and air entry seemed satisfactory. On examination the tail could be seen protruding from his pharynx. An attempt was made to remove the fish with forceps, but unfortunately it slipped from the grip and disappeared down his oesophagus. After 30 minutes of dysphagia and a disconcerting few days the boy made an uneventful recovery. The fish was not seen again.

Comment

The traditional fishing methods used around the coastal waters of Papua New Guinea include netting, spear fishing, and releasing plant poisons into the water. Fish dislodged from nets and spears or stunned by poison are commonly killed by biting them behind the eye, which breaks the spinal column. The fisher can continue fishing without having to return to the boat with each wriggling catch. As well as being convenient, this is also said to diminish the risk of attracting sharks, which may be alerted by fish struggling underwater.

In the coastal villages of Central province, boys are

taught to kill fish safely at an early age. Normally the fish is bitten while it is still entangled in the net or impaled on the spear, which diminishes the chance of accidents. In addition, the fish should be angled sideways and the crushing performed with the canine rather than the incisor teeth. If the fish slips it then tends to fall free of the mouth.

Both of our cases resulted from attempts to kill the prey by biting its head and the fish slipping into the oropharynx. Although one of the more unusual causes of respiratory obstruction, a live fish is no less devastating than any other and demands swift action.

- 1 Schuurkamp GJ, Sabuin RH, Kereu RK. A report of scombroid fish poisoning from skipjack tuna (*Katsunomus pelamis*) at Tabubil, Western Province, Papua New Guinea. *Papua New Guinea Medical Journal* 1987;30:203-6.
- 2 Barss PG. Scombroid fish poisoning at Alotau. *Papua New Guinea Medical Journal* 1985;28:131.
- 3 Barss PG. Penetrating wounds caused by needle-fish in Oceania. *Med J Aust* 1985;143:617-8, 621-2.
- 4 Barss PG. Wound necrosis caused by the venom of stingrays. Pathological findings and surgical management. *Med J Aust* 1984;141:854-5.
- 5 Campbell CH. Stingray injuries. *Papua New Guinea Medical Journal* 1960;4:71-2.
- 6 Campbell CH. The stone-fish sting and its treatment. *Papua New Guinea Medical Journal* 1959;3:55.

That sinking feeling

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After a patient with multiple joint replacements sank on her first visit after surgery to a swimming pool, we investigated the effect of joint replacement surgery on buoyancy. Knee replacement surgery decreases the buoyancy of the legs and may make swimming difficult. We looked at the role of buoyancy aids in preventing this previously unrecognised problem.

Case report

A 67 year old woman with longstanding rheumatoid arthritis had been a keen and strong swimmer before developing arthritis. She had not attempted swimming since 1983 because of her stiff and painful joints. Since then she had bilateral knee replacements, a left shoulder replacement, and a right elbow replacement. In April, 18 months after her last surgery, she felt well enough to return to swimming and paid a visit to a local swimming pool, where she sank.

Comment

Buoyancy of the human body is chiefly due to the gas filled viscera of the thorax and abdomen. The limbs tend to sink if stationary in the water. The added weight of shoulder and hip replacements should be supported by the buoyant trunk. Elbow replacements add very little extra weight, but knee replacements are heavy (table) and peripheral to the centre of buoyancy and so may alter flotation.

To investigate this problem further a young, former commercial diver with rheumatoid arthritis who had had a hip replacement and a shoulder replacement was taken to the hydrotherapy pool before a total knee replacement. He could float on his back without moving his limbs. With a knee prosthesis attached externally to each side of his waist, flotation was unaltered, but when knee prostheses were attached externally to each knee his legs sank.

This alteration to his flotation did not affect his ability to swim, but with postoperative weakness it could cause lack of confidence in the water. Inflatable

arm bands around the ankles easily corrected for this sinking tendency (figure).

Neoprene knee or ankle supports, which have intrinsic buoyancy, would be more practical. A medium neoprene knee brace will support half the weight of a medium knee prosthesis; with two neoprene knee braces buoyancy should be returned to normal. A greater moment of buoyancy is achieved if a

Weight of knee joint replacement

	Weight (g)
Knee replacement	370
Bone excised	55
Cement used	40
Net increase	355

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Compensating for the added weight of replacement knee joints

flotation aid is worn around the ankle; approximately one and a half times the neoprene of one knee support would be required to correct flotation. Neoprene boots support twice the weight of a knee replacement and so would correct flotation (with the added benefit of verruca protection).

Patients wishing to swim after knee replacement surgery should be warned that the weight of the prosthesis will affect their flotation, and they should take care when first attempting to swim. If swimming is difficult then flotation aids such as neoprene supports or boots may be beneficial.

Convulsions at Christmas

Stephen Kirker

Long hours spent behind the scenes

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That sleep deprivation exacerbates the frequency of seizures in patients with spontaneous epileptic fits is well known, but there are few reports of patients who have seizures only after sleep deprivation.^{1,2}

Case report

A healthy 26 year old butcher described convulsions without warning or focal onset between 11 am and noon on Christmas Eve in 1987, 1988, 1989, 1990, and 1991. He had no other convulsions or episodic symptoms that could be epileptic in origin and he had no relevant medical history. His usual working day was from 7 am to 6 pm but for the 14 days before Christmas he worked until at least 10 pm and as late as 1 am, seven days a week. He worked all through the night of 23 December. He did not miss any meals and ate through the night as well. His usual alcohol consumption was 35 units a week but he drank less during these weeks.

Results of examination and computed tomography were normal. Electroencephalograms in 1989 and 1992, each three months after the period of sleep deprivation, showed paroxysmal generalised spike and wave activity at 8 Hz, with a normal background rhythm. The patient was not prepared to change his working hours during the busiest time of year so we prescribed phenytoin over the second half of December. His gradual reduction in alcohol consump-

tion during this period was unlikely to precipitate withdrawal seizures, and he did not have symptoms of alcohol withdrawal. His electroencephalogram suggested he had an underlying tendency to have seizures, which only became apparent when his "seizure threshold" was lowered by sleep deprivation.

Comment

Gunderson *et al* reported 40 servicemen who had seizures after sleep deprivation (more than 36 hours in 70%), six of whom had had a previous convulsion in similar circumstances.¹ Two had paroxysmal diffuse sharp waves and four had minor abnormalities in their electroencephalograms after one or more nights' sleep. Bennett described four airmen who had single convulsions after sleep deprivation accumulated over several nights.² Three had generalised spike and wave discharges after photic stimulation or sleep induced by seconal.

Seizures may occur in previously healthy people after work related sleep deprivation and may therefore be a form of occupational illness, and they may lead to the major occupational handicap of loss of a driving licence.

1 Gunderson CH, Dunne PB, Feyer TL. Sleep deprivation seizures. *Neurology* 1973;23:678.

2 Bennett DR. Sleep deprivation and major motor convulsions. *Neurology* 1963;13:953.

Word perfect

David Maxwell

Although few of these medical terms may form part of the everyday vocabulary of today's physician, many of them describe objects, events, or conditions that are commonplace. The correct answers and their derivations are given on p 1586.

- (1) **Emunction:** (a) nose-picking (b) chewing the cud (c) a poultice
- (2) **Mitella:** (a) a baby bed bug (b) an arm sling (c) a sesamoid bone in the wrist
- (3) **Incubus:** (a) a nightmare (b) an apprentice surgeon (c) in the prone position
- (4) **Gravedo:** (a) pregnancy (b) midthoracic back pain (c) a cold
- (5) **Acnestis:** (a) area on the back that is difficult to scratch (b) status acne (c) the peak of a febrile illness
- (6) **Whirlbone:** (a) the patella (b) Pagetoid bone (c) a dental instrument
- (7) **Pandiculation:** (a) inability to make up one's mind (b) speaking in many languages (c) yawning
- (8) **Ciliosis:** (a) trembling of the eyelid (b) playing constantly with one's hair (c) swaying gait
- (9) **Bechic:** (a) a patient with thromboangiitis obliterans (b) cough medicine (c) a Russian homoeopathic practitioner
- (10) **Brontophobia:** (a) fear of large animals (b) fear of one's sisters (c) fear of thunder
- (11) **Bumble foot:** (a) gait of one with congenital dislocation of the hips (b) a foot disease of poultry (c) a foot with six toes
- (12) **Dewlap:** (a) pendulous loose skin of the throat (b) beads of sweat on one with a high fever (c) uraemic frost

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