J. G. P. WILLIAMS pointed out that pathological conditions likely to develop while running were unlikely to be detected by a traditional medical examination. There is a danger that older people who have passed such an examination will assume that they are fit to do whatever they want. Even a negative cardiological examination is no guarantee against coronary ischaemic death a short time afterwards.

As basic fitness levels vary, it is impossible to prescribe an exact exercise load to suit everyone. Each person must be assessed individually, and his exercise load ascertained by his response to graduated training. Amongst ten thousand patients in a rehabilitation unit where vigorous exercise is the rule, there has only been one death from ischaemic heart disease, and no form of medical examination could have prevented that.

P. RENSTRÖM found no particular cardiac hazard amongst Swedish skiers and distance runners competing in very cold weather conditions.

P. R. TRAVERS considered education a most important aspect of exercise for older people. The doctor has such an opportunity if he conducts pre-training medical examinations, and the value of exercise in the preservation of mobility, strength and cardiovascular reserve can be stressed. Simple health measures such as walking, dietary control and avoidance of smoking can be encouraged. A full medical examination will reveal muscle wasting, early osteoarthritis and bronchospasm. Jogging should be for enjoyment and not allowed to become competitive, with the attendant risks of over-stressing limbs and circulation.

Work done for the Institute of Directors suggests that any exercise which puts stress on the heart improves coronary circulation; a larger thrombus is therefore needed to cause infarction, and anastomotic vessels reduce the extent of death of muscle fibres.

A. YOUNG raised the point of comparing the effects of short duration vigorous activity such as squash with steady daily jogging.

D. S. MUCKLE and co-workers found that vigorous exercise for twenty minutes two or three times a week maintained biochemical fitness. For an athlete three one-hour heavy training sessions a week are all that is needed to attain competition fitness, and for a recreational participant two twenty minute games of squash, should be sufficient. Many international athletes over-train.

J. G. P. WILLIAMS agreed that this applied to endurance athletes especially, who frequently practice the quantity of training rather than the quality. Many specialised games players recovering from injuries improved their general standards of fitness during supervised rehabilitation, and this led to improved performance in their games. Many players train too specifically, often to the neglect of general fitness training.

P. R. TRAVERS agreed that many young players started specific skill training too soon, before they had developed aerobic and anaerobic capacity, strength and mobility.

J. G. P. WILLIAMS mentioned that most fitness parameters in athletes were higher just before the beginning of the competitive season, and declined as the season advanced. To too many doctors, "fitness" means only "absence of ill health".

CHAIRMAN'S CLOSING REMARKS

P. R. TRAVERS summing up the forum and the symposium, emphasized the general agreement among the speakers concerning the problems injured sportsmen produce.

75% of injuries occur to people below the age of 30, most of whom are engaged in employment needing fitness, in professional sport, in business, professions and industry. Early treatment is therefore necessary if the period of disability is to be kept to a minimum.

Treatment is only effective if a correct diagnosis has been made, and the mechanism of the injury understood, and possible pathology envisaged.

Prevention of injury is more important than cure, and joints are protected by the strength and integrity of the muscles acting upon them and by proprioceptive reflexes. Correct lifting techniques have to be taught.

The difference between acute injuries and chronic overuse injuries must be understood, and the stresses of training are usually much heavier than those of competition. Overuse injuries are becoming commoner as the standard of competition and the training necessary are becoming higher. The quality of training is more important than the quantity.

The increase in the number of participants in sport, especially jogging in later life, presents additional problems. A graduated approach is essential, and care must be taken over the surface upon which running takes place, shoes and clothing and environment.

Rest may be necessary in the initial stages after injury, and healing can be promoted by the immediate use of anti-inflammatory drugs. Static exercises will maintain muscle tone and range of movement.

Appreciation was expressed to the Speakers and Chairmen, to the Boots Company who sponsored the symposium, and to the Biggs Communication Group, who organized the meeting and arranged for the publication of the Proceedings.

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