DESSA Abstracts

1. DIABETES MELLITUS AND GENES
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Diabetes is one of the leading causes of morbidity worldwide, with an alarming increase in prevalence especially in developing countries. It is well known that Diabetes is characterized by elevated blood glucose concentrations resulting from defects in insulin secretion, insulin action or both. On the other hand the genetic makeup that predisposes an individual to diabetes is largely elusive. The advent of the molecular era brings about the promise of human disease prediction. Diabetes can be divided into several subtypes based on etiology, pathophysiology, clinical signs and symptoms. The pathophysiological processes that lead to the types of diabetes are not well understood ranging from complete to partial autoimmune destruction of beta cells to abnormalities that cause different levels of insulin resistance. The subtypes of diabetes caused by single gene mutations are in the minority; yet their treatment is dependent on correct diagnosis. The bulk of diabetic patients suffer from type 2 diabetes resulting from an interaction between numerous genes and environmental factors. Two main approaches have been used to identify genes associated with diabetes, namely candidate gene screening and genome wide association studies (GWAS). Because of the complex interaction of genes with various environmental elements, the majority of diabetes incidences are preventable. Knowledge of diabetes risk genotype may lead to lifestyle modification and disease prevention.

2. ARE LIPIDS STILL IMPORTANT IN DIABETES?
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Traditionally the message regarding dietary fats in patients with diabetes had been focused on normalising blood LDL levels by avoiding saturated fatty acids (SFA), trans fatty acids (TFA) and cholesterol in the diet. In recent years great strides have been made in lipid research. It is becoming clear that dietary fatty acids (FA) cannot simply be blanketed according to whether it is saturated or not, but that chain length is a major determinant of the way different FA acids affect health. In addition, even though many types of SFA affect blood lipid profiles negatively, the dietary component substituted for SFA, is equally or even more important. Low fat diets/products are often characterised by high levels of refined carbohydrates, which in turn, increase triglycerides levels, and have been strongly associated with increased insulin resistance and overweight. Substituting poly-unsaturated FA (PUFA) for SFA at a ratio of >0.49, has the most beneficial for lowering the risk of cardiovascular disease (CVD). FA do not however, only affect lipid profiles, but form the basis of all cell membranes which in turn, increase triglycerides levels, and have been strongly associated with increased insulin resistance and overweight. Substituting poly-unsaturated FA (PUFA) for SFA at a ratio of >0.49, has the most beneficial for lowering the risk of cardiovascular disease (CVD). FA do not however, only affect lipid profiles, but form the basis of all cell membranes where they affect various cell functions. Increasing the dietary intake of one type of FA, will raise the concentration of that specific FA in the membranes, but decrease the concentration of another that it replaces. PUFA exist in food as omega 6- and omega 3-FA, based on the position of the unsaturated bonds. In cell membranes, omega 6-FA gives rise to pro-inflammatory agents, and omega 3-FA to anti-inflammatory agents. As diabetes, CVD and obesity, all have an inflammatory component, the correct dietary ratio of omega 6- to 3-FA is important. The latest dietary guidelines reflect the evidence that dietary cholesterol may be not as detrimental to cardiovascular health as was thought. Dietary TFA, however remains a major risk factor for CVD.

Conclusion: Achieving total fat intake within the recommended range is an important goal for weight management, but achieving the right quality of fat in the diet is even more advantageous to health and chronic disease risk reduction.

3. A COMMUNITY APPROACH
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The burden of non-communicable diseases is rising in South African communities. This rise in NCDs disproportionately affects poor people in urban settings resulting in an increase in the demand for care for chronic diseases. The need to understand all factors leading to the development of Diabetes Mellitus is critical if the efforts to manage and prevent it are to be effective. Social and economic factors, health literacy, social support, psychological factors, cultural diversity, etc. are amongst the factors that need constant attention and monitoring in order to manage and prevent diabetes or its related complications.

4. LEADERSHIP IN PRACTICE
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Leadership is defined as the ability to inspire and guide others toward building and achieving a shared vision. Health professionals have an important leadership role to fulfil and are responsible for accepting this leadership role. Leadership in health is needed to advocate for funding and inclusion of services in programs and policy initiatives, and required to facilitate and participate in activities to prevent disease and promote health. It is therefore each health care professional’s responsibility to develop their own leadership qualities.

Four E’s are highlighted in leadership: Energy: the ability to act and embrace changes; Energize: the ability to inspire others; Edge: the courage to make decisions, take calculated risks and think and plan for the future; and Execute: getting the work done.

Personality traits like passion, integrity, intelligence, commitment to be the best, accepting inputs from others, open-mindedness and challenging the current way of thinking must be developed to shape leaders for the future.

Although trained and developed as leaders, health professionals often are not willing or able to take leadership roles because they feel underappreciated, complain about compensation, or just feel unhappy about their professional lives.

Enabling others to act is seen as the most frequent leadership practice and leadership is found more often amongst
individuals who have had previous leadership training, older individuals or people with previous leadership experience. The millennial generation also has the advantage of growing up with surrounded by social media and being better connected to the wider world. Therefore researchers agree - leaders are made or trained rather than born!

5. PRACTICAL PORTION SIZES
Mrs Marizeth Jordaan and Mrs Liska Robb
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A “gold standard” method for estimating portion sizes remains uncertain. Various methods are used in meal planning of the diets of patients with diabetes. Quantifying portion sizes is an essential step in ensuring consistency in meal carbohydrate content, to ensure glycaemic control, as insulin doses should be adjusted to match the patient’s carbohydrate intake. Portion size determination and carbohydrate counting related to fast-food or meals that are not prepared at home should also receive attention when working with patients, along with alcohol, caffeine and salt content of foods. Methods for estimation of portion sizes, and consequently the estimation of carbohydrate content, include estimates of “small, medium or large”; weighed diaries; food portion-size books; food portion photographs; food models; household measures and PETRA scales. All of these methods have their advantages and disadvantages. Other practical ways of determining portion sizes such as comparing food portions to household objects can also be used. Determination of portion sizes and carbohydrate counting in children is an important aspect of the nutrition education of children with type 1 diabetes mellitus. Little is known about children’s ability to count carbohydrates, or the accuracy thereof, thus certain approaches have been developed to overcome this problem. Online tools and mobile applications can assist with education and dietary management of diabetes.

6. THE ROLE OF DIABETES MELLITUS IN MALE SEXUAL HEALTH
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Male sexual dysfunction is a common complication of diabetes mellitus, including abnormalities of orgasmic/ejaculatory function and desire/libido in addition to penile erection. Men with diabetes mellitus can develop sexual problems because of damage to nerves and small blood vessels. Estimates of the prevalence of erectile dysfunction in men with diabetes vary widely, ranging from 20 to 75 percent. Men who have diabetes are two to three times more likely to have erectile dysfunction than men who do not have diabetes. Among men with erectile dysfunction, those with diabetes may experience the problem as much as 10 to 15 years earlier than men without diabetes. Research suggests that erectile dysfunction may be an early marker of diabetes, particularly in men ages 45 and younger.

Retrograde ejaculation is a condition in which part or all of a man’s semen goes into the bladder instead of out the tip of the penis during ejaculation. With retrograde ejaculation, semen enters the bladder, mixes with urine, and leaves the body during urination without harming the bladder. A man experiencing retrograde ejaculation may notice that little semen is discharged during ejaculation or may become aware of the condition if fertility problems arise. Poor blood glucose control and the resulting nerve damage can cause retrograde ejaculation.

Hypogonadism (also known as testosterone deficiency) is an integral component of the pathology underlying endothelial dysfunction and the metabolic syndrome, with insulin resistance at its core. Testosterone replacement therapy for testosterone deficiency has been shown to ameliorate some of the components of the metabolic syndrome, improve insulin resistance, and may serve as treatment for decreasing cardiovascular and ED risk.

7. IMPACT OF DIET AND LIFESTYLE FACTORS ON SEMEN PARAMETERS
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Healthy motile, morphologically, normal sperm is necessary for fertilization. Both dietary and lifestyle factors have an impact on semen quality.

Unbalanced diets, combined with high alcohol intake, have been linked to increased seminal oxidative stress. Diets with low polyunsaturated and high saturated fat contents have been associated with lower semen quality. A high intake of processed meats were associated with poorer semen parameters. A low intake of vegetables and fruits is named a risk factor for male factor infertility.

Increased oestrogen and reduced androgen, as well as increased insulin resistance, and reduced inhibin B concentrations, associated with obesity, may play an important role. Overweight and obesity also cause excessive suprapubic and thigh fat which cause an increase in scrotal temperature. Overweight and obese men tend to have a higher risk for abnormally low semen volume, smaller numbers morphologically normal sperm, decreased sperm concentration, motility and lower total number of sperm. A meta-analysis showed an increased prevalence of azoospermia or oligospermia in these men. Some authors found no significant correlation between BMI and semen quality or low-motile sperm concentration.

Extreme sports may contribute towards poor semen quality; and pressure on the perineal area during long distance cycling may influence erectile function.

Alcohol consumption is reported to influence sperm morphology, spermatogenesis, semen volume, sperm count, motility and number of morphologically normal sperm. No significant association was found between alcohol consumption and low-sperm motile concentration.

Smoking affects sperm motility and morphology and appears to be directly related to number of cigarettes smoked. No association was found between smoking and low-motile sperm concentration. Lower sperm motility and percentage normal forms were found in opiate consumers. No significant association was found between recreational drug use and...
low-motile sperm concentration. However, underreporting of recreational drug use, results in limited knowledge.

8. FOOD AND EXERCISE
Dr Lucia Meko
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In cases of poor glycaemic control the risk of associated diabetes comorbidities and complications is increased. These inevitably lead to diabetes-related mortality. Non-pharmacological educational interventions such as those focusing on exercise, dietary modification and increased blood glucose monitoring; have been found to be effective in the prevention of diabetes complications in patients with diabetes. Diabetes self-management education helps improve health outcomes. In order to ensure an effective education programme, it is important to understand the target group or patient thoroughly. Empowering patients to self-manage their diabetes leads to a reduction in the risk for complications.

9. DIABETES AND DEMENTIA
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Dementia (or neurocognitive dysfunction) is characterised by a decline in cognitive function involving one or more of the cognitive domains (learning and memory, language, executive function, complex attention, perceptual-motor, social cognition). The deficit must be severe enough to interfere with daily function and independence. Alzheimer’s disease (AD) is the most common form of dementia accounting for 60-80% of cases. Vascular dementia (VaD or vascular neurocognitive impairment) is the second most common cause of dementia and accounts for 10-20% of cases. The diagnosis of early dementia is often delayed since family members often attribute early memory loss to normal “ageing”. Risk factors for AD include genetic and acquired factors such as dyslipidaemia, cerebrovascular disease, hypertension, obesity and type 2 diabetes but not type 1 diabetes, while physical activity protects against the development of AD. VaD is a heterogeneous syndrome in which the underlying cause is cerebrovascular disease in some form and its ultimate manifestation is dementia. VaD is associated with the classic cardiovascular risk factors including diabetes. Higher postprandial plasma glucose excursions are associated with greater declines in cognitive performance and higher glycated haemoglobin levels are associated with lower cognitive function in individuals with type 2 diabetes.

Health coaching can be defined as helping patients gain the knowledge, skills, tools and confidence to become active participants in their care so that they can reach their self-identified health goals.

In 2014 NOD launched Coaching Skills for HealthCare Professionals. Issues raised included ‘Who I am as coach’ to ‘The Challenges’ going forward.

In 2015 we culminate the contents discussed at the training and incorporate the practical with the content learned. We re-establish the role of the tools and how best they could assist you in your quest to successful coaching.

The road to success through coaching is best achieved when we follow a patient centred approach and adapt our coaching styles to suit the patient. This update provides examples of consultations and ease of use of the tools supplied by NOD.

References: Coaching skills for Health Care Professionals

10. NOD @ DESSA... COACHING FOR SUCCESS
Hendrien van Zyl, Learning Solutions Specialist
Razana Alllie, Registered Diabetes Nurse Educator
Annelie Jordaan, Accredited Diabetes Specialist Nurse

Coaching may be defined as:

A professional, collaborative and outcomes-driven method of learning that seeks to develop an individual and raise self awareness so that he or she might achieve specific goals and perform at a more effective level – COMENSA.