

Sexual dysfunction



Fruit and vegetables – potent stuff?

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The value of an adequate intake of fruit and vegetables is regularly broadcast by healthcare professionals and governments with the expectation that it reduces cardiovascular disease. But are there other additional benefits? Wang and colleagues, analysing the 2011 Survey on Living with Chronic Diseases in Canada (Diabetes Component), which is summarised alongside, suggest there is. The value of their analysis is that they examine the risk of developing erectile dysfunction (ED) in men with diabetes based upon traditionally recognised risk factors for ED, for example disease duration and other vascular complications, but they also incorporate a further variable by assessing fruit and vegetable intake.

The fruit and vegetable intake of participants in the survey is self reported, is based on a limited number of questions and assumes one intake of fruit or vegetables per day equates to one portion. Thus, there are caveats in interpreting the data. However, this study is based upon a large population (1466 men with diabetes) and has been

otherwise robustly designed. This study confirmed findings that are well documented, linking the development of ED with age, obesity, smoking, duration of diabetes and the presence of diabetes complications elsewhere.

The novel aspect of this study was the observation that fruit and vegetable intake was inversely associated with the development of ED, which was independent of other risk factors. Each additional serving of fruit or vegetables was associated with a 10% reduction in the risk of ED. Why might this be?

It is well known that fruit and vegetables contain a rich source of nutrients that may boost nitric oxide levels. In turn, nitric oxide is important in maintaining endothelial function and smooth muscle relaxation (Cummings, 2004), key components of the process leading to tumescence.

Anyone for more carrots? ■

Cummings M (2004) Erectile dysfunction in Diabetes Mellitus. In: DeFronzo RA, Ferrannini E, Keen H, Zimmet P (eds). *International Textbook of Diabetes Mellitus* (3rd edition). Wiley-Blackwell, Chichester, West Sussex, UK

Clin Endocrinol (Oxf)

Sleep apnoea and sexual function

Readability ////
Applicability to practice ///
WOW! Factor ///

1 The effect of continuous positive airway pressure (CPAP) therapy on erectile dysfunction and serum testosterone levels in men with T2D and obstructive sleep apnoea was investigated.

2 Twenty-seven men with a mean age of 65.4±9.6 years and

a diabetes duration of 12.1 years completed 3 months of CPAP therapy.

3 There was no significant difference in mean total or free testosterone, or in results from the Sexual Health Inventory for Men questionnaire before and after CPAP therapy.

4 CPAP therapy improved somnolence (drowsiness) and promoted exercise in men with T2D.

5 There was no direct benefit for gonadal or sexual function from CPAP therapy.

Knapp A, Myhill PC, Davis WA et al (2014) Effect of continuous positive airway pressure therapy on sexual function and serum testosterone in males with type 2 diabetes and obstructive sleep apnoea. *Clin Endocrinol (Oxf)* **81**: 254–8

Urology

Effect of fruit and vegetable consumption on ED

Readability ////
Applicability to practice ////
WOW! Factor ///

1 The aim of the study was to investigate the association between fruit and vegetable consumption and erectile dysfunction (ED) among Canadian men with diabetes.

2 Data from the 2011 Survey on Living with Chronic Disease in Canada (Diabetes Component) were analysed.

3 A nationally representative sample of people with diabetes ($n=2933$) were asked questions about lifestyle, chronic health conditions and their sociodemographics. The estimated daily consumption of fruit and vegetables was estimated from questions that asked about the foods respondents ate per day, week and year.

4 In total, 1466 Canadian men with diabetes responded to the survey. Overall, 80.5% had T2D, 6.9% had T1D and 12.6% were unclassified. 80% of respondents were overweight or obese.

5 A total of 26.2% of respondents reported having ED. This rate increased with age and duration of diabetes, and ED was more common among obese individuals.

6 An inverse association was found between ED and fruit and vegetable consumption, which remained after controlling for selected confounding factors.

7 The rate of ED was found to decrease by 10% with each increase of one serving of fruit or vegetable per day.

8 One limitation reported by the authors is that the amount of fruit and vegetables consumed was self-reported.

Wang F, Dai S, Wang M, Morrison H (2013) Erectile dysfunction and fruit/vegetable consumption among diabetic Canadian men. *Urology* **82**: 1330–5

Clin Endocrinol (Oxf)

Heritability of circulating sex hormones in men

Readability ////
 Applicability to practice ////
 WOW! Factor ////

- Variation in levels of circulating sex hormones vary due to behavioural factors and morbidity, but genetic inheritance is also thought to play a part in variation.
- In a cross-sectional, observational analysis of data from male members of the Offspring and Generation 3 cohorts of the Framingham Heart Study, the authors aimed to estimate the heritability of male circulating total testosterone (TT), calculated free testosterone (cFT), oestrone (E1), oestradiol (E2) and sex hormone binding globulin (SHBG).
- In total, 3367 men contributed to the analysis, including 1066 father/son and 1284 brother pairs among other family relationships. Data were collected from 1998 to 2005.
- The mean age of the cohort was 49 years and 7.5% had T2D.
- Levels of the sex hormones were measured by a series of chemical measures, and heritability was estimated using variance components analysis with adjustments for covariates. (Heritability estimates are between 0 and 1; a score nearer to 1 suggests more heritability.)
- Age-adjusted heritability estimates were 0.19, 0.40, 0.40, 0.30 and 0.41 for cFT, TT, E1, E2 and SHBG, respectively. Adjustment for other covariates did not substantially attenuate these estimates.
- cFT, E1 and E2 concentrations exhibit substantial heritability in adult men, and there is a significant genetic association between testosterone and oestrogen levels, which suggests a shared genetic pathway.

Travison TG, Zhuang WV, Lunetta KL et al (2014) The heritability of circulating testosterone, oestradiol, oestrone and sex hormone binding globulin concentrations in men. *Clin Endocrinol (Oxf)* **80**: 277–82

Diabetes Care

Glucose metabolism: Is it improved by testosterone treatment in men?

Readability ////
 Applicability to practice ///
 WOW! Factor ///

- Low testosterone levels are independently associated with insulin resistance, and studies have consistently showed that 30–50% of men with T2D have lower circulating testosterone levels compared to healthy young men.
- With this in mind, the authors of the study investigated the effect of testosterone treatment on glycaemic control and glucose metabolism in men with T2D.
- The participant criteria included men aged 35–70 years, with a total testosterone level of ≤ 12.0 nmol/L and an HbA_{1c} of ≤ 69 mmol/mol (8.5%).
- The trial was double-blind and parallel, and participants were randomly assigned to 40 weeks of intramuscular testosterone undecanoate ($n=45$) or placebo ($n=43$). Seventy-five men completed the study.
- Testosterone did not improve insulin resistance (mean adjusted difference [MAD] for HOMA-IR compared to placebo -0.08 [$P=0.23$]) or glycaemic control (MAD for HbA_{1c} 0.36%; $P=0.05$) compared to placebo. There was a decrease in fat mass (testosterone therapy reduced subcutaneous [$P<0.0001$] but not visceral abdominal adipose tissue [$P=0.90$]) and there was an increase in lean mass.
- Testosterone treatment did not improve glucose metabolism or visceral adiposity in obese men with moderately controlled T2D and slightly lower testosterone levels than typical for men with T2D.

Gianatti EJ, Dupuis P, Hoermann R et al (2014) Effect of testosterone treatment on glucose metabolism in men with type 2 diabetes: a randomized controlled trial. *Diabetes Care* **37**: 2098–107

Int J Impot Res

More aggressive treatment for erectile dysfunction for men with diabetes?

Readability ////
 Applicability to practice ////
 WOW! Factor ///

- Diabetes is a known risk factor for erectile dysfunction (ED), but it is unknown whether the presence of diabetes requires the need for more invasive therapies to treat ED.
- In the first study of its kind, the authors sought to determine whether diabetes is associated with increased ED severity, reduced effectiveness of first-line (oral) therapies and, therefore, higher utilisation of second- and third-line therapies.
- The Inovus I3 database was used to identify men between 35 and 70 years of age with ED, who had 2 years of medical records. The need for second- and third-line ED therapies was compared between those with and without diabetes.
- In total, 136 306 men were identified, 19 236 of whom had diabetes prior to their ED diagnosis.
- Men with diabetes were more than 60% more likely to be prescribed second-line ED treatments within 5 years of ED diagnosis (odds ratio [OR] 1.6; 95% confidence interval [CI], 1.4–1.7) and more than twice as likely to undergo penile prosthesis surgery (OR 2.1; 95% CI, 1.8–2.6) compared to men without diabetes.
- The data show that men with diabetes are 1.5–2.0-fold more likely to proceed to more aggressive treatments. It suggests that they may be less responsive to first-line treatments, may worsen more rapidly, or both.
- The paper suggests treatment of ED for men with diabetes may need to start earlier or be more aggressive.

Walsh TJ, Hotelling JM, Smith A et al (2014) Men with diabetes may require more aggressive treatment for erectile dysfunction. *Int J Impot Res* **26**: 112–5

“Testosterone treatment did not improve glucose metabolism or visceral adiposity in obese men with T2D and lower than typical testosterone levels for men with T2D.”