CHAPTER 3

MOTIVES FOR GOVERNMENT INVOLVEMENT IN SPORT FOR ALL

The National Sports Policy (1988) stated that government efforts in nation building included developing an active, healthy and fit society through sports and physical recreational activities. This is one of the purported outcomes of sport for all. The policy also listed individual and social benefits. Individual benefits include developing personality and self-realisation, improving physical fitness and health as well as "alleviating stress of modern living" (National Sports Policy, 1988, pg. 6). It is assumed that sport also develops basic skills and is a meaningful and wholesome leisure activity. Some of the desired social benefits include promoting the development of physical and moral qualities, providing an environment for social interaction, improving community health and productivity in addition to preventing crime (National Sports Policy, 1988). When officiating at a workshop on sports and recreation, the then Minister of Culture, Youth and Sports, Anwar Ibrahim (1984) stressed that the ultimate goal of sport for all is to improve productivity and quality of life. It is important for a developing nation like Malaysia because the country is paying the price for economic success in terms of more health and social problems, such as increased incidence of cardiovascular disease, neoplasm (cancer), delinquency and crime.

Benefits of sport for all have been discussed at length during sport for all congresses. Among the topics deliberated at the 1990 World Congress on Sport for All in Tampere, Finland, were the socialisation, economic and health benefits of sport for all. The relationship between sport for all and the economy and tourism was discussed at the 1992 World Sport for All Congress in Varna, Bulgaria. Another sub-theme at that particular congress was the relationship between sport
for all and elite sport. The 1996 World Sport for All Congress in Seoul, Korea focused on sport and family while the theme for the 1997 IAFISA World Congress in Penang, Malaysia was sport for all and the quality of life.

Sport for all was strongly advocated at these congresses. In his keynote address presented at the XIII Trim and Fitness Conference in Chiba, Japan, Palm (1993) argued that that sport for all is essential to the wellbeing and the improvement of living conditions. According to him the proof is evident in the reduction in national health care costs, the contribution of sport as a counter-measure to social conflicts, the role of sport in contemporary popular culture in addition to the growing importance of leisure goods and services to the national economy.

In his paper on Sport for all – an approach for debate, Møller (1992) emphasised the necessity of physical activity for the individual. According to him, physical activity improves the quality as well as the well-being of human life by reducing early mortality, frequency and difficulty of illness, in addition to having positive psychological, physiological and biomedical effects. Palm (1993) succinctly said that if we were to restrict ourselves to a sedentary life, a person’s body would deteriorate and children would not be able to develop physically, mentally and socially into complete human beings.

According to Chang (1991), in addition to being an integral part of culture, sport for all is an important social, economic and socio-political factor in the development of individual countries. Further Davidov (1992) argues “sport is a historically established social phenomenon of indisputable curative, recreative, educational, productive, cultural and other functions” (p. 73). The practice of sport has an all-round effect on the human body and personality; for example,
developing human’s physical, volitional, moral and intellectual qualifications are seen as benefits.

The focus of this chapter will be the importance of sport for all and physical activity, a mainstay of sport for all. There is voluminous literature on the effect of physical activity on health, disease and society. However, only relevant research on the physiological, psychological, economic and social benefits of physical activity will be discussed in the context of pertinent Malaysian statistics. The figures from the Department of Statistics, Malaysia on the prevalence of disease from 1988 till 1998 will be used to explain why the Malaysian government actively promotes sport for all by encouraging the public to participate in physical activity. A limitation here is that 1998 is the year of the most recent figures published by the Malaysian Department of Statistics. Although there has not been any published research on the physiological, psychological, social and economic impact of sport for all in Malaysia, international literature cited in this chapter are those that are relevant to Malaysia. The relationship between sport for all and high performance sport is another reason to encourage sport for all in the country. Malaysia prides itself with superlatives; for example the capital has the world’s tallest building (the Petronas Twin Towers), the modern Kuala Lumpur International Airport and the futuristic Multimedia Super Corridor. Sport is no exception. Sport is one of the national icons that many developed countries tout as an indicator of their economic success. Malaysia plans to excel in the sporting arena. One way to produce world champions is by having a large talent pool. This is where sport for all has a role to play in building a critical mass for our sporting success. The health motive for the government’s involvement in sport for all is elaborated in the next section.
Health

Although human function is a complicated integration of a number of systems, health from the physical and psychological perspectives are discussed here.

Physiological Benefits

According to Hippocrates,

All parts of the body which have a function, if used in moderation and exercised in labors in which each is accustomed, become thereby healthy, well developed and age more slowly; but if unused and left idle they become liable to disease, defective in growth and age quickly.  

(quoted in Vuori, 1991, p.33)

Oja (1996) stated that physical activity has a positive effect on the health and functional capacity of individuals throughout their lives. Exercise is found to decrease the risk of developing degenerative and prevalent diseases in adults. There is also increasing evidence of the influence of physical activity in improving health and well-being in addition to preventing chronic non-communicable diseases (Martin, 1996).

Research has shown that engaging in exercise and physical activity has a positive effect on health. Vuori (1991) found that exercise benefits health conditions through prevention, treatment and rehabilitation. Research has shown that physical activity has favourable effects on mortality rates and morbidity of many diseases (Bernstein, Henderson, Hanisch, Sullivan-Halley & Ross, 1994;

Regular physical activity lowers death rate, protects against cardiovascular diseases, cancer, diabetes mellitus as well as maintains bone mass, reduces fractures and improves body composition.

**Overall Mortality**

Dobrev (1992) maintained that although people yearned for longevity, it is not an end in itself. He stated that "the aim is not to add years to life but to add life to years" (p. 101). Movement prolongs the youthful period of a person’s life and helps to attain active, happy and creative longevity. According to the Yearbook of Statistics, Malaysia, the life expectancy for Malaysian males is 69.6 years and for females is 74.9 years (Department of Statistics, 2000). As a population grows older, the particular needs of ageing must be addressed. Without doubt, their health care would cost more than in that group’s younger years. However, an active older population would require less medical expenses for lifestyle related diseases. Persons with higher levels of physical activity have a lower mortality rate compared to those with sedentary habits. Slattery and Jacobs (1988) investigated the relationship between physical fitness and cardiovascular disease. The result showed that men with lower levels of physical fitness have an increased risk of dying from cardiovascular disease. Physical activity protects against death from coronary heart disease as well as all-cause mortality (Slattery, Jacobs & Nichaman, 1989). Kannel and Sorlie (1979) found that active men live longer than sedentary men and suggested that even low levels of physical activity may be of some benefit. Leon and Connett (1991) conducted a 10.5-year follow-up study on
middle aged men at risk of coronary heart disease. They found that low levels of physical activity increased the risk of fatal cardiovascular disease, coronary heart disease and premature death from all causes.

Another longitudinal study on older age groups has also shown that an increased risk of death is linked to low physical activity (Lindsted, Tonstad & Kuzma, 1991). There is consistency in the results of studies regarding the participation in physical activity and life span. Lindsted, Tonstad and Kuzma (1991) conducted a 26-year (1960 - 1985) follow-up study of 9,484 Seventh-Day Adventist men in the United States and found that moderate and high levels of activity reduced the overall risk of death even late in life.

This association between physical activity and mortality was also reported by Paffenbarger et al. (1993). They indicated that a change in lifestyle from sedentary to moderate physical activity is linked to a lower death rate. They found that sedentary Harvard male alumni who took up moderately vigorous sports activity had a 23% lower risk of death compared to those who remained sedentary. Beginning moderately intense sports activity also extended their longevity by 0.72 years.

Although these studies were undertaken in the United States, given similar lifestyle circumstances, there is little to suggest that Asian populations’ physiology responds differently to that of our Western counterparts.

**Diseases of the Circulatory System**

According to the Tenth International Statistical Classification of Diseases and Related Health Problems, diseases of the circulatory system include acute rheumatic fever, chronic rheumatic heart diseases, hypertensive diseases,
ischaemic heart diseases, pulmonary heart disease and diseases of pulmonary circulation, cerebrovascular diseases, diseases of arteries, arterioles, and capillaries, diseases of veins, lymphatic vessels and lymph nodes and other disorders of the circulatory system (World Health Organization, 1992).

Malaysia's rapid development has influenced the lifestyle of Malaysian society in several ways in terms of food and leisure. According to the 1995 Annual Report for the Ministry of Health, these factors have contributed towards the incidence of cardiovascular diseases (CVD). In addition to that, mechanisation of work and transport has resulted in a sedentary lifestyle. According to the 1993 and 1995 Annual Report by the Ministry of Health, Malaysia, CVD is the principal cause of morbidity and mortality in Malaysia. Between 1980 and 1992, the CVD mortality rate in Peninsular Malaysia increased from 22.1 per 100,000 to 37.9 per 100,000 population. In the same period, CVD hospital admissions increased from 19,472 to 70,509 (Ministry of Health, 1993).

Table 3 shows the admissions for diseases of the circulatory system to government hospitals based on the Yearbook of Statistics for various years (Department of Statistics, 1989, 1990, 1993, 1996, 1999).
Table 3

Government Hospital Admissions for Diseases of the Circulatory System

<table>
<thead>
<tr>
<th>Year</th>
<th>Hospitalisation admissions for diseases of the circulatory system</th>
<th>Total hospital admissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>56,070</td>
<td>1,090,807</td>
</tr>
<tr>
<td>1989</td>
<td>75,405</td>
<td>1,246,121</td>
</tr>
<tr>
<td>1992</td>
<td>82,010</td>
<td>1,341,482</td>
</tr>
<tr>
<td>1994</td>
<td>89,824</td>
<td>1,396,338</td>
</tr>
<tr>
<td>1995</td>
<td>95,454</td>
<td>1,465,448</td>
</tr>
<tr>
<td>1996</td>
<td>101,985</td>
<td>1,488,745</td>
</tr>
<tr>
<td>1997</td>
<td>105,336</td>
<td>1,559,280</td>
</tr>
</tbody>
</table>


Information from Table 3 shows that admissions for diseases of the circulatory system increased from 5.97% of total admissions in 1986 to 6.76% in 1997.

Table 4 shows the trend for medically certified and inspected deaths from diseases of the circulatory system.
### Table 4

**Medically Certified and Inspected Deaths from Diseases of the Circulatory System**

<table>
<thead>
<tr>
<th>Year</th>
<th>Acute rheumatic fever</th>
<th>Chronic rheumatic heart disease</th>
<th>Hypertensive disease</th>
<th>Acute myocardial infarction</th>
<th>Other ischaemic heart disease</th>
<th>Cerebrovascular disease</th>
<th>Atherosclerosis</th>
<th>Other diseases of circulatory system</th>
<th>Total certified and inspected deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>1</td>
<td>131</td>
<td>219</td>
<td>2,952</td>
<td>401</td>
<td>2,523</td>
<td>4</td>
<td>2,989</td>
<td>31,705</td>
</tr>
<tr>
<td>1989</td>
<td>3</td>
<td>154</td>
<td>163</td>
<td>2,980</td>
<td>385</td>
<td>2,825</td>
<td>4</td>
<td>2,903</td>
<td>32,521</td>
</tr>
<tr>
<td>1990</td>
<td>1</td>
<td>167</td>
<td>101</td>
<td>2,984</td>
<td>553</td>
<td>2,959</td>
<td>2</td>
<td>2,864</td>
<td>34,278</td>
</tr>
<tr>
<td>1991</td>
<td>-</td>
<td>156</td>
<td>154</td>
<td>3,131</td>
<td>673</td>
<td>2,914</td>
<td>9</td>
<td>3,046</td>
<td>35,028</td>
</tr>
<tr>
<td>1992</td>
<td>2</td>
<td>142</td>
<td>113</td>
<td>3,027</td>
<td>678</td>
<td>3,012</td>
<td>2</td>
<td>3,112</td>
<td>35,676</td>
</tr>
<tr>
<td>1993</td>
<td>3</td>
<td>138</td>
<td>210</td>
<td>3,272</td>
<td>790</td>
<td>3,169</td>
<td>6</td>
<td>3,086</td>
<td>37,093</td>
</tr>
<tr>
<td>1994</td>
<td>2</td>
<td>127</td>
<td>276</td>
<td>3,166</td>
<td>899</td>
<td>3,137</td>
<td>5</td>
<td>3,275</td>
<td>38,234</td>
</tr>
<tr>
<td>1995</td>
<td>-</td>
<td>148</td>
<td>285</td>
<td>3,393</td>
<td>932</td>
<td>3,363</td>
<td>5</td>
<td>3,684</td>
<td>41,495</td>
</tr>
<tr>
<td>1996</td>
<td>2</td>
<td>107</td>
<td>366</td>
<td>3,314</td>
<td>933</td>
<td>3,279</td>
<td>2</td>
<td>3,628</td>
<td>41,788</td>
</tr>
<tr>
<td>1997</td>
<td>-</td>
<td>111</td>
<td>529</td>
<td>3,420</td>
<td>1,037</td>
<td>3,335</td>
<td>1</td>
<td>3,817</td>
<td>44,013</td>
</tr>
<tr>
<td>1998</td>
<td>4</td>
<td>101</td>
<td>529</td>
<td>3,328</td>
<td>1,062</td>
<td>3,367</td>
<td>1</td>
<td>3,902</td>
<td>43,514</td>
</tr>
</tbody>
</table>

Based on the information from Table 4, the percentage of deaths from diseases of the circulatory system has been relatively constant. The highest percentage was 29.1% in 1988 and the lowest was 27.8% in 1997. For the other years, the percentage was between 28% to 29% of total deaths.

Table 5 shows the trend for non-medically certified deaths from heart attacks.

Table 5
Non-medically Certified Deaths from Heart Attacks

<table>
<thead>
<tr>
<th>Year</th>
<th>Heart attack (non-medically certified)</th>
<th>Total non-medically certified deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>1,580</td>
<td>47,933</td>
</tr>
<tr>
<td>1989</td>
<td>1,481</td>
<td>48,713</td>
</tr>
<tr>
<td>1990</td>
<td>1,794</td>
<td>48,966</td>
</tr>
<tr>
<td>1991</td>
<td>1,970</td>
<td>49,167</td>
</tr>
<tr>
<td>1992</td>
<td>1,968</td>
<td>50,274</td>
</tr>
<tr>
<td>1993</td>
<td>2,110</td>
<td>50,501</td>
</tr>
<tr>
<td>1994</td>
<td>2,305</td>
<td>51,845</td>
</tr>
<tr>
<td>1995</td>
<td>2,560</td>
<td>53,582</td>
</tr>
<tr>
<td>1996</td>
<td>2,668</td>
<td>54,071</td>
</tr>
<tr>
<td>1997</td>
<td>2,677</td>
<td>53,029</td>
</tr>
<tr>
<td>1998</td>
<td>2,619</td>
<td>54,392</td>
</tr>
</tbody>
</table>


Based on Table 5, for non-medically certified heart attacks, the percentage of deaths has increased from 1988 until 1998. The percentage of deaths from heart attacks was 3.3% in 1988 compared to 4.8% in 1998.

Studies have shown inverse relationship between level of physical activity and risk of CVD (Arroz, Wigle, Mao, 1992; Kannel & Sorlie, 1979; LaCroix, Leveille, Hecht, Grothaus & Wagner, 1996; Lindsted, Tonstad & Kuzma, 1991). Kannel and Sorlie (1979) found this association to hold true for both men and
women. LaCroix et al. (1996) reported that compared with participants who walked less than an hour per week, those who walked more than 4 hours per week were 31% less likely to be hospitalised for CVD during the follow-up period. Arraiz, Wigle and Mao (1992) also found an association between a lower physical fitness level and a higher risk of CVD mortality.

**Coronary Heart Disease**

Studies have shown that there is a relationship between a sedentary lifestyle and coronary heart disease (Berlin & Colditz, 1990; Mittleman et al., 1993). Berlin and Colditz (1990) reviewed the epidemiologic literature on coronary heart disease (CHD) and concluded that physical activity is inversely and causally related to the incidence of CHD. According to the review, a consistent association between lack of physical activity and increased CHD probability exists. Mittleman et al. (1993) found that people who exercise regularly have a lower base-line risk of myocardial infarction and a lower risk of heavy physical exertion triggering an infarction.

In support of this, Parfenbarger et al. (1993) found that compared to active men, sedentary men had a 36% higher risk of death from CHD. Men who took up moderately vigorous sports activity had a 41% lower risk of death from CHD compared to those that remained sedentary. Moreover, results from Manson et al. (1999) found that sedentary women who became active in middle adulthood or later had a lower risk of CHD compared with those who remained sedentary.

Hsieh, Yoshinaga, Muto and Sakurai (1998) compared the CHD risk factors of adult Japanese men who engaged in continuous physical activity of 30 minutes or more per day, varyingly for one, two and three days or more per week.
They found that those who exercised for three days and more had the fewest coronary risk factors. I-M. Lee, Sesso and Paffenbarger (2000) suggested that shorter exercise sessions are just as effective as a longer, continuous session in decreasing CHD risk as long as the total energy expended was similar.

Cerebrovascular Disease

According to Dorland’s Illustrated Medical Dictionary (1994), cerebrovascular refers to the blood vessels of the brain. The term cerebrovascular disease covers acute stroke and other diseases that may lead to stroke.

Table 6 shows the trend for medically certified and inspected deaths from cerebrovascular disease.

Table 6

<table>
<thead>
<tr>
<th>Year</th>
<th>Cerebrovascular disease</th>
<th>Total certified and inspected deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>2,523</td>
<td>31,705</td>
</tr>
<tr>
<td>1989</td>
<td>2,825</td>
<td>32,521</td>
</tr>
<tr>
<td>1990</td>
<td>2,959</td>
<td>34,278</td>
</tr>
<tr>
<td>1991</td>
<td>2,914</td>
<td>35,028</td>
</tr>
<tr>
<td>1992</td>
<td>3,012</td>
<td>35,676</td>
</tr>
<tr>
<td>1993</td>
<td>3,169</td>
<td>37,093</td>
</tr>
<tr>
<td>1994</td>
<td>3,137</td>
<td>38,234</td>
</tr>
<tr>
<td>1995</td>
<td>3,363</td>
<td>41,495</td>
</tr>
<tr>
<td>1996</td>
<td>3,279</td>
<td>41,788</td>
</tr>
<tr>
<td>1997</td>
<td>3,335</td>
<td>44,013</td>
</tr>
<tr>
<td>1998</td>
<td>3,367</td>
<td>43,514</td>
</tr>
</tbody>
</table>

The figures in Table 6 show that the number of deaths from cerebrovascular disease has increased. However, in terms of percentage of total certified and inspected deaths, there was an increase from 1988 (8.0%) until 1993 (8.5%) and a decrease from 1994 (8.2%) until 1998 (7.7%).

Research has shown an inverse association between physical activity and incidence of stroke in both men and women. Wannamethee and Shaper (1992) examined the association between physical activity and risk of stroke among 7,735 men aged 40-59 in Britain. They found that moderate physical activity significantly reduces the risk of stroke in men with and without pre-existing ischaemic heart disease.

Abbott, Rodriguez, Burchfiel and Curb (1994) found that older middle-aged men (55-68 years) who were inactive or partially active experience a three-to-fourfold excess incidence of haemorrhagic stroke. For those who did not smoke, the risk of thromboembolic stroke in active men was one half to one third the risk experienced by inactive or partially active men. Sacco et al. (1998) investigated the association between leisure-time physical activity and ischaemic stroke in an urban, elderly, multiethnic population. They concluded that physical activity was related to a decreased occurrence of stroke.

Kiely, Wolf, Cupples, Beiser and Kannel (1994) found that medium and high levels of physical activity was protective against stroke in men in the United States. This beneficial effect persisted even after adjustment for age and other risk factors. Similar results were reported in Salonen, Puska and Tuomilehto’s (1982) Finnish study that showed an inverse association for relative risks of cerebral stroke for men and women. Compared with those with high activity, men and women with low physical activity at work had 1.6-fold and a 1.7-fold risk factor-adjusted relative risk of stroke.
In their study of women in Sweden, Lapidus and Bengtsson (1986) also discovered an inverse association. They found that compared to other women, the risk of stroke for women with low physical activity at work was 7.8 times. For women with low physical activity during leisure hours, the risk was 10.1 times compared to others. Hu et al. (2000) also found that increasing physical activity was inversely associated with risk of stroke in women. In addition to that, they suggested that even moderate-intensity exercise reduced the risk of stroke.

**Hypertensive Disease**

According to Dorland's Illustrated Medical Dictionary (1994), hypertension means high arterial blood pressure. Normal blood pressure ranges from 140 mm Hg systolic and 90 mm Hg diastolic to 200 mm Hg systolic and 110 mm Hg diastolic. Anything above that is called hypertension. The Second National Health and Morbidity Survey found that the prevalence of hypertension among adults aged 30 years and above in Malaysia was 29.9% (Rozita Halina Hussein, 1997). Table 7, derived from data in various Yearbooks of Statistics (Department of Statistics, 1993, 1995, 1999, 2000) shows the trend for medically certified and inspected deaths from hypertensive disease.
Table 7

Medically Certified and Inspected Deaths from Hypertensive Disease

<table>
<thead>
<tr>
<th>Year</th>
<th>Hypertensive disease</th>
<th>Total certified and inspected deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>219</td>
<td>31,705</td>
</tr>
<tr>
<td>1989</td>
<td>163</td>
<td>32,521</td>
</tr>
<tr>
<td>1990</td>
<td>101</td>
<td>34,278</td>
</tr>
<tr>
<td>1991</td>
<td>154</td>
<td>35,028</td>
</tr>
<tr>
<td>1992</td>
<td>113</td>
<td>35,676</td>
</tr>
<tr>
<td>1993</td>
<td>210</td>
<td>37,093</td>
</tr>
<tr>
<td>1994</td>
<td>276</td>
<td>38,234</td>
</tr>
<tr>
<td>1995</td>
<td>285</td>
<td>41,495</td>
</tr>
<tr>
<td>1996</td>
<td>366</td>
<td>41,788</td>
</tr>
<tr>
<td>1997</td>
<td>529</td>
<td>44,013</td>
</tr>
<tr>
<td>1998</td>
<td>529</td>
<td>43,514</td>
</tr>
</tbody>
</table>


From the data in Table 7, it is evident that the percentage of deaths from hypertensive disease has increased from 0.69% in 1988 to 1.22% in 1998. This almost twofold increase is a cause of concern. Perhaps Malaysia is following the trend of Western developed countries.

Longitudinal studies have shown that there is an inverse association between physical activity and the development of hypertension. Paffenbarger, Wing, Hyde and Jung (1983) studied 14,998 Harvard male alumni and found that alumni who did not engage in vigorous sports were at 35% greater risk of hypertension compared to those who did. This relationship also existed for 35 to 74 year olds. Arroll and Beaglehole (1992) reviewed 22 articles on physical activity as a means of reducing blood pressure. They concluded that physical activity decreases both systolic and diastolic blood pressure by approximately 6-7 mg Hg. Yeo et al. (2000) found that the diastolic blood pressure of pregnant women at risk of hypertensive disorders were lowered by 3.5 mm Hg after 10
weeks of moderate exercise. The diastolic blood pressure of women in the control
group increased by 1.1 mm Hg. Fagard (1999) concluded that physical activity
reduced the incidence of hypertension in overweight as well as lean subjects.
Kelley and McClellan (1994) conducted a meta-analysis across nine
randomised studies which examined the anti-hypertensive effects of lower
extremity aerobic exercise (for example cycling, walking, jogging) on blood
pressure. They suggested that physical activity lowers resting systolic and diastolic
blood pressure in adults.

Neoplasm

The Dorland’s Illustrated Medical Dictionary (1994) gives the meaning of
neoplasm as any new and abnormal growth; specifically a new growth of tissue
where the growth is uncontrolled and progressive. According to the Ministry of
Health’s 1992 Annual Report, hospital-based statistics showed an upward trend of
cancer prevalence in Malaysia (Ministry of Health, 1992). The Second National
Health and Morbidity Survey established that the prevalence of cancer (all sites) in
Malaysia was 230.4 per 100,000 population (Rosmawati Ariffin, 1997). Based on
this figure, the estimated number of cancer patients who were alive in 1996 (the
year the survey was conducted) was 48,689. High cancer prevalence rates were
reported for breast, cervix and stomach cancer. Table 8 shows the trend for
medically certified and inspected deaths from neoplasms.
<table>
<thead>
<tr>
<th>Year</th>
<th>Stomach</th>
<th>Colon</th>
<th>Rectum, rectosigmoid junction and anus</th>
<th>Trachea, bronchus and lung</th>
<th>Female breast</th>
<th>Cervix uteri</th>
<th>All others</th>
<th>Leukaemia</th>
<th>Benign and unspecified neoplasms, carcinoma in situ</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>276</td>
<td>138</td>
<td>108</td>
<td>642</td>
<td>172</td>
<td>141</td>
<td>1,534</td>
<td>232</td>
<td>116</td>
</tr>
<tr>
<td>1989</td>
<td>256</td>
<td>132</td>
<td>107</td>
<td>746</td>
<td>202</td>
<td>112</td>
<td>1,589</td>
<td>253</td>
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<td>1990</td>
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<td>172</td>
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<td>132</td>
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<tr>
<td>1991</td>
<td>253</td>
<td>161</td>
<td>114</td>
<td>760</td>
<td>251</td>
<td>132</td>
<td>1,781</td>
<td>296</td>
<td>159</td>
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<tr>
<td>1992</td>
<td>274</td>
<td>151</td>
<td>113</td>
<td>817</td>
<td>247</td>
<td>125</td>
<td>1,866</td>
<td>326</td>
<td>181</td>
</tr>
<tr>
<td>1993</td>
<td>276</td>
<td>183</td>
<td>119</td>
<td>785</td>
<td>263</td>
<td>123</td>
<td>1,930</td>
<td>299</td>
<td>177</td>
</tr>
<tr>
<td>1994</td>
<td>257</td>
<td>164</td>
<td>108</td>
<td>832</td>
<td>260</td>
<td>165</td>
<td>1,877</td>
<td>266</td>
<td>184</td>
</tr>
<tr>
<td>1995</td>
<td>297</td>
<td>231</td>
<td>120</td>
<td>886</td>
<td>321</td>
<td>142</td>
<td>1,938</td>
<td>330</td>
<td>196</td>
</tr>
<tr>
<td>1996</td>
<td>263</td>
<td>215</td>
<td>119</td>
<td>825</td>
<td>297</td>
<td>146</td>
<td>2,047</td>
<td>297</td>
<td>178</td>
</tr>
<tr>
<td>1997</td>
<td>265</td>
<td>235</td>
<td>138</td>
<td>906</td>
<td>339</td>
<td>127</td>
<td>2,035</td>
<td>315</td>
<td>214</td>
</tr>
<tr>
<td>1998</td>
<td>266</td>
<td>239</td>
<td>120</td>
<td>941</td>
<td>339</td>
<td>177</td>
<td>2,105</td>
<td>311</td>
<td>215</td>
</tr>
</tbody>
</table>

The figures in Table 8 show that the number of deaths from malignant neoplasm increased from 3,359 in 1988 to 4,713 in 1998.

Table 9 shows the trend for non-medically certified deaths from cancer.

Table 9

Non-medically Certified Deaths from Cancer

<table>
<thead>
<tr>
<th>Year</th>
<th>Cancer (non-medically certified)</th>
<th>Total non-medically certified deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>2,128</td>
<td>47,933</td>
</tr>
<tr>
<td>1989</td>
<td>2,147</td>
<td>48,713</td>
</tr>
<tr>
<td>1990</td>
<td>2,562</td>
<td>48,966</td>
</tr>
<tr>
<td>1991</td>
<td>2,712</td>
<td>49,167</td>
</tr>
<tr>
<td>1992</td>
<td>2,672</td>
<td>50,274</td>
</tr>
<tr>
<td>1993</td>
<td>2,745</td>
<td>50,501</td>
</tr>
<tr>
<td>1994</td>
<td>2,944</td>
<td>51,845</td>
</tr>
<tr>
<td>1995</td>
<td>3,064</td>
<td>53,582</td>
</tr>
<tr>
<td>1996</td>
<td>3,262</td>
<td>54,071</td>
</tr>
<tr>
<td>1997</td>
<td>3,256</td>
<td>53,029</td>
</tr>
<tr>
<td>1998</td>
<td>3,124</td>
<td>54,392</td>
</tr>
</tbody>
</table>


Based on Table 9, the percentage of deaths from non-medically certified cancer has increased from 4.4% in 1988 to 5.7% in 1998. However, the highest percentage was in 1997 with 6.1%.

Evidence suggests an inverse relationship between physical activity and risk of cancer. Studies from around the world that have found such associations include those on colon cancer, breast cancer and prostate cancer. Brownson, Chang, Davis and Smith (1991) found a relationship between low physical activity and colon cancer in 17,147 white male cancer patients in Missouri, U.S.A.

Giovanucci et al. (1995) found a similar inverse association between physical
activity and risk for colon cancer in their study of 47,723 male health professionals in the United States. They found that a moderate level of physical activity was associated with a lower risk for colon cancer in their study of 40 to 75 year old men. Tang, Wang, Lo and Hsieh (1999) suggested that leisure-time activity may reduce the risk of colon cancer in high-risk as well as low-risk populations.

Bernstein, Henderson, Hanisch, Sullivan-Halley and Ross (1994) reported that the odds ratio of breast cancer among women in the United States who spent an average of 3.8 or more hours per week on physical activity was 0.42 relative to inactive women. The effect was stronger for women who had had a full-term pregnancy. Women who participated in one to three hours of physical activity a week could reduce their risk of premenopausal breast cancer by about 30% compared to inactive women. Those who spent a minimum of four hours per week on physical activity reduced their risk by more than 50%. They suggested that physical activity offers a modifiable lifestyle characteristic that may reduce a woman's risk of breast cancer. Verloop, Rookus, van der Kooy and van Leeuwen (2000) found that women who had ever participated in recreational physical activity had a reduced risk of breast cancer compared with inactive women. However, they stated that physical activity in early or recent life does not seem to be related to additional benefit.

Brownson et al. (1991) showed an inverse association between occupational physical activity and prostate cancer. Le Marchand, Kolonel and Yoshizawa (1991) reported a negative association between prostate cancer risk and years spent in sedentary or light activity occupations among men aged 70 years or older in the United States. Compared with men who were never employed in sedentary or light activity occupations, men who spent less than 54% of their life in such jobs had a 30% reduction in risk. Those who spent more than 54% of their
life in these jobs had a 40% reduction in risk. I-M. Lee, Paffenbarger and Hsieh (1992) also found such a relationship in men aged 70 years or older. They reported that among Harvard alumni aged 70 years and older, those who expended greater than 4,000 kcal/week had about half the risk of those who expended less than 1,000 kcal/week.

It is found that physical activity does not only reduce the risk of cancer, it also reduces fatigue and improve psychological distress in cancer patients who are undergoing chemotherapy (Dimeo, Stieglitz, Novelli-Fischer, Fetscher & Keul, 1999).

**Type II Diabetes or Non-Insulin Dependent Diabetes Mellitus**

The World Health Organisation recognises two major forms of diabetes mellitus - insulin dependent diabetes mellitus (IDDM) and non-insulin dependent diabetes mellitus (NIDDM). According to the Diabetes Atlas 2000, a publication of the International Diabetes Federation, Malaysia has the fourth highest prevalence of diabetes mellitus in Asia after Hong Kong, Singapore and Taiwan (Wong, 2002). About 90% of all cases of diabetes mellitus in developed and developing countries is NIDDM and it is found mainly in adults aged 30 years and above (Rugayah Bakri, 1997). According to Dorland’s Illustrated Medical Dictionary (1994), diagnosis of NIDDM is based on laboratory tests indicating glucose intolerance. Basal insulin secretion is maintained at normal or reduced levels, but insulin release in response to a glucose load is delayed or reduced. The Second National Health and Morbidity Survey found that the prevalence of NIDDM in Malaysia was 8.3% (Rugayah Bakri, 1997). Table 10 shows the country’s trend for medically certified and inspected deaths from diabetes mellitus.
### Medically Certified and Inspected Deaths from Diabetes Mellitus

<table>
<thead>
<tr>
<th>Year</th>
<th>Diabetes mellitus (certified and inspected)</th>
<th>Total certified and inspected deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>475</td>
<td>31,705</td>
</tr>
<tr>
<td>1989</td>
<td>535</td>
<td>32,521</td>
</tr>
<tr>
<td>1990</td>
<td>764</td>
<td>34,278</td>
</tr>
<tr>
<td>1991</td>
<td>754</td>
<td>35,028</td>
</tr>
<tr>
<td>1992</td>
<td>826</td>
<td>35,676</td>
</tr>
<tr>
<td>1993</td>
<td>755</td>
<td>37,093</td>
</tr>
<tr>
<td>1994</td>
<td>720</td>
<td>38,234</td>
</tr>
<tr>
<td>1995</td>
<td>735</td>
<td>41,495</td>
</tr>
<tr>
<td>1996</td>
<td>678</td>
<td>41,788</td>
</tr>
<tr>
<td>1997</td>
<td>805</td>
<td>44,013</td>
</tr>
<tr>
<td>1998</td>
<td>729</td>
<td>43,514</td>
</tr>
</tbody>
</table>


Information collated in Table 10 shows that the number of deaths from certified and inspected diabetes mellitus was highest in 1992 with 2.3% and lowest in 1988 with 1.5%.
Table 11 shows the trend for non-medically certified deaths from diabetes.

<table>
<thead>
<tr>
<th>Year</th>
<th>Diabetes (non-medically certified)</th>
<th>Total non-medically certified deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>337</td>
<td>47,933</td>
</tr>
<tr>
<td>1989</td>
<td>467</td>
<td>48,713</td>
</tr>
<tr>
<td>1990</td>
<td>514</td>
<td>48,966</td>
</tr>
<tr>
<td>1991</td>
<td>600</td>
<td>49,167</td>
</tr>
<tr>
<td>1992</td>
<td>587</td>
<td>50,274</td>
</tr>
<tr>
<td>1993</td>
<td>616</td>
<td>50,501</td>
</tr>
<tr>
<td>1994</td>
<td>665</td>
<td>51,845</td>
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<tr>
<td>1995</td>
<td>753</td>
<td>53,582</td>
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<tr>
<td>1996</td>
<td>828</td>
<td>54,071</td>
</tr>
<tr>
<td>1997</td>
<td>840</td>
<td>53,029</td>
</tr>
<tr>
<td>1998</td>
<td>945</td>
<td>54,392</td>
</tr>
</tbody>
</table>


The percentage of non-medically certified deaths from diabetes has increased from 0.7% in 1988 to 1.7% in 1998.

Epidemiologic literature supports a protective effect of physical activity on the likelihood of developing NIDDM (Bouchard, Shephard & Stephens, 1993). Helmrich, Ragland, Leung, Paffenbarger (1991) conducted a study on male University of Pennsylvania alumni and found that physical activity was inversely related to the incidence of NIDDM. This protective benefit is particularly evident in men at high risk of developing diabetes (defined as those with a high body-mass index, a history of hypertension or a parental history of diabetes). For each 500 kilocalorie increment in leisure time physical activity per week, the age-adjusted risk of NIDDM was reduced by 6%. The study also showed that although
moderate sports activity was effective in decreasing the risk of NIDDM, vigorous sports activity was more effective. James et al. (1998) found that in their study of African Americans, the risk of NIDDM for moderately active subjects was one-third that of physically inactive subjects.

According to Manson et al. (1991), in their study of registered female nurses in the United States, those who exercised regularly had a reduced incidence of NIDDM when compared to their sedentary peers. During their 8 year follow up study, women who reported engaging in vigorous physical activity at least once a week had an age-adjusted relative risk of NIDDM of 0.67 compared with women who did not exercise weekly. A study on postmenopausal women by Folsom, Kushi and Hong (2000) found that women who engaged in physical activity had a relative risk of diabetes of 0.69 compared with sedentary women.

**Osteoporosis**

The Dorland's Illustrated Medical Dictionary (1994) defines osteoporosis as a reduction in the amount of bone mass, leading to fractures after minimal trauma. According to Suominen (1991), osteoporosis is a serious public health problem for elderly people. There is increasing evidence that a physically active lifestyle maintains bone mass during ageing and menopause. In addition to that exercise also improves muscle strength, agility, co-ordination and balance and thus reduces the likelihood of fracture-risk falls.

In their Canadian study, Chow, Harrison, Brown and Hajek (1986) reported that active women had a higher bone mineral content than sedentary women. They suggested that the level of physical activity could influence the amount of bone loss in postmenopausal women. There is also evidence to show that physical
activity can inhibit or reverse the bone loss in women (Krølner, Toft, Nielsen & Tøndevold. 1983). They found that there was an increase of 3.5 ± 1.6% in lumbar bone mineral content in the exercise group compared to a decrease of 2.7 ± 1.3% in the control group in Denmark. Nelson, Fisher, Dilmanian, Dallal and Evans (1991) also found a similar result in their one year walking programme on postmenopausal women. In their study of middle-aged Italian women, Bidoli, Schinella and Franceschi (1998) suggested that past and recent physical activity increases bone mineral density.

**Prevention of Fractures and Falling**

Studies have shown that those who were more active had a lower risk of hip fracture (Farahmand et al., 2000; Gregg, Cauley, Seeley, Ensrud & Bauer, 1998; Jaglal, Kreiger & Darlington, 1993; Meyer, Tverdal & Falch, 1993; Tinetti et al., 1994). Meyer, Tverdal and Falch (1993) found an inverse relationship between the incidence of hip fracture and physical activity at work for both men and women. In their study of older community-dwelling women, Gregg, Cauley, Seeley, Ensrud and Bauer (1998) found that compared to inactive women, moderately to vigorously active women had a reduction of 42% and 33% of risk for hip and vertebral fractures.

Jaglal, Kreiger and Darlington (1993) found that past activity as well as moderate recent activity has a protective effect on the risk of hip fracture in postmenopausal women in Canada. According to Jaglal et al. (1993), after adjustment for several known or suspected risk factors for hip fracture, the odds ratio for women who were physically active in the past was 0.66 and women who were moderately active recently was 0.61. Farahmand et al. (2000) also found that
women who were active for three or more hours per week had about a 50% reduction in risk of hip fracture when compared to sedentary women.

One of the benefits of engaging in physical activity is that it has been shown to help prevent falls by improving muscle strength, balance and gait. Tinetti et al. (1994) found that exercise decreased the number of falls in the elderly in the United States as well as improved their balance and gait.

**Obesity**

According to Dorland’s Illustrated Medical Dictionary (1994), obesity is defined as an increase in body weight beyond the limitation of skeletal and physical requirement, as the result of an excessive accumulation of fat in the body. One of the possible side effects of non-active leisure time is obesity. It contributes to heart attacks, musculoskeletal disorders and low back problems (McQuerns, 1991).

Fatimah Salim (1997) reported that the Second National Health and Morbidity Survey found that the prevalence of obesity (body mass index ≥ 30) in Malaysia was 4.4%, while 16.6% were overweight (25 ≤ body mass index < 30).

Several cross-sectional studies report lower weight, body mass index and skinfold measures among people with higher levels of physical activity (Ching et al., 1996; Slattery, McDonald, Bild, Caan, & Hilner, 1992). According to Ching et al. (1996) physical activity was inversely related to the risk of becoming overweight.

Must, Jacques, Dallal, Bajema and Dietz (1992) predicted that overweight children are at increased risk of all-cause mortality and that overweight in adolescence was a better predictor of risks than overweight in adulthood.
Obarzanek et al. (1994) found an inverse association between physical activity and body mass index as well as skinfold thickness in girls in the United States.

Thompson, Jarvie, Lahey and Cureton (1982) reviewed research on the impact of exercise on obesity. Although there was considerable support for exercise being an important factor in weight management, they concluded that the role of physical activity versus caloric intake in the development of obesity is unclear. The effects of exercise on caloric intake, metabolic rate and body composition have subsequent impact on energy expenditure. Most importantly exercise together with other treatments produces greater weight loss than a single intervention procedure. Furthermore, a combination of routine and programmed activities may be optimal for weight control. Given this knowledge, a national movement such as sport for all, which promotes physical activity for all would play a part in exercise promotion in the country. Physical exercise combined with a diet therapy is useful for the treatment of mild to moderate obesity (Uusitupa, 1991). It has been shown that physical activity reduces body weight, and regular physical activity maintains body weight after effective weight loss.

The actual mechanism in which increased physical activity reduces weight is unclear. Physical activity may affect fat distribution. Slattery et al. (1992) reported an inverse association between energy expenditure from physical activity and indicators of central body fat distribution such as waist-to-hip ratio.

In conclusion, there is a broad spectrum of health benefits that can be derived from exercise and physical activity. Although Vuori (1991) agreed that many of these benefits could be gained by alternative means such as drugs and diet, exercise has many benefits and few side effects. From scientific knowledge and practical experience, exercise is an important means of enhancing and protecting the health of the population (Vuori, 1991).
The quantity and quality of the scientific literature on exercise and health is sufficient to consider its utility as a critical factor in medical health promotion. The positive effects of exercise are also seen in both men and women. Furthermore, many health benefits of exercise are evident not only in adults, but also in children, adolescents, the elderly (Oja, 1996) and persons with disabilities (Sherill, 1991).

Sport is vital in the rehabilitation and integration of persons with disabilities (Doll-Tepper, 1991). With the growing incidence of lifestyle related diseases in Malaysia, sport for all can play a vital role in physical health promotion. The research that has been done globally is evident that physical activity is not only able to prevent the onset of diseases but also to treat these conditions. In addition to that, the benefits can be experienced whether one practises physical activity when young or old, and even for short periods.

**Psychological Benefits**

In addition to the physiological benefits of sport for all, there are also psychological advantages of being physically active. More assurance, better body image, improved self-esteem and confidence, increased coping ability in addition to improved regulative skills of personality are all stated by Zsheliaiskova-Koynova (1992) as being outcomes of engaging in physical activity.

The results of the Second National Health and Morbidity Survey showed that the prevalence of psychiatric morbidity in adults (16 years and above) in Malaysia was 10.7% (T. Maniam & Ding, 1997). Women showed a 1.5 times higher incidence of disorder than did men. Furthermore, it was reported that the prevalence for psychiatric morbidity among children and adolescents (5 to 15 years) in Malaysia was 13.0% (Toh & Ding, 1997).
Physical activity is associated with psychological benefits. Morgan (1985) reported that people generally feel better after they exercise. Chalip, Csikszentmihalyi, Kleiber and Larson (1984) examined the psychological effects of participating in sports. When they compared the benefits of sport in terms of concentration, mood, self-consciousness and sense of skill, challenge and control with those of other activities, it was found that sport is a substantially more positive way of improving the psyche. Exercise enhances self-image, elevates mood, reduces stress, improves appearance, increases energy, as well gives the feeling of well-being (Elrick, 1996). Researchers have examined the effect of physical activity on psychological states such as mood, anxiety, depression and tension. Physical activity has a positive effect on mental health and psychological well-being (Fontaine, 2000). It decreases depression and anxiety, increases energy levels as well as improves self-esteem.

Reviews have shown such relationships. For example, in a review of literature on the relationship between athletics and various personality factors, Cooper (1969) found that athletes had greater motivation to succeed, greater social adjustment and higher emotional stability. Another review was done by Calfas and Taylor (1994) on the relationship between psychological variables and physical activity in youth (11 to 21 years old). They found that physical activity was consistently related to improvements in self-esteem, self-concept, depressive symptoms as well as anxiety and stress.

The psychological benefits of physical activity extend to a variety of activities and various age groups. Folkins, Lynch and Gardner (1972) investigated the relationship between physical fitness and psychological fitness of college students. They found that changes in physical fitness were significantly correlated with changes in psychological fitness. Subjects who showed greater improvement
in physical fitness were more likely to be less depressed, more confident, more personally adjusted, more efficient at work and experience restful sleep.

Specifically, Jasnoski, Holmes and Banks (1988) found that aerobic fitness has a positive effect on personality.

Weinberg, Jackson and Kolodny (1988) investigated the relationship between exercise and positive mood enhancement in university students. Results showed that compared to the control group, the running group showed decreases in tension, confusion, fatigue, anxiety, depression and anger as well as maintained high levels of vigour.

Wilfley and Kunce (1986) evaluated the physical and psychological benefits of an 8-week individualised exercise programme on men and women with an average age of 43 years. They found that those who completed the exercise programme, which included walking, jogging and cycling, showed improvements in persistence, fitness, and physical self-concept and reduced psychological tension. Fitness was found to be correlated to physical self-concept.

Literature suggests that physical activity helps improve mental health in both clinical and non-clinical populations (Doyne et al., 1987; Raglin, 1990; Steptoe, Edwards, Moses & Mathews, 1989). Physical activity benefits persons from the general population who are anxious (Steptoe, Edwards, Moses & Mathews, 1989) as well as those diagnosed with depression (Doyne et al., 1987). Raglin (1990) suggested that regular exercise may act as an important preventive measure in psychologically healthy individuals that could lead to the maintenance of mental health.

Physical activity is important to mental health. One way of promoting physical activity is through sport for all activities. Sport for all is important in Malaysia where contemporary life is full of challenges both at work and at home.
This is especially true in urban Malaysia where there seems to be a constant effort to stay ahead. In cities, people have to struggle with the high cost of living, traffic congestion, crime and a stressful work environment. As opposed to life in small towns and villages where most residents know one another, life in the city is different. Although there are more people living in cities, the lonely crowd phenomenon is present. Most city dwellers do not know their neighbours. They are also less likely to get involved in helping others. There have been cases of people being just bystanders when a crime is being committed. The priority is the self; without giving much consideration to whatever happens to others.

The outcomes of exercise and physical activity on psychological health can be categorised into positive and negative relationships. The positive relationships are self-esteem, psychological well-being, cognitive function and mood, while negative relationships are reduced anxiety, reduced stress and reduced depression.

**Self-esteem**

Self esteem is related to the feelings individuals have of themselves that are instilled within the self through interactions with significant others, as well as the environment (Leonetti, 1980). According to Rosenberg (1965), it is a positive or negative attitude toward the self. A positive self-esteem is necessary for happiness.

Reviews of research show that self-esteem improves as a result of exercise (Sonstroem & Morgan, 1989). A review of 16 studies by Sonstroem (1984) showed that self-esteem increased in 75% of the studies. There was particularly strong association in subjects with initial low self-esteem.

This relationship is evident for various age groups. According to the Western Australian Child Health Survey by Zubrick et al. (1997), adolescent
students who exercised on a regular basis had higher self-esteem and self-efficacy compared to those who did not. Another Australian study found that male and female high school students who exercise have higher levels of self-esteem and are more likely to describe themselves positively compared to those who do not (Delaney & C. Lee, 1995). A Hong Kong study by Pak-Kwong (1995) showed that cardiorespiratory fitness, a physical fitness index, is a significant predictor of self-esteem in male college students.

**Psychological Well-being**

A cross-sectional study in the United States by Ross and Hayes (1988) found that a higher level of physical health is associated with a higher level of psychological well-being in a general population. These associations were similar for men and women as well as for younger and older adults. They concluded that regular exercise is associated with decreased symptoms of depression, anxiety and malaise. The cause-and-effect relationship could not be determined because analysis was based on cross-sectional survey data.

Studies have shown that people without serious psychological problems show an improvement in psychological well-being from physical activity. The benefits include general well-being (Cramer, Neiman & J. W. Lee, 1991) and reductions in perceived stress and anxiety (King, Taylor & Haskell, 1993). Labbe, Welsh and Delaney (1988) found that aerobic exercise has a positive effect on psychological functioning (improved in depression and trait anxiety) in non-clinical inactive women.

There is data to show the beneficial psychological effects of exercise among those who are physically ill. Noreau, Martineau, Roy and Belzile (1995)
investigated the effects of exercise on the psychological state of persons with rheumatoid arthritis. They found that subjects in their sample who exercised showed positive changes in depression, anxiety, fatigue and tension.

Cognitive Function

Aspects of intellectual performance have been positively correlated to physical activity (Bouchard, Shephard & Stephens, 1993). There has been small but consistent benefit of exercise on memory, intelligence and reaction time. A meta-analytic review by Etnier et al. (1997) included relevant studies to calculate the effect size of exercise on cognitive functioning. They found that exercise has a small positive effect on cognition.

Netz and Jacob (1994) conducted a review of exercise facilitating psychological processes among institutionalised elderly persons. They found that institutionalised geriatric patients reported an improvement in cognitive function immediately following an exercise session. Mazzeo et al. (1999) also stated evidence suggesting that involvement in regular exercise preserved cognitive function in older adults.

Coles (1996) concluded that participants who engage in sport for all learn values and skills that could help in coping more readily with life problems. These qualities improve self-esteem, which in his opinion “forms the cornerstone of well adjusted human-beings” (p. 122).
Mood

According to Dorland’s Illustrated Medical Dictionary (1994), mood is defined as a pervasive and sustained emotion. Extreme mood can colour one’s whole view of life. Positive effect of physical activity on mood was also reported. Berger and Owen (1998) found that jogging at both low-intensity and moderate-intensity produced mood benefits. Ewing and Scott (1984) found that exercise increased positive mood. According to Maroukalis and Zervas (1993) adult women who participated in aerobics class indicated a beneficial effect of exercise on all dimensions of mood. After 24 hours, mood scores had not declined to pre-exercise levels.

Dyer and Grouch (1988) compared the moods and mood variations of runners to those of aerobic dancers, weight-lifters and non-exercising controls. They found that regular participants of exercise, particularly aerobic exercise, cope better with stress and have a more positive feeling of well-being.

McGowan and Pierce (1991) found that participation in a single bout of exercise (either running, karate or weight lifting) significantly reduced reported total mood disturbance, tension, depression, anger and confusion. McInman and Berger (1993) also found significant positive changes in mood for participants who took part in a single aerobic dance session.

Irrespective of age, physical activity enhances mood states. Kleine (1994) stated that exercise improved mood states of students after a stress situation at school. This positive effect was also found to be true for older adults. Pierce and Pate (1994) found that exercise significantly improved the global mood of older individuals (64.5 ± 7.6 years).
Mood benefits of exercise occur across cultures. This is evident from the study by Berger, Owen and Man (1993) on women college students from Czechoslovakia and the United States enrolled in swimming and lecture-control classes. Their results showed that swimmers from both countries reported mood benefits.

**Anxiety**

Dorland’s Illustrated Medical Dictionary (1994) defines anxiety as the unpleasant emotional state that consists of psychophysiological responses to anticipation of danger. Anxiety has become a pervasive problem in modern society. Our fast-paced lifestyle has been referred to as the Age of Anxiety (Landers & Petruzzello, 1994). Malaysian life is filled with anxiety about work, studies, money and relationships. One has to live up to the many expectations of family and society. Even children are not spared and there is a growing number of child psychologists in Malaysia.

Landers and Petruzzello (1994) reviewed articles on the effects of physical activity and fitness on anxiety. They found that there is a relationship to show that physically fit people have less trait anxiety than unfit people do. In addition to that, when compared to no-treatment control groups, state anxiety is reduced following aerobic exercise in treatment groups. Raglin and Morgan (1987) found that both exercise and quiet rest reduced state anxiety. However, anti-anxiety effects were sustained for a longer period following exercise. Walking briskly for as short as 10 minutes on 12 selected days was associated with significantly increased energy and decreased tension (Thayer, 1987). This effect lasted for as long as two hours after the activity.
Mihevic (1981) found that vigorous exercise is associated with a reduction in state anxiety or tension. Roth (1989) found that individuals experienced reductions in tension and anxiety following single bouts of exercise. This relationship also holds true for those with health problems. Folkins (1976) investigated the effects of physical training on men with high risk of coronary artery disease. The result showed that improvement in physical fitness was accompanied by a decrease in anxiety and depression.

**Stress**

Stress is a complex psychological and biological process that starts when potential harm is perceived (Brown & Rosenbaum, 1984). They define stressors as potentially harmful stimuli or situations, which may derive from sources either inside or outside the body. Stress is a fact of life in this modern society we live in. It is a universal human phenomenon that affects everyone. Stress affects us in a variety of ways – physically, psychologically, physiologically as well as socially. There is no escaping stress as it is part and parcel of our lives. This includes noise, rush hour traffic, concerns about money, family arguments, having too many responsibilities and feeling lonely. As Malaysians move away from family support systems, a coping strategy for stress is needed. Rostad and Long (1996) reviewed research on exercise as a stress management technique. They found that research suggests a positive trend to support exercise as a coping strategy for stress.

Physical activity is a means of preventing stress. In their survey of longer-term exercisers, short-term exercisers and non-exercisers, Dua and Hargreaves (1992) found that longer-term exercisers reported more positive affect as well as less stress than non-exercisers. Physical activity has also been proven to ameliorate
stress. Long and Haney (1988) randomly assigned 39 stressed working women to either aerobic exercise or progressive relaxation interventions. Results show that both intervention groups reported less anxiety and greater self-efficacy.

Depression

According to Dorland’s Illustrated Medical Dictionary (1994), depression is defined as a mental state of depressed mood characterised by feelings of sadness, despair and discouragement. Research has shown that physical activity may be associated with reduced symptoms of depression (Camacho, Roberts, Lazarus, Kaplan & Cohen, 1991; Farmer et al., 1988; Ross & Hayes, 1988). Physical activity not only prevents and eases depression symptoms (Artal & Sherman, 1998) but also reduces tension and depression (Head, Kendall, Ferner & Eagles, 1996).

Camacho et al. (1991) found that compared to men and women who reported high activity levels at baseline, those with low activity levels at baseline were at a higher risk for depression at follow up. They suggested that the risk of depression could be altered by changes in exercise habits.

A follow up study by Paffenbarger, I-M. Lee and Leung (1994) on 10,201 Harvard alumni men found that depression rates were lower among the physically active. Men who expended 1,000 to 2,400 kcal per week and those who expended 2,500 kcal or more per week were at 17% and 28% less risk of developing clinically recognised depression, respectively, compared to men who expended less than 1,000 kcal per week.

Physical activities that help reduce depression include running, weight-lifting and aerobic exercise. Doyne et al. (1987) found that running as well as
weight-lifting were beneficial in reducing depression. In a study of the aerobic effects on depressed women, McCann and Holmes (1984) found that participation in an aerobic exercise programme is effective in reducing depression.

In a cohort study of 1,900 healthy adults, Farmer et al. (1988) revealed an association between depressive symptoms and little or no involvement in physical activity. In the case of white women who had reported few depressive symptoms at the beginning of the study, little or no recreational physical activity was a predictor for later depressive symptoms. At the follow-up data collection point, white men who had excessive depressive symptoms at baseline, little or no recreational physical activity predicted continued depressive symptoms.

Exercise has also been found to have positive effects on psychiatric in-patients with mood disorders. Bosscher (1993) found that depressed in-patients improved significantly on measures. These included depression, self-esteem, severity of psychoneurotic and somatic complaints as well as body satisfaction.

**Economic**

The popularisation of sport for all is important to the nation's economic development. These economic benefits are experienced in the workplace as well as in the sport and tourism industries. Physical activity has a positive relationship with health. As a result of improved health, workplace efficiency improves with lower rates of absenteeism and accidents in the workplace. At the macro level, sport for all influences the creation and expansion of industries involving physical activity and sport.
Workplace

Earlier in this chapter, a relationship between engagement in physical activity and enhancement of health has been established. From this there is an assumption that enhanced health has positive economic consequences in the workplace. Davidov (1992) presented the linkage between sport and occupational activity. He argued that sport improves health, boosts the individual’s physical and mental potentials as well as improves working capacity and social interaction.

Colditz (1999) assessed the economic costs of inactivity. Components of the costs of illness include direct costs for treatment of morbidity as well as indirect costs comprising lost productivity and forgone earnings due to premature mortality. Lack of physical activity approximately cost US$24 billion or 2.4% of the U.S. health care expenditures. In a 1991 study which involved interviews with 25,000 randomly selected subjects, it was found that those who participated in sports had lower accident rates and took less sick leave compared to those who did not exercise (Peluchon, 1992). According to Brock et al. (1991), improved health among employees would reduce health care costs by decreasing the incidence, frequency, and severity of disease and shortening recovery time. Better employee health would also decrease absenteeism, increase vitality and improve employee morale.

As a result, many companies introduced health promotion programmes in an effort to reduce employee health risk and associated costs (Baun, 1995). Research has examined the outcomes of work site fitness programmes. In addition to decreased health care costs, Kaman and Patton (1994) mentioned other benefits such as reduction in absenteeism, increase in productivity, improvement in morale and reduction in job turnover.
A study carried out at the Liming Machinery Plant in China (Xie, 1990) supports this view. In the first half of 1976, the workers took a total of 133,203 days of sick leave that resulted in losses of 6.39 million yuan (approximately US$3 million). After sports activities were initiated at the plant, the workers took less days of sick leave. In the first half of 1979, the total was 77,771 days.

In a study carried out to determine the effects of workplace health promotion on absenteeism and employment costs, Bertera (1990) found that disability-related absenteeism reduced by an average of 0.4 days per employee per year for those who participated in the exercise programme. This amounted to reported total savings of $3 million in 2 years.

Physical activity has been known to increase productivity in the workplace. Bernacki and Baun (1984) found a positive association between above-average job performance and exercise adherence. Cox, Shephard and Corey (1981) also discovered a positive impact of exercise programmes on worker productivity.

Malaysia is growing at a fast pace to achieve the goals of Vision 2020, by which time it hopes to attain the status of a fully developed nation. As Malaysia moves away from an agricultural-based economy to a manufacturing-based one, more people are being employed in the industrial sector. Many multi-national companies such as Motorola, Philips, Seagate and Siemens have set up offices and factories in the country. These companies have found the manpower supply conducive as Malaysia boasts of a trainable work force. In order to remain competitive, there is a growing demand for productivity and efficiency. These demands however, take a toll on the health employees. Having a healthy work force is of utmost importance to the nation. That is why sport for all is highly relevant in contemporary Malaysian society.
Sports Industry

Studies have been conducted on the economic effect of sport. The practice of sport has created a global sports industry. This includes the organisation of sporting events, advertising and sponsorship as well as television broadcasting (Andreff & Weber, 1995). According to Meek (1997), in 1995, the sports industry was the 11th largest industry in the United States, comprising just over 2.0% of the gross domestic product. He estimated the sports industry in that country to be worth US$151,964 million, with US$44,173 million spent on entertainment and recreation, and US$93,153 million on products and services.

Sport also accounts for nearly the same percentage of the gross national product in Europe. According to H. Jones (1991), the percentage is 1.8% in the Netherlands and 1.6% in the United Kingdom. In Japan, the total value of the 1988 sport market was US$30 billion (Yajima, 1991).

Sport has also created employment opportunities. According to H. Jones (1991), 1.4% of the workforce in the United Kingdom and the Netherlands as well as 2% in the Federal Republic of Germany were employed in sport-related work. In Japan, the number of employees employed in sports retail outlets increased from 34,109 in 1972 to 63,338 in 1998 (Yajima, 1991). Even in a small country such as New Zealand, the sport and leisure industry supports 23,000 full time jobs (Tew, 1994). The estimated number of employees in recreation sport in the Federal Republic of Germany exceeds 100,000 (Krupp and Wagner, 1988, as quoted in Heinemann, 1991).

The sports industry also benefits from the increase in the amount of sports equipment needed in the various activities (Kim, 1996). The equipment could be for the individual or for a specific sport activity. In the Federal Republic of
Germany, the economic significance of recreation sport on related goods, equipment and clothing was estimated at 10 billion marks (Krupp and Wagner, 1988, as quoted in Heinemann, 1991). In Japan, about 10 million golf clubs are imported into the country annually from Taiwan and the United States (Yajima, 1991).

In Malaysia, the sports industry is relatively new. However, with the government encouraging sport participation, sporting goods is increasingly big business. In recent years, there has been an increase in the number of sporting goods outlets in the country, for example, Royal Sporting House, Why Pay More and Bata. There are also specialist Fila, Nike and Reebok boutiques in shopping complexes. Local sporting goods manufacturers have also entered the market, such as Ambros, Eider, Garoos, J King and McGill. These manufacturers are gaining publicity by sponsoring local sports and clubs. For example, Eider sponsors the national women’s hockey team while Garoos sponsors football. In the past few years, fitness centres and health clubs have proliferated throughout the country and opened up job opportunities for fitness instructors, personal trainers and recreation managers.

**Sports Tourism**

According to Molinez (1992), sport for all is linked to tourism and tourism is linked to the economic development of a particular region. Sports tourism is a growing phenomenon that provides an opportunity for economic activity. According to Standeven and De Knop (1999), sport and tourism each contribute significantly to the economy and a combination of the two has a substantial impact on the economy. According to them, a conservative estimate of the sports tourism
industry in the United Kingdom is £2.61 billion. The economic impact of outdoor
pursuits on the economy is also seen in Scotland. Gratton and Taylor (1996)
quoted the following figures for 1994. Hillwalking, mountaineering and associated
activities generated £160 million gross expenditure and secured over 6,000 full-
time jobs, sporting shooting generated £35 million expenditure and supported
2,200 jobs, salmon fishing generated £34 million and supported 3,400 jobs while
skiing in the Cairngorms and Glencoe generated £14.5 million and supported 365
jobs.

Sports tourism is becoming increasingly popular. According to Braz
(1992), the present tendency for active leisure pursuits has increased tourism.
People the world over are more aware of the possibilities of active sport for all
holidays. Sports activities during holidays include winter sports, cycling tours,
water sports, riding holidays, golf, trekking and adventure holidays (Standeven &
De Knop, 1999).

The Malaysian government recognises the potential and made efforts to
promote it. In addition to hosting high performance sporting events such as the
1998 Commonwealth Games, the le Tour de Langkawi, the Petronas Malaysia
Formula One Grand Prix, the World Cup Hockey, the World Cup Badminton and
the World Squash Open, Malaysia also hosts sport for all events. Malaysia’s sport
for all tourism products include leisure and sports related activities as well as
resorts at scenic lakes, islands, beaches and hot springs. The year 1998 was
promoted as Year of Sports and Recreation to diversify tourism products into
sports and recreational events (Mid-term review of the Seventh Malaysia Plan

Golf, once regarded as a game for the elite, is gaining popularity among
Malaysians. Golf clubs are sprouting up all over the country. The Malaysian Golf
Challenge 2000 gives Sabah a big tourism boost”, 2000). The event attracted wide
media coverage and was aired over USA Network, Entertainment Tonight, 48
Hours, AXN Japan, AXN Latin America, AXN Spain, and Discovery Channel
Canada.

Social

Sport is an integral part of society (MacClancy, 1996). Sport serves several
functions. The first is the need for play. The second is as a socialising agency. And
thirdly as social glue. Huizinga (1962) argued that humans play for fun and that
play is an important social activity. When humans "play" sports, they are free from
the seriousness and confusion of everyday life. According to Roche (1998), sport
allows people to "express embodied senses of freedom" (p. 8).

As Samaranch (1996) succinctly said “Sport is a school for life in society,
perhaps the best one” (p. 17). Palm (1993) emphasised the ability of sport for all
programmes in learning about one’s own role in improving life conditions.
Practising sport cultivates social virtues like respect for oneself and others, honesty
in social relations, respect for rules in addition to the triumph of truth and justice
(Maglione, 1996). Coles (1996) felt that skills learned from sport can be applied in
general life situations. For example, children who take part in sport learn to be
players, coaches, umpires and spectators. They would have many opportunities to
apply the associated skills beyond sport.

Physical activity provides an opportunity for meeting others with similar
interests. It serves as a common link among people and this contributes to a
stronger social fabric. Svoboda (1995) found evidence that sport and physical
activity provides a unique opportunity to meet other people and to communicate
with them, learn social skills (like tolerance and respect for others), to take
different roles, to accept attitudes associated with physical activity (which
contribute to personality development), to adjust to team objectives and to be
socially activated by performances of others.

Maglione (1996) emphasised that sport is a means of cohesion and social
identification as a contribution to family harmony. Sport for all brings new
opportunities for group participation, social contact and group acceptance
(Zshelisaskova-Koynova, 1992). It also contributes to social wellness and social
integration (Palm, 1993). These potential socialisation effects of sport for all are
important to Malaysia where the multi-cultural, multi-racial and multi-religious
nature of our society makes it unique. Race relations are of major significance in
the country. Kenyon and Loy (1969) argue that games relieve social conflict and
enhance socialisation. In a study where W. Chen (1998) explored college students'
motives for participating in sports, it was found that social interaction was the
primary motive for American men and Chinese women to engage in activity.

Sport has the potential to unite people. This is perhaps becoming
increasingly so in a world where suspicion can be propagated through global
politics. Prominent Malaysians have voiced the importance of sport for Malaysian
society. The then Secretary General of the Ministry of Culture, Youth and Sports,
Wan Mansor Abdullah (1983) stated that sport for all serves as a link between
races and is a tool for national unity. The then Minister Youth and Sports, Anwar
Ibrahim (1984) agreed that more than any other activity, sport promotes unity and
racial integration. This point is illustrated by Khoo (2001) who gave the example
of a football match between the Malaysian state of Selangor and Singapore. When
a Selangor Chinese player fouled a Singapore Malay player, the Singaporean’s
Chinese teammate went to his aid. On seeing that, one of the Malaysian’s Malay
teammates joined in the fray against the Singaporeans. This spontaneous reaction showed that team spirit and national pride are valued while ethnicity is of little consequence. The supporters for the national sports teams are made up of various races, irrespective of the racial composition of the teams. Malaysians are united to support the country. In the 1975 World Cup hockey tournament in Kuala Lumpur, the semi-final match between Malaysia and India saw a record 40,000 spectators flood the stadium to give boisterous united support to the Malaysian team.

Sport for all has a role to play in the social life of Malaysians where there has been a strong emphasis on family and community. The focus of social life in rural Malaysia is family and religion. Family plays an important role in establishing social morals and values. Unfortunately in Malaysia, eastern values are eroding and the extended, once supportive family unit is disintegrating. Lujan (1996) suggested that sport be considered one of the most important tools for developing family unity. If sport were to be practised by family members, it would be an opportunity to spend time together and relax in a family atmosphere. This is increasingly important as the family unit is no longer the nuclear family in the former sense. The family unit needs to be viewed differently. In contemporary society, the family could be single parent families or families with stepchildren. Sport for all has a role to play in encouraging family cohesiveness in these modern families. Sport for all does not require high tech clothes with scantiness which might contravene with religious restrictions of Muslim women. Many activities can be participated in by wearing conservative clothing with appropriate footwear.

It is found that social problems involving youths in Malaysia are on the increase. These problems include murder, fights and drug addiction (Al Azharri Siddiq Kamundri, 1997). Albeila (1999) reported that the number of juveniles arrested for crimes including murder, armed robbery, assault, extortion, theft, rape,
incest, house break-in and car theft in 1995 was 3,560. In 1996, the figure increased to 4,681. This is a nearly 30% increase in one year. It was quoted that 8% of Malaysian youths were involved in criminal cases and social problems (Tawie, 2001). L. T. Lee (2001) stated that almost 80% of the 200,000 identified drug addicts since the 1970s have been youths. There have been calls by Malaysian leaders to use sport as a means of fighting social ills among youths. Among those supporting it is the Menteri Besar (Chief Minister) of Terengganu ("A tussle for priority", 1997).

Sport has been shown to have positive outcomes in delinquents. Layman (1974) mentioned that physical fitness could prevent delinquency in children and may even help potential delinquents. A review of the relationship between sport and juvenile delinquency (Segrave, 1983) found evidence that deviancy among athletic groups is lower than among control groups. Research suggests that participation in sport is likely to deter delinquency. Research supports a negative association between sport participation and delinquency (Shields & Bredemeier, 1995). MacMahon and Gross (1988) found that aerobic exercise was associated with greater improvement in measures of self-concept, depression and fitness in their study of delinquent adolescent males. The relationship between sport and delinquency shows it is worth considering seriously the role of sport for all in controlling the delinquency problem in Malaysia. Sport for all could be a way of keeping young people occupied and out of trouble. There could even be specific rehabilitation programmes for juvenile offenders to improve positive feelings towards the self.

Participation in sport also helps to create a social consensus about values like hard work, corporate loyalty, belief in hierarchical organisation, specialisation, meritocracy and patriarchy (Shields & Bredemeier, 1995). Regular involvement in
sport promotes a caring and sharing attitude. Western influence that has slowly crept into Malaysian society has increasingly shifted the emphasis on individualism and individuality, rather than on community and society. This trend could have negative consequences in a multi-racial society. There is a need to find new avenues to help promote co-operation and unity among the various races to avoid the racial riots of 1969.

**Relationship Between Sport for all and High performance sport**

Another part of the rationale for promoting sport for all is the relationship between sport for all and high performance or elite sport. Sport for all and elite sport are interrelated and interdependent (Dixon, 1992). In fact, they complement and strengthen each other. Sport for all and elite sport cannot exist without each other (Geesink, 1996) and are two mutual components of man’s physical and mental development and excellence (Nakov, 1992). Palm (1992) added that an investment in sport for all would benefit the future Olympics. This is because by encouraging as many people as possible to take part in sport for all, the talent pool would be bigger. As Kim (1996) propounded that sport for all can help produce an inexhaustible source of new talent. It is easy to argue that the stars of tomorrow can be found in sport for all. It is found that in Malaysia the sports that have good development programmes are the ones that have produced champions in the international arena. Examples of such sports in Malaysia are badminton, bowling, hockey and squash.

Bompa (1983) suggested the following pyramid structure as shown in Figure 3 to illustrate the relationship between sport for all and high performance sport.
<table>
<thead>
<tr>
<th>ECHELON</th>
<th>ORGANISATION AND COMPETITIVE UNITS</th>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>High performance athletics</td>
<td>National teams</td>
<td>To obtain high performance and records</td>
</tr>
<tr>
<td>Good performance athletics</td>
<td>Highest level domestic competitions</td>
<td>High level of preparation, and promotes athletes with potential</td>
</tr>
<tr>
<td>Basis of performance athletics</td>
<td>Individuals and teams belonging to clubs and schools involved in organised training and competitions</td>
<td>Aim for high performance</td>
</tr>
<tr>
<td>Recreation</td>
<td>Individuals might not be members of sports organisations nor strive for high performance</td>
<td>Develop skills and encourage participation</td>
</tr>
</tbody>
</table>

Figure 3. Pyramid structure to illustrate the relationship between sport for all and high performance sport.


In Malaysia, the lowest segment of the pyramid is made up of the social sportsmen and women who mostly participate in sport for enjoyment and social interaction. The next segment includes members of sports clubs who train regularly and take part in friendly competitions. The next segment encompasses teams that compete in national championships, for example the National Hockey League. The
apex of the pyramid is made up of national sports teams that compete internationally.

The relationship between sport for all and high performance sport is an important reason for the Malaysian government to encourage sport for all. In Malaysia, a substantial amount of money is invested in high performance sport. Excelling in international sporting events is not only a source of national pride, but it is also helps promote unity. Malaysians of all races unite as one to cheer the national team during competition. Malaysia also has hopes of hosting future Asian and Olympic Games. In fact, Malaysia made a bid for the 2006 Asian Games and the 2008 Olympic Games, but unfortunately was not given the job of host. In these prestigious games, the host country has to have a decent showing in the medal tally. By encouraging more people to participate in sport for all, there would be a bigger talent pool from which to choose from.

Sport for all has an impact on the individual, society and nation. Sport for all is a unique tool that is not only a source of health but also a means of social contact. Benefits are experienced in the individual’s quality of life and the society’s well being. This in turn has consequences on the economy of the country. These far-reaching benefits show why the Malaysian government has invested time, money and effort to promote sport for all. Government programmes and activities to promote sport for all in the country will be discussed in the next chapter.