AEROBIC EXERCISE TRAINING AND QUALITY OF LIFE IN STROKE PATIENTS

HAMZAT TK, Ph.D (Neuro-physiotherapy) Ib.
Department of Physiotherapy, College of Medicine, University of Ibadan

ABSTRACT
There is an increase appreciation of the need to include endurance exercise training in the overall management of stroke victims by the physiotherapist. Raising the patient's level of physical fitness through aerobic exercise would help to reduce the incidence of secondary health conditions, such as obesity, hypertension, and depression, which may result from the patients reduced mobility. This paper discusses the role of exercise in improving the quality of life of stroke victims. It also highlights the type of exercise that may be used to achieve this goal.

Key words: stroke, quality of life, exercise training

INTRODUCTION
Stroke has been defined as an acute focal or global disturbance of cerebral and other intracranial neuronal functions of presumed vascular origin, with some level of disability lasting more than 24 hours or resulting in death. It includes subarachnoid haemorrhage, intra-cerebral haemorrhage and cerebral ischaemic necrosis, but excludes transient ischaemic attack, sub-dural and extradural haematomas. The signs and symptoms in stroke correspond to the involvement of focal areas in the brain. Cerebrovascular accident is the third commonest neurological disease in black Africans, after infections and epilepsy in that order. It is also the third commonest cause of death after coronary artery disease and cancer in developed countries.

Disability in stroke patients who present with varying degrees of handicap presents a formidable challenge to the medical professionals who are involved in their management and general rehabilitation. The special project report of the WHO predicted that stroke will continue to be a major problem demanding increased and focused attention of everyone interested in health care delivery. The overall aim in the management of a stroke victim is the complete restoration of the disabled person to his full physical, psychological and social capability. Rehabilitation should commence immediately, starting with the acute phase to sequelae. The role of the physiotherapist is to enhance recovery by preventing complications, promoting intrinsic recovery, teaching adaptive strategies and facilitating interaction with the environment.

During the recovery period from stroke, early intervention with emphasis on task specific treatment procedure has been reported to enhance a more rapid recovery. This is based on the
observation that task-specific treatment procedures produce greater gains than merely early intervention and conventional physiotherapeutic procedures, that do not focus on specific tasks (such as ambulation) but focus on neurophysiologic techniques. The type of treatment procedure(s) or modalities employed in stroke management depends on the clinical findings and aims of the treatment plan. Exercise therapy, using different approaches described by Bobath, Kabat and Voss, has remained one of the most important tools in stroke rehabilitation.

HEALTH-RELATED QUALITY OF LIFE IN STROKE PATIENTS

The neurologic, cognitive and behavioural sequelae of stroke can lead to a considerable degree of physical disability. This necessitates social adjustment in stroke victims, especially those who are unable to carry out the activities of daily living unaided. The debilitating effects of stroke on the patient may lead to secondary health conditions. The secondary health conditions affecting people with disabilities, such as stroke victims, include osteoporosis; osteoarthritis; decreased balance, strength, endurance, flexibility and fitness; increased spasticity; weight problems; depression; and other health conditions. Exercise conditioning programmes that promote health have been recognized as capable of modifying each of these medical conditions. Physical exercise has also been identified as a preventive health behaviour often employed as a strategy for good health. Very little attention is paid, however, to promoting good health in people with physical disabilities, secondary to stroke. Rather, emphasis is usually placed on medical rehabilitation with little attempt at meeting the health care needs of such people after they are discharged from rehabilitation centres. This could be due to the outdated definition of health as the absence of disease. The idea of promoting healthy living was to prevent disease and disability in the healthy and did not apply to the treatment of the sick and disabled.

One of the objectives of a health-promotion programme for people with physical disabilities is to reduce secondary health problems like hypertension and pressure sores, to provide an opportunity for leisure and enjoyment, and to enhance the overall quality of life by reducing environmental barriers to good health. Health-related quality of life issues include physical, functional, psychological, emotional and social well-being. The more people with disabilities can do for themselves, either on their own or with a personal care assistant, and technological devices, the better their quality of life. Only about half of stroke survivors are independent six months post-stroke, and their quality of life is diminished. It has therefore been argued by Clark and Smith that improving the stroke victim's awareness of and involvement in a health promotion programme, after the cerebrovascular accident, may help their prospects for recovery and improve the quality of their lives.

HEALTH PROMOTION EXERCISE TRAINING IN STROKE PATIENTS

The impact of physical activity on people with physical disabilities has been highlighted by Shephard. The benefits include improvement in self-esteem and self-efficacy, perceived improved health, and ability to perform daily activities. Physical activity is an umbrella term which includes many other concepts such as fitness, exercise training and conditioning. The major components of a fitness programme for people
with disabilities are the same as for the general population and these include cardio-respiratory endurance, muscular strength and flexibility. However, the types, intensity, frequency and duration of activities used to improve fitness may vary.

Endurance (aerobic) exercise training is increasingly recognized by some rehabilitation experts as an important component of stroke rehabilitation. Evidence is also accumulating in the literature to show the beneficial effects of aerobic exercise training for stroke victims. An average improvement in maximal oxygen consumption of 13.3% in stroke patients who participated in a 10-week aerobic exercise training programme was reported by Potempa et al. They concluded that the potential benefits of aerobic exercise training cannot be overemphasized.

Repeated physical exercise is also believed to boost the immune system, especially T-cell functions which help to prevent infectious diseases that often cause complications in patients with cerebrovascular diseases. Brown and Kautz observed that individuals with hemiplegia increased force output by their plegic limb when pedaling against higher workloads, without exacerbation of impaired motor control. They therefore concluded that exertional pedalling exercise is a beneficial intervention for achieving gains in muscular force output without worsening motor control impairment.

Graded treadmill exercise testing, with proper safety precautions, can be used to assess cardio-pulmonary function in paretic stroke patients and can also be used for endurance exercise training. It was reported that six months of low-intensity treadmill endurance training produced substantial and progressive reduction in the energy expenditure and cardiovascular demands of walking in older patients with chronic hemiparetic stroke. These findings suggest that task-oriented aerobic exercise may improve functional mobility and cardiovascular fitness profiles in stroke patients.

A 6-week endurance training programme enhanced exercise-related release of parathyroid hormone and reduced osteocalcin levels in elderly men. Exercise training can therefore be regarded as a preventive measure against osteopaenia, which has been documented as one of the complications of stroke. To study how the severity of hemiparesis is related to exercise training, Terai and M i a k e divided clinically-stable stroke patients into two groups according to Bruston stage of recovery. One group comprised patients at stages III, IV and V of lower limb function and the other comprised patients at stage VI. After the treadmill exercise, the tests indicated that even low-intensity exercise increases cardiovascular responses.

Participation in vigorous physical activity for at least 30 minutes a day is recommended for cardiorespiratory fitness, but recent studies suggest that physical activity below this level can also be beneficial in reducing the risk of cardiovascular heart disease. A six month programme of low-intensity treadmill endurance training involving patients with chronic hemiparetic stroke was reported to produce substantial and progressive reduction in the energy expenditure and cardiovascular demands of walking in these patients.

**CONCLUSION**
The stroke patient often has a clear goal for himself in relation to the functional progress of his rehabilitation. Stroke patients often view recovery as a return to the quality of life they had before
Fitness brings the glow of good health, yet a casual observation of the physical rehabilitation plan of stroke patients by physiotherapists in Nigeria shows that the inclusion of health-promoting physical exercise training programmes to enhance the cardio-respiratory conditioning of the victims and further improve their ambulatory ability and overall quality of life is uncommon. This may be due to a lack of information on the benefits of such programmes for individuals with stroke.

REFERENCES


