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RIDING ACCIDENTS

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Little is known about the nature or incidence of riding injuries. The literature contains only a few case reports and no data on the incidence of accidents. Injuries among horse soldiers have received more attention, and Breitner (1953) refers to several authors. Eastwood (1969) studied the incidence of injuries in different kinds of sports, including polo.

Riding as an outdoor pastime is becoming increasingly popular and we therefore thought it worthwhile to try to survey the types and the incidence of riding accidents.

MATERIAL

In the city of Malmö there are three riding schools with altogether 1,908 members. These schools have 45 horses and 11 ponies, besides which many members have their own horses.

In a prospective one-year study (1970–1971) a special register was kept of all patients admitted as emergency cases because of riding accidents.

Since Malmö General Hospital is the only hospital in the city for acute illness, all persons requiring immediate treatment because of injury and therefore all persons requiring treatment because of riding injuries, are referred there.

The material consisted of 119 patients, 24 males and 95 females. The age distribution is given in Figure 1. The average age was 18 ± 1.0 years (25 ± 3.1 for males and 16 ± 0.9 for females).

The sex and age distribution is probably representative of only the population at risk.

Incidence of injuries

During the period in question the members had received in all 38,100 riding lessons (hours of instruction). The incidence of injuries was calculated as less than one injury per 1,000 lessons.

It was not possible to assess the total incidence of riding injuries in the area covered by the hospital.

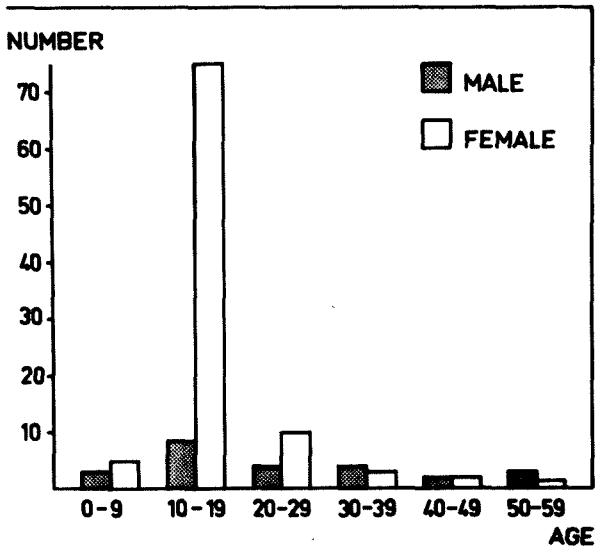

Figure 1. Sex and age distribution of injuries.

AETIOLOGY

Traumatic injuries were seen in 117 cases and tendinitis in 2. The 117 injuries were caused by biting, trampling, kicking, etc. and by falls from the horse's back (Table 1).

Table 1. Distribution of injuries according to cause.

Accidents occurred while rider was:	Number of injuries	Bite	Tramp-ling	Kick	Com-pression	Fall
grooming the horse	12	5	2	5	–	–
leading the horse	12	–	8	3	1	–
holding the horse	4	2	2	–	–	–
riding	93 (7)	2	4	7	1	79
not-specified	3	1	1	1	–	–
Total	124 (7)	10	17	16	2	79

Figures in brackets denote number of combined injuries.

Biting: Horse bites had caused small bruises and scratches of the skin, but in only one case did the injury require excision and suturing. The injuries were localised to the hand and forearm (5 cases), thigh (3 cases), nose and mamilla.

Trampling injuries: The injuries were mild contusions (11 cases), sores (1 case) and fractures of the wrists and toes.

In 3 cases the injuries were more severe, *viz.* cerebral contusion, facial injury and fracture of the navicular bone; open comminuted distal intra-articular fracture of the lower leg; and hand injury with finger fractures. These injuries were seen in experienced riders who had continued to hold the reins after they had fallen from the horse's back.

Kicks: In 4 cases the rider had been kicked by another horse while he was on a horse's back; in 12 cases while he was standing on the ground. In the former group it was always a lower limb that had been kicked. Several serious injuries due to kicking occurred *viz.* concussion of the brain in 2 cases, subcapsular liver rupture, fractures of the mandible, lower leg, radius and finger, injuries requiring suturing in 5 cases, and contusions in 4. In 3 cases the rider was kicked while he was leading a horse with long reins and happened to come behind the horse; in one case the rider continued to hold the reins after having fallen from the horse.

Compression injuries: In 2 cases the rider had been compressed between the horse and the wall (finger fracture, contusion).

Tendinitis: Gripping of the reins had caused tendinitis in two cases, one of type Mb Quervain and the other of the flexors of digits 4 and 5.

Injuries due to fall from horse: Of all the injuries, two thirds were due to falls from a horse's back. The types of injuries were the same whether the rider had fallen from the back of a horse or a pony. Fifty-two of the accidents occurred outdoors and twenty-two indoors. The former appeared to be more serious than the latter. Of the 8 cases of concussion of the brain, 7 occurred outdoors.

The most common reason for the fall was the horse's jumping aside or bucking. Most of the accidents (48 out of 79) occurred during a gallop; only 6 during a jump, and 3 during a race.

Falls were commonest among those members who had their own horse or pony and were not receiving lessons (Figure 2).

The sites and types of injury are given in Table 2.

No skull fracture was demonstrable in any of the 8 cases of cerebral concussion. Of the 79 riders who fell, 55 were wearing a helmet (and 24 were not). Cerebral concussion was equally common whether the riders were wearing a helmet or not. (The difference was not significant). Two of those wearing a helmet lost it during the fall.

The injuries were mainly of the upper limbs, and then consisted

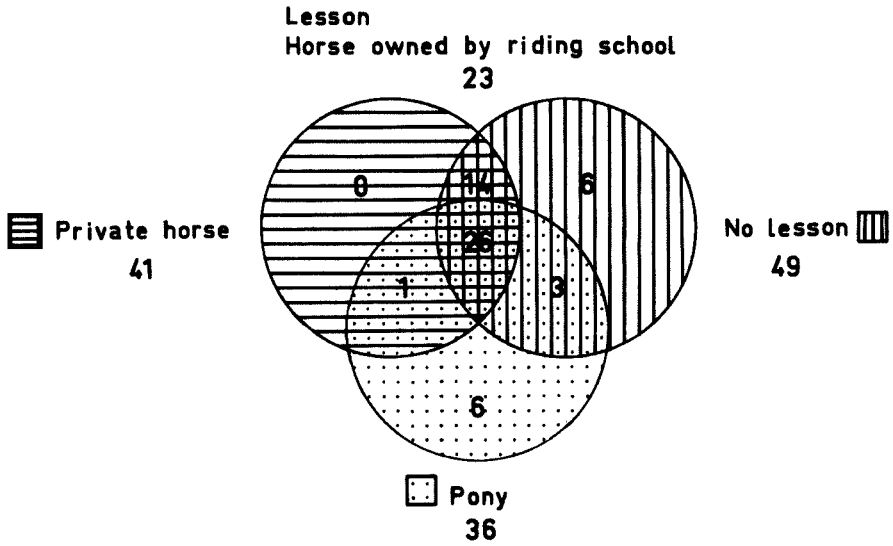

Figure 2. Injuries due to fall from horse or pony owned by riding school or rider, during or not during a lesson. (79 accidents).

mainly of fractures caused by indirect violence when falling on the extended arm.

Of the 119 persons injured, one third could ride again within a week after the accident, two thirds within a month, and all except one within 6 months.

COMMENTS

The risk of accidents during riding is not greater than that in most other sports. The incidence of injuries during riding lessons is less than one per thousand lessons, which is not more than that for swimming and long distance ski-ing (Table 3).

Accidents are probably more common during outdoor riding than indoor riding and they are generally more serious.

Traumatic injuries from the horse (biting, trampling, kicking and compression) or during a fall from the horse's back are the most common types. Typical riding injuries are fractures at various levels of the upper limbs owing to indirect violence when the rider falls from the horse's back onto his hands.

Serious injuries are fairly uncommon. They usually occur when the

rider after having fallen from a horse's back continues to hold the reins and is then trampled or kicked by the horse, or when the rider is leading a horse with long reins and happens to come behind the horse.

Table 2. Injuries in 79 cases due to fall from horse.

Head	Cerebral concussion	8
	Soft tissue injury	1
	Sum	9
Trunk	Rib fracture	2
	Vertebral fracture	7
	Pelvic fracture	1
	Contusion	7
	Sum	17
Arms	Collar-bone fracture	3
	Upper arm fracture (neck of humerus)	9
	Elbow fracture or dislocation	4
	Forearm fracture (diaphysis)	9
	Forearm fracture (distal)	2
	Metacarpal fracture	2
	Contusion, sprain	19
	Sum	48
Legs	Femoral fracture	2
	Lower leg fracture	2
	Ankle joint fracture	2
	Contusion, sprain, soft tissue injury	12
	Sum	18
	Total	92

When a rider falls from a horse he should not hang on to the reins. When walking beside a horse, he should not lead it with long reins.

The frequency of skull injury was not high despite the risk of hitting the head when falling from a horse's back, especially outdoors. The use of a helmet ought to be a good precaution, but, remarkably enough, as many as one out of every three riders do not use one. On the other hand, it might be questioned whether the conventional helmet with a rubber chin strap does not fall off far too easily.

Table 3. Incidence of injuries in different sports.

	Eastwood 1969 Accidents/10^3 exposures	Howorth 1966 Accidents/10^3 man days	Apelqvist 1962 Accidents % insured and year
Rugby	87.9	5	
Football	6.1	9	8.9
Basket ball	2.5	1.3	
Hand ball	1.6		6.3
Volley ball	0.1		
Tennis	0.1		
Ice hockey	2.5	7	5.6
Bandy			4.1
Downhill ski-ing		6	
Long-distance ski-ing	1.0		
Wrestling	10.7		
Boxing	4.6		
Fencing	1.3		
Polo	11.2		
Swimming	0.6		

SUMMARY

In a 1-year prospective investigation 119 patients with riding injuries were seen at the Malmö General Hospital.

The incidence of injury during riding lessons was less than 1 per one thousand lessons.

Accidents were most common among those who had their own horse or pony and were not receiving lessons. Outdoor injuries were more serious than those sustained indoors.

One third of the injuries were due to biting, trampling, kicking and compression, and two thirds to falls from the horse.

Typical riding sport injuries are fractures at different levels of the upper limbs, produced by indirect violence when falling from the horse.

ACKNOWLEDGEMENT

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