

the basis of this document (1985), which formed the basis for the recognition of sports medicine as an official discipline of social medicine by the College of Social Medicine. A year later (1987) the degree was given legal power by the secretary of state for health, welfare and cultural affairs. During this period, the inflow of professionals increased to six to eight persons a year, and a new curriculum was formulated. In 1991 the curriculum for the training of specialists in sports medicine was published (77 pages, also published in English).

Registration or recognition in one of the three fields of medicine in the Netherlands is important in many ways. Doctors in the Netherlands can be divided into three groups: general practitioners, social medicine experts, and specialists. Another division could be made: preventive medicine and curative medicine with subdivision into extramural and intramural. The three kinds of health care and the three groups of doctors are paid from different sources. Each group has to decide what kind of medicine it covers. After acceptance, the ministry of health normally takes the advice of the board of specialists (Central College) and the College of Social Medicine.

In 1993 the first sports doctor started a full time job in a hospital. The field of sports medicine, described in 1982 by the section of specialists in sports medicine of the Netherlands Association for Sports Medicine, was changed by this initiative. The work was much more therapeutic than previously, and the importance of diagnosis in everyday work was completely different from before 1993. A new discussion about the definition of (the field of) sports medicine was begun. Now, seven years later, about 20 hospitals have a sports medical department (or intend to have one in the near future) run by a professional sports physician. Three university hospitals belong to this group. In the first hospital, about 1000 patients with sports related medical prob-

lems visit the department a year sent by their general practitioner or another specialist working in the same hospital. Most of the patients are ordinary athletes not involved in high level training and competition. Along with the patient related activity, there is still preventive screening for specific sports. In addition to this obligatory screening, some athletes and even non-athletes ask to be screened. The third activity is the care provided for top level athletes. This health care is often given outside of a hospital. All the sports medical departments in a hospital have a well equipped exercise physiology laboratory partly for diagnosis and partly for the control of and training advice for top athletes.

The change from working outside the clinic before 1993 to inside the clinic after was combined with a request for sports doctors to be registered as specialists. One of the most important reasons for this request is that financial support for hospital care is based on registration of the doctor. For a specialist, the financial support for health care in a hospital is much greater than for a doctor registered in social medicine. The request to be specialists was presented to the board of specialists last year and is still very much the topic of medical and political debate. If the request is accepted, training in sports medicine must be changed again in line with other specialist training. The new field of sports medicine will need to be defined again, and a political debate is underway to chart the field and state of science in sports medicine. A new decade in sports medicine in the Netherlands seems to be on the way.

G C VAN ENST

*Sports physician, Isala Clinics, loc sophia
Sports Medicine Department, pb 10400
8000 GK Zwolle, the Netherlands
gvanenst@wxs.nl*

Toxocara: dogwalking and playing fields

In villages, towns, and cities throughout the country, land is set aside for human recreation. Public and private playing fields enable the population to indulge in sport and recreation, but these areas are often convenient for another form of human activity: dog walking. Sportsmen may be concerned that toxocaral infection may be acquired from canine defaecation on public playing fields, and the fastidious groundsmen may remove offending articles before matches are played. However, in doing so, they do little to reduce the risk of toxocaral infection.

Life cycle

Toxocara canis is the round worm (ascaris) parasite of canids: dogs and foxes. It has a complex and unusual life cycle. Eggs, when ingested, hatch in the small intestine and invade the intestinal wall. They are taken up in the portal system and distributed through the liver-lung migration cycle, going through larval moults, and being coughed up and swallowed when they develop into adult worms. This characteristic ascarid life cycle is confined mainly to dogs under the age of six months; above this age, larval development is arrested at the second larval stage (L2). This apparent dead end is important for the survival of the parasite as these L2 larvae are re-activated during pregnancy and migrate across the placenta to invade the puppies, and larvae are also excreted in the milk. Consequently, almost all puppies develop an active

toxocaral infection. Eggs are also infective for a wide range of mammalian hosts, but larvae are unable to develop beyond the L2 stage and continue to migrate through the body.¹ *Toxocara* larvae excrete a complex mixture of glycoproteins that are potent stimulators of the host immune system, and it is this that is responsible for the characteristic symptoms and signs of toxocaral infection.²

Human disease

Toxocariasis takes three main forms: an occult form characterised by failure to thrive and abdominal pains in children and visceral larva migrans characterised by fever, wheeze, cough, and eosinophilia.¹⁻³ In addition, there is an ocular form when trapped larvae stimulate a potent immune response leading to a spectrum of problems including endophthalmitis, uveitis, pars planitis, and subsequent granuloma formation.⁴ Ocular toxocariasis is relatively uncommon: some estimates suggest between 50 and 100 new cases of ocular disease a year in the British Isles. In contrast, asymptomatic toxocariasis is common, with 5–7% of an adult population in industrialised countries having evidence of previous infection.¹

So what are the risks to sportsmen on the playing fields? Firstly, fresh *Toxocara* infected faeces pose no threat to human health because eggs must embryonate, a process that takes up to one month, and only 6–15% of dogs excrete eggs.¹ The consequences of this are detected in

surveys of parks within cities in the United Kingdom, which indicate that between 5 and 10% of samples will have infective *Toxocara* eggs.⁵ Visceral larva migrans peaks in children aged three years and is more common in boys.³ Ocular disease presents slightly later in life, between 7 and 10 years.⁴ Adults appear to be relatively resistant to symptomatic infection—for example, surveys of hydatid control in New Zealanders who have intense contact with dogs show that more than 25% have antibodies to *Toxocara* without any evidence of clinical disease.⁶ Thus one would expect the risk for adult sportsmen from contaminated fields to be relatively low, but the risk for children is higher but hard to quantify.

In summary, promiscuous canine defaecation poses a significant aesthetic hazard in playing fields. For children, there is a risk of serious toxocaral infection that may lead to visceral larva migrans or visual loss. For adults, the risk is much lower. Therefore everyone involved in the management of playing fields, whether public or private, should

encourage dog owners to be responsible, clear up after their pets, and take steps to enforce this behaviour.

S GILLESPIE

*Department of Medical Microbiology
Royal Free and University College London
Royal Free Campus
London NW3 2PF, UK
stepheng@rfc.ucl.ac.uk*

- 1 Gillespie SH. The epidemiology of *Toxocara canis*. *Parasitology Today* 1998;4:180–2.
- 2 Gillespie SH. The clinical spectrum of human toxocariasis. In: *Toxocara and toxocariasis. Clinical, epidemiological and molecular perspectives*. London: Institute of Biology, 1993.
- 3 Glickman LT, Schantz PM. Epidemiology and pathogenesis of toxocariasis. *Epidemiol Rev* 1981;3:230–50.
- 4 Gillespie SH, Dinning WJ, Voller A, Crowcroft NS. The spectrum of ocular toxocariasis. *Eye* 1993;7:415–18.
- 5 Gillespie SH, Pereira M, Ramsay A. The prevalence of *Toxocara canis* in soil samples from parks and gardens in the London area. *Public Health* 1991;105:335–9.
- 6 Clemett RS, Hidajat RR, Allardyce RA. Toxocaral infection in hydatid control officers: diagnosis by immunoassay. *N Z Med J* 1985;98:737–9.