, a new definition is proposed below.

SEM can be defined as a broad ranging discipline incorporating the:

1. Management of the medical problems of exercising individuals at all ages and all levels of participation.
2. The pathophysiology, biomechanics and optimisation of human performance.

3. The use of exercise as a therapeutic modality in the treatment and prevention of disease.
4. The promotion of health and the prevention of disease or injury at a population level.

The first two of these areas are the “traditional” view of SEM and would be universally agreed upon, point 3 represents the short to medium term evolution but still requires engagement by traditional medical specialties in order to become a reality, and point 4 is a long-term goal whilst having enormous potential remains unproven at the present time.

### SHOULD PRIORITIES IN THE SCOPE OF SEM REFLECT TRAINING?

Could one therefore make an argument that training should reflect these priorities proposed in this new definition with most of the focus on the management of the medical problems of exercising individuals and the optimisation of human performance rather than public health?

The limited development of SEM in particular countries makes this problematic.

In the UK, there are virtually no hospital posts or even true sports medicine clinics where there are experienced and competent SEM practitioners with an ample sports injury patient load where supervised training could be done. There are, however, numerous practitioners who practice a diverse range of “wellness” and occupational medicine where some aspects of training could occur; however, this could not deliver the necessary competency training. In Australia, the US, Canada, New Zealand and various countries in Europe, the development of specialist SEM clinics through the private sector as well as the government funded institutes of sport means that this training limitation is less problematic.

Is the priority public health? Although attractive to health departments and with a clear need given the national health priorities related to the medical effects of inactivity, it is easy to see why funding bodies responsible for training will try to influence the core curriculum to push this particular focus. The problem, however, is that without substantive funding quarantined for SEM, it is unlikely that this will become a reality in the foreseeable future. In the UK, a

handful of training places are being negotiated with the postgraduate deans who themselves are under increasing budgetary pressures within the health system. The government seems to recognise the need (at least in various published reports) but seems unwilling to fund this development.

### WHAT ARE THE RISKS TO SEM?

One of the risks of the specialty of SEM is that it will be hijacked by civil servants who are pushing a public health agenda but without adequate funding to make this concept a reality. In addition, that governance of SEM increasingly is seen to be dominated by those in traditional specialties (eg orthopedic surgery) who have little conceptual understanding of the underlying nature of SEM itself. The end result is a cohort of SEM physicians who lack the necessary SEM competencies to have a globally transportable skill set and may well not have sufficient public health expertise to satisfy the agenda of the bureaucrats. SEM physicians need to be very clear as to what the future holds.

Viva la revolution.

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