

## On the Occasion of the World Diabetes Day: Diabetes Mellitus – A Globally Increasing Health Problem

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Originally, public health actions turned to the living conditions that prevented the development of Diabetes mellitus. Diabetes mellitus is growing worldwide, but it is still an underestimated health threat comprising about 366 million people worldwide. By 2030, this number is estimated to reach 552 million in both developed and developing countries. Many more people are at risk of type 2 diabetes and 470 million people globally will have prediabetes. As defined by the World Health Organization (WHO), individuals with prediabetes have fasting plasma glucose concentrations between 6.1 mmol/L (110 mg/dL) and 7.0 mmol/L (126 mg/dL) or as defined by the American Diabetes Association, between 5.6 mmol/L (101 mg/dL) and 6.9 mmol/L (124 mg/dL).<sup>[1]</sup>

China is a perfect example for the rapidly growing burden of diabetes. In 1974, less than one in 150 Chinese citizens had developed diabetes and recent surveys indicate more than a 10-fold increase resulting in 1 in 10 Chinese citizens and 1 in 5 among those aged 60 years and older. During these decades, prosperity rapidly increased and eating habits shifted to more foods that are higher in fat and sugar content. Movement from rural areas to cities contributes to more sedentary lifestyles and more daily stress. Thirteen percent of China's health expenditures (US \$ 25 billion) were estimated by the International Diabetes Federation to be attributable to diabetes. Sixty

percent of Chinese diabetics do not know that they have diabetes compared with undiagnosed diabetic patients in the USA. "The latest National Plan for Non-Communicable Disease Prevention and Control intends providing 40% of the diabetics with standard treatment by 2015 and achieving good blood glucose control in 60% of that group." According to the newly elected Director-General of the Being Diabetes Prevention and Treatment Association, "In my opinion, it hasn't been carried out satisfactorily – that is to say, they have ideas but haven't turned them into practice."<sup>[2]</sup>

About 79 million Americans have impaired fasting glucose and/or impaired glucose tolerance according to estimates from the US Centers for Disease Control and Prevention. Furthermore, prediabetes is a high risk for vascular complications, nephropathy, and neuropathies. Therefore, screening for prediabetes is recommended because of the very high risk for future type 2 diabetes. Among the individuals with both fasting (>5.6 mmol/L respectively 101 mg/dL) and postprandial plasma glucose concentrations (2 h glucose > 7.8 mmol/L), about 11% will develop diabetes. The Diabetes Prevention Program demonstrated that the diabetes risk was 56% lower for participants who had returned to normal glucose regulation compared with participants who consistently had prediabetes despite lifestyle intervention. Early intervention is important even if restoration

of normal glucose regulation is transient. If diabetes persists despite intensive lifestyle modification, additional preventive strategies might be necessary.<sup>[3]</sup>

Lifestyle changes consist of healthy diet, reduction of sedentary behavior, increased leisure time physical activity, non-smoking, and avoidance of over-weight and obesity. Lifestyle change is the first line of defense against progression of diabetes. Also, in healthy youth and adolescents, sustained lifestyle change improves cardiovascular risk factors.<sup>[4,5]</sup> Metformin has been found beneficial in individuals with prediabetes if lifestyle change is not sufficient.

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