

Exercise: An Important Intervention in the Prevention of Type 2 Diabetes and Management of Type 2 Diabetes Mellitus

JIMMY LIM¹ and KERRY J STEWART²

From Department of Cardiology, ¹Tan Tock Seng Hospital, Singapore; ²Johns Hopkins Bayview Hospital, USA

LIM and STEWART: Exercise: An Important Intervention in the Prevention of Type 2 Diabetes and Management of Type 2 Diabetes Mellitus. *The prevalence of type 2 diabetes has been increasing globally and is a major risk factor for cardiovascular disease. This is in part due to the increasing rate of obesity. Exercise is an important therapeutic modality for glycaemic control and improving cardiovascular health among persons with type 2 diabetes, and it may also help to prevent or delay the onset of this harmful condition. This review examines the evidence and possible mechanisms by which exercise produces these benefits. (J HK Coll Cardiol 2006;14(Suppl 2):B64-B68)*

Exercise, Metabolic syndrome, Pre-diabetes, Type 2 diabetes

摘要

II型糖尿病的發生比率在全球範圍內不斷上升，它是引起心血管疾病的一個主要危險因素。發生率的上升部分是由於肥胖比例的升高。運動是一種重要的治療方式，它能夠控制高血糖，改善II型糖尿病病人的心血管健康狀況，並且有助於預防和延緩嚴重併發症的出現。這篇綜述闡述運動給患者帶來益處的證據和可能機制。

關鍵詞：運動 代謝綜合征 糖尿病前期 II型糖尿病

Introduction

Type 2 diabetes mellitus is a complex metabolic disorder, and can lead to a variety of complications. This includes the potential for nephropathy, retinopathy, cerebrovascular and cardiovascular disease.

Individuals with type 2 diabetes are also at increased risk of mortality compared with non-diabetics, with heart disease contributing to about 3 out of every 4 deaths among persons with diabetes.¹

Looking at the Singapore experience through the 2004 National Health Survey (NHS); amongst Singaporeans aged 18-64 years of age, the prevalence of type 2 diabetes and impaired glucose tolerance (IGT)

was approximately 8.2% and 15%, respectively.² Several factors may account for the high prevalence of type 2 diabetes in Singapore. Although the molecular basis for type 2 diabetes is still poorly understood, both insulin resistance and beta-cell dysfunction are well documented^{3,4} and is likely a result of both environmental influences and genetic factors.^{5,6} The aging population in Singapore, increasing prevalence of obesity and a sedentary lifestyle parallel the rise in diabetes and are likely contributors to this metabolic abnormality.

The Singapore National Healthy Lifestyle Program was launched in 1992 with its principal aim being to promote healthy lifestyles and disease prevention. This program has resulted in increases in regular exercise rates amongst Singaporeans (13.6% in 1992 vs 16.9% in 1998 vs 24.9% in 2004) and a leveling off in the prevalence rates of diabetes (8.6% in 1992 vs 9.0% in 1998 vs 8.2% in 2004). Education to the general public resulting in greater awareness about the disease has also proven efficacious with the number of

Address for reprints: Dr. Jimmy Lim
Department of Cardiology, Tan Tock Seng Hospital, 11 Jalan
Tan Tock Seng, Singapore 308433

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