Management & prevention of type 2 diabetes

Watching too much TV is bad for your health!

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One can imagine an eye-catching headline in the tabloid newspapers such as "Watching too much TV causes diabetes and can kill you" based on this article by Grøntved and Hu (2011; summarised alongside). However, we need to review it in an academic manner to interpret the findings.

This article is a meta-analysis of prospective cohort studies: four reported on type 2 diabetes (175 938 individuals, 6428 incident cases during 1.1 million person-years of follow-up); four reported on fatal or non-fatal cardiovascular disease (CVD; 34 253 individuals, 1052 incident cases); and three reported on all-cause mortality (26 509 individuals, 1879 deaths during 202 353 person-years of follow-up).

The authors calculated that the pooled relative risks per 2 hours of TV viewing per day were 1.20 (95% confidence interval [CI], 1.14–1.27) for type 2 diabetes, 1.15 (95% CI, 1.07–1.18) for fatal or non-fatal CVD and 1.13 (95% CI, 1.07–1.23) for all-cause mortality. While the associations between time spent watching TV and risk of type 2 diabetes and CVD were linear, the risk of all-cause mortality appeared to increase with TV viewing duration >3 hours per day. The estimated absolute risk differences per every 2 hours of TV viewing per day per 100 000 people per year were 176 cases of type 2 diabetes, 38 cases of fatal CVD and 104 deaths from all-cause mortality.

Why might this be? There are likely to be several factors at work. The authors state that watching TV displaces time spent on more physical activities, is associated with more unhealthy eating and could attract some individuals to begin smoking.

There are a number of limitations of this type of study that are outlined by the authors, such as in six of the studies the TV viewing estimates were based on self-report. Strengths of the meta-analysis include large sample sizes, long duration of follow-up and pooled estimates being based on prospective analyses with detailed adjustments for a wide range of confounding variables. However, it is vital that we grasp the point that meta-analyses can describe associations, but cannot demonstrate causation. However, this does not make for exciting tabloid headlines!

This article shows an association between the amount of TV watched and type 2 diabetes, CVD and all-cause mortality. There are clear biological mechanisms that can explain this association. Given the level of association, perhaps when we are discussing lifestyle change with people with type 2 diabetes, such as reducing food intake and increasing physical activity, we also need to discuss the amount of time per day they spend watching TV, and how this might be reduced.

JAMA

TV viewing increases risk of diabetes, CVD and mortality

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓✓
WOW! factor	✓✓✓✓

1 TV viewing is a sedentary behaviour, taking up a large percentage of daily free time in developed countries.

2 Additionally, TV viewing is associated with unhealthy eating, drinking and even smoking, often encouraged by films, programmes or advertisements.

3 As physical inactivity, a poor diet and smoking are risk factors for T2D, the authors sought to determine the association between TV viewing and risk of T2D, cardiovascular disease (CVD) and all-cause mortality.

4 A meta-analysis was performed on relevant data obtained from MEDLINE and EMBASE searches.

5 After exclusions, analyses were performed on four articles on T2D (175 938 people, 6428 incident cases), four on CVD (34 253 people, 1052 incident cases) and three on all-cause mortality (26 509 people, 1879 deaths).

6 Greater TV viewing time was associated with a higher risk of T2D (pooled relative risk [RR], 1.20; 95% confidence interval [CI], 1.14–1.27 per 2 hours of TV; $P<0.001$).

7 Greater TV viewing was also found to be associated with an increased risk of CVD (RR, 1.15; 95% CI, 1.06–1.23 per 2 hours of TV; $P<0.001$) and for all-cause mortality (RR, 1.13; 95% CI, 1.07–1.18 per 2 hours of TV; $P<0.001$).

8 TV viewing and the risk of T2D and CVD were found by the authors to have a linear association; the risk of all-cause mortality increased with watching TV for more than 3 hours a day.

Grøntved A, Hu FB (2011) Television viewing and risk of type 2 diabetes, cardiovascular disease and all-cause mortality. *JAMA* **305**: 2448–55

DIABETIC MEDICINE

Stricter control will improve care in T2D

Readability	✓✓✓
Applicability to practice	✓✓
WOW! factor	✓✓✓

1 The authors sought to investigate whether glycaemic control in people with T2D not treated with insulin is related to the quality of health care provided in routine clinical practice in Spain.

2 This retrospective, cross-sectional study comprised 2266 people with T2D; poor glycaemic control was identified by International Diabetes Federation (IDF; 61.9%) or American Diabetes Association (45.0%) criteria.

3 The quality of health care received was determined by meeting IDF recommendations.

4 The mean number of IDF recommendations achieved was 7.3 out of 11; participants treated by endocrinologists achieved highest scores.

5 The authors concluded that improvements are needed in managing people with T2D, in line with the stricter IDF criteria.

Rodríguez A, Calle A, Vázquezt L et al (2011) Blood glucose control and quality of health care in non-insulin-treated patients with type 2 diabetes in Spain. *Diabet Med* **28**: 731–40

"Understanding the impact of comorbidities on diabetes management may improve people's outcomes."

DIABETES, OBESITY AND METABOLISM

Intensive treatment can take up to 1 year

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 This retrospective analysis examined data from 12 566 people with T2D on metformin monotherapy with inadequate glycaemic control (HbA_{1c} ≥7.0% [≥53 mmol/mol]).

2 Time to treatment intensification was determined as the time taken to administer additional antidiabetes drugs from inadequate control with metformin monotherapy.

3 In total, 66% had an HbA_{1c} level of 53 to <64 mmol/mol, 19% 64 to <75 mmol/mol and 15% ≥75 mmol/mol; median time to intense treatment was 19.0, 8.7 and 4.5 months, respectively.

4 Higher index HbA_{1c} positively affected time to treatment intensification.

Fu AZ, Qiu Y, Davies MJ et al (2011) Treatment intensification in patients with type 2 diabetes who failed metformin monotherapy. *Diabetes Obes Metab* **13**: 765–9

DIABETIC MEDICINE

Comorbidities affect T2D self-management

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

1 To understand the impact of comorbidities on diabetes self-management, 32 adults aged ≥60 years with T2D and at least one other chronic condition participated in focus groups.

2 Eight 90-minute focus groups comprised two to six participants; a trained moderator asked open-ended questions to determine how people managed their comorbidities and how they perceived the severity of their conditions.

3 Emerging themes were: diabetes as a motivator to improve control and reduce complications; prioritising comorbidities so that they are dealt with according to perceived severity; and the emotional impact of self-management.

4 It was concluded that understanding the impact of comorbidities on diabetes management may improve people's outcomes in chronic conditions.

Beverly EA, Wray LA, Chiu CJ, Weinger K (2011) Perceived challenges and priorities in comorbidity management of older patients with type 2 diabetes. *Diabet Med* **28**: 781–4

CURRENT MEDICAL RESEARCH AND OPINION

PIR linked to a broad emotional discomfort about diabetes

Readability	✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 The study aim was to examine the prevalence and cause of psychological insulin resistance (PIR) in people with T2D from eight countries.

2 In total, 1400 people with T2D not on insulin therapy completed an online survey; questions determined participants' willingness to start insulin, their beliefs about insulin.

3 Most participants were men (59.3%; mean age, 51.6 years).

4 The PIR group comprised 17.2% of participants unwilling to start insulin treatment; the others were either ambivalent (34.7%) or willing (48.1%).

5 Participants in the PIR group reported significantly more negative and fewer positive beliefs (all $P<0.001$) than ambivalent or willing participants.

6 PIR and ambivalent participants reported more negative feelings about their medications and more diabetes-related stress than willing participants (all $P<0.05$).

7 The authors concluded that PIR may be linked to a wider discomfort with current medication and having diabetes, and should be considered when dealing with people with uncontrolled T2D.

Polonsky WH, Hajos TR, Dain MP, Snoek FJ (2011) Are patients with type 2 diabetes reluctant to start insulin therapy? An examination of the scope and underpinnings of psychological insulin resistance in a large, international population. *Curr Med Res Opin* **27**: 1169–74

DIABETES, OBESITY AND METABOLISM

Linagliptin with pioglitazone gives good control in T2D

Readability	✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓

1 Most people with T2D require combination therapy to achieve good glycaemic control.

2 The combination of a dipeptidyl peptidase-4 (DPP-4) inhibitor, such as linagliptin, with a thiazolidinedione, such as pioglitazone, should enable attainment of target HbA_{1c} levels with minimal side-effects.

3 This randomised, placebo-controlled, double-blind, parallel-group study compared the efficacy and safety of linagliptin or placebo administered for 24 weeks in combination with pioglitazone in people with suboptimally controlled T2D.

4 Initially, 259 participants were randomised to receive pioglitazone 30 mg plus linagliptin 5 mg, and 130 participants to receive pioglitazone 30 mg plus placebo, all once daily; the primary endpoint was change in HbA_{1c} after 24 weeks.

5 At the end of the study, the adjusted mean change in HbA_{1c} from baseline for pioglitazone plus linagliptin was –1.06%; for pioglitazone plus placebo this value was –0.56%.

6 The difference in adjusted mean HbA_{1c} between linagliptin and placebo was –0.51% (95% confidence interval, –0.71 to –0.30; $P<0.0001$).

7 People in the pioglitazone plus linagliptin group were more likely to achieve an HbA_{1c}<7.0% (<53 mmol/mol; $P=0.005$) than those in the pioglitazone plus placebo group.

8 The authors concluded that linagliptin and pioglitazone combination therapy was well-tolerated and gave good glycaemic control.

Gomis R, Espadero R-M, Jones R et al (2011) Efficacy and safety of initial combination therapy with linagliptin and pioglitazone in patients with inadequately controlled type 2 diabetes. *Diabetes Obes Metab* **13**: 653–61