Street, London W1N 8AB, makes or adapts any gadget or aid for disabled and elderly people.) The ponies are chosen carefully and need to be reliable with a calm temperament, fit, strong, and responsive. It is amazing how quickly rapport develops between the ponies and their different drivers—the ponies seem to sense the needs of their driver and react accordingly. Many helpers are needed in addition to the able-bodied whip who always accompanies a disabled driver. There must be helpers to hold the pony and to help the disabled person into the cart. If a wheelchair is used it must be securely clamped to the cart; the disabled person is strapped into the chair with a restraining belt for safety and to give the driver security. The disabled driver can then take the reins. Double reins are always used so that the disabled driver can take as much or as little control as is possible and desired, but the able-bodied

whip is always in ultimate control. Reins with looped hand pieces are commonly used when there is any weakness in grip. Once on the road or track the driver can appreciate everything that an able-bodied driver enjoys. There are always two helpers with each pony and cart (turnout), one in front and one behind, often on bicycles, so that they can keep up with the cart. They warn traffic of the turnout and check road conditions ahead; they also help if the disabled driver has any problems.

I am convinced of the many benefits which driving provides for anyone who has an interest in ponies, disabled or not. And as one of our disabled members said, "It makes you feel good."

For details of local carriage driving for disabled groups contact the Riding for the Disabled Association, Avenue R, National Agricultural Centre, Kenilworth, Warwickshire CV8 2LY.

The surgeon's scissor-jaw reflex

W A McFadzean, J D C Bennett

An anaesthetist's time in theatre is spent watching many things, not least the surgeon. In over 10 years as an anaesthetist WAM noted that about three quarters of surgeons exhibit what might be called the scissor-jaw reflex (fig 1). This phenomenon consists of the surgeon's mouth opening in unison with the opening of the scissors when they are used for dissection. This reflex has not previously been described, and to our knowledge there has been no reference to any similar phenomenon in published reports. A close approximation is found, however, in mothers feeding their children. Here a mother will open her mouth in an attempt to encourage the child to imitate her so as to take food from a spoon. Furthermore, it is acknowledged that mouth and tongue movements are associated with mental application.

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Patients and methods

Over a period of 12 months we observed four groups: general surgeons, orthopaedic surgeons, neurosurgeons, and ear, nose, and throat surgeons. Ophthalmologists were excluded as preliminary

analysis proved that it was too difficult accurately to monitor the opening and closing of their tiny instruments ($p=0.01$). Gynaecologists were similarly excluded as in their case both jaw and instrument movement were too fast for accurate observation (interobserver error significant at $p=0.05$).

FIG 2—Number of cycles of SJR per 10 minute operation period in stimulated (○) compared with non-stimulated (●) surgeons ($p<0.01$)

Results

For both jaw and scissors one cycle was defined as a complete opening and closing movement, expressed as the number of cycles per standardised 10 minute operation period. This takes into account the varying lengths of operation: general surgeons, mean 23.8 (SD 16.6) minutes; orthopaedic surgeons, mean 46.6 (22.4) minutes; neurosurgeons 160.3 (33.2) minutes; and ear, nose, and throat surgeons, mean 15.3 (7.2) minutes. After an initial observation period it became apparent that there was a link between jaw and scissor movement—the scissor-jaw reflex (SJR).

The question arose as to whether some mathematical correlation could be made between the two actions. Would fast scissor movement cause faster jaw cycles? And, conversely, could this relation be turned around to modify scissor action? It is well known anecdotally that when the dissection is going well the surgeon tends to be more voluble. In the second half of our study we attempted to stimulate vocal activity from the surgeon in an attempt to produce a reversed SJR and improve surgical productivity (fig 2). The SJR was present in

FIG 1—Scissor-jaw reflex (SJR)

FIG 3—Number of cycles of SJR per 10 minute operation period in general surgeons (○) and ear, nose, and throat surgeons (●)

each surgical subspecialty but most developed in general surgeons and least developed in ear, nose, and throat surgeons (fig 3). Interestingly, analysis of values obtained early in the study indicated that ear, nose, and throat surgeons who trained as general surgeons have a

more highly developed reflex than those who went straight into ear, nose, and throat surgery (not significant).

Although the exact neurological pathways are poorly understood, jaw activity and scissor opening and closing are directly correlated. The aim of this paper was not merely to describe a new reflex, interesting though this may be, but to explore potential practical applications. We believe that stimulating jaw activity will lead to increased opening and closing of the scissors. This may be more simply stated as increased productivity. It is therefore beholden upon anaesthetists in particular (but other members of the operating staff can each play their part) to encourage surgeons to maximise jaw activity. This involves engaging them in conversation and encouraging them to speak. We have found that surgeons enjoy explaining their work, particularly if prompted by the remark that other surgeons do a particular procedure in another way. In our experience, however, the topic is not important, but rather the intensity of the speech elicited—local hospital politics or even the newspaper crossword will suffice. The important thing is to stimulate speech. We are, after all, working in a theatre.

Can orthopaedic surgeons walk on water?

D S Barrett

James Bond might make a good orthopaedic surgeon. His good looks and dynamic personality, essential in orthopaedics, are complemented by the ability to walk on water (or rather waterski on his bare feet as seen in his most recent film). To waterski barefoot requires skill and a large amount of nerve. In order to allow the water to support the body weight on the area of the feet, some 65 cm², the tow boat must travel at 45 mph. Water is awfully hard at 45 mph. Because of this and because of the spectacular amounts of spray produced "barefooting" is perceived as a macho specialty among waterskiers. Nevertheless, I wanted to prove that orthopaedic surgeons could walk on water in addition to their other Bond-like qualities.

At the crack of dawn, when the water was at its most calm, the ordeal began. I was duly dragged up and down the lake five times at unimaginably high speeds until at last I stood on the surface. I felt bruised all over, although I wore two wetsuits to protect myself against the battering of the water.

Experienced barefoot skiers start lying supine in the water. As the speed increases they ski on their back and roll forward to ski on the buttocks. At approximately 45 mph they place their feet on the water surface and stand up. Barefoot waterskiing has its share of tragic cases of spinal cord injury. Classically this occurs as the skier puts his feet down on the water, but pivots forward to overbalance hitting the water at great speed with the cervical and lumbar spine hyperextended.^{1,2} A more common injury may occur at the critical phase of skiing on the buttocks. At this stage the perineum is buffeted by water at 40 mph. Sudden catastrophic failure of wetsuit stitching under such trauma results in high speed rectal or vaginal enemas or both. There is a recognised incidence of rectal and vaginal tears and salpingitis.^{3,4} The misery of sudden wetsuit failure is instant, all pervading, and complete. Male barefooters wear a cricketer's box to protect the scrotum. This vital detail was learnt to my cost only after my attempts at barefooting.

I suffered a complication as yet undescribed in

waterskiing—that of myoglobinuria after massive muscle trauma.

Log rolled out of bed

The following day, Monday, experiencing a little stiffness in the abdominal musculature, it became necessary to ease my legs by sitting down on the orthopaedic ward round. The next day the stiffness was such that I had to be log rolled out of bed. The ward round was conducted at a snail's pace to the undisguised mirth of my senior house officer, who, the previous day, had endured prolonged stories of my heroic exploits on the water. I began to produce scanty amounts of port coloured urine, positive for myoglobin. Terrified, I contacted a colleague in nephrology to be told to drink five litres of water a day. He raised the possibility of acute tubular necrosis and a period of dialysis should my renal function deteriorate.

On Wednesday I was due to operate all day. Complex telephone negotiations ensured that my senior house officer met me at the car to lever me out. The list that followed was vastly entertaining. Too weak and sore to lift the heavier orthopaedic instruments, I had to leave my assistant to do all the hammering and manipulating. The enormous fluid intake occasioned repeated trips to the lavatory during cases, anxiously recording the colour of my urine. Putting on a heavy lead apron for radiographic screening caused me to crumple to the floor where I remained until rescued by nursing staff.

Thursday brought a new problem. Weak as a kitten, I could hardly support the weight of my now hugely swollen scrotum, enlarged because of the pummeling of the water and the oedema from the torn muscles in the chest and abdominal wall. In what was now an established ritual, my senior house officer met me at the car again to help me out, but declined to act as a scrotal support. The twin problems of a massively swollen scrotum and being unable to stand up straight

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