Physical activity and risk of breast cancer, colon cancer, diabetes, ischemic heart disease, and ischemic stroke events

Authors: Kyu HH et al.

Summary: This systematic review and dose-response meta-analysis included 55 articles on diabetes along with other papers on breast cancer, colon cancer, ischaemic heart disease and ischaemic stroke reporting data on associations between total physical activity and the risk of the respective diseases. Total physical activity was significantly associated with lower risks for all outcomes, but the greatest advantages were seen with activity levels of ≤3000–4000 MET (metabolic equivalent) minutes per week. Compared with no activity, diabetes risk was decreased by 2% for 600 MET minutes per week, and by an additional 19% for 600–3600 MET minutes per week, but by only a further 0.6% for activity levels of 9000–12,000 MET minutes per week. Compared with individuals who did not meet the WHO-recommended activity level of ≥600 MET minutes per week, those who achieved ≥8000 MET minutes per week had a significantly lower risk of diabetes (relative risk 0.754 [0.704, 0.809]).

Comment: We all know that physical activity is good for us and here is more evidence to support this. This meta-analysis of prospective cohort studies demonstrates again that regular physical activity reduces the risk of diabetes and CV disease, but is also associated with very significant reductions in breast and colon cancer. Importantly there is a dose-response effect that extends above the current minimum recommended activity levels, but don’t despair, it does flatten off. The paper reports in METs, which for those not in the field may be foreign. The WHO recommends at least 600 MET minutes of total activity per week for health benefits; this would be, for example, about 150 minutes per week of brisk walking or 75 minutes per week of running. In this study, at that level people had a 2% lower risk of diabetes than those who were sedentary. However, if this was increased to 3600 MET minutes per week, then the reduction in risk was a further 19%. Similar effects were seen for cancer. So, irrespective of the mechanism, regular physical activity has very important health benefits. On your bikes people…

Reference: BMJ 2016;354:i3857

Abstract

Independent commentary by Associate Professor Jeremy Krebs, an endocrinologist with a particular interest in obesity and diabetes. He is an Associate Professor with the University of Otago, and former Director of the Clinical Research Diploma at Victoria University - which he established. As well as clinical and teaching activities, Assoc Prof Krebs maintains active research interests in the area of obesity and diabetes, with a focus on nutritional aspects, bariatric surgery and diabetes service delivery.

FOR FULL BIO CLICK HERE.
Blood pressure and complications in individuals with type 2 diabetes and no previous cardiovascular disease

Authors: Eryd SA et al.

Summary: How the currently recommended systolic BP (<140mm Hg) compares with lower levels in patients who have type 2 diabetes in terms of CV disease risk was investigated in this Swedish population-based cohort study. The study population consisted of 187,106 diabetes registry patients aged ≥75 years with no CV or other major disease at baseline. Compared with a reference group with systolic BP 130–139mm Hg, individuals with systolic BP 110–119mm Hg had significantly lower risks of nonfatal acute myocardial infarction (adjusted HR 0.76 [95% CI 0.64, 0.91]), total acute myocardial infarction (0.85 [0.72, 0.99]), nonfatal CV disease (0.82 [0.72, 0.93]), total CV disease (0.88 [0.79, 0.99]) and nonfatal coronary heart disease (0.88 [0.78, 0.99]). No evidence of a J-shaped relationship was seen between systolic BP and the endpoints, except for heart failure and total mortality.

Comment: The question of the most appropriate BP target for people with type 2 diabetes continues to be controversial. Some evidence, such as this study, supports lower BP levels than are generally aimed for or achieved in regular practice. However, some evidence has demonstrated a J-shaped curve where outcomes begin to get worse as BP drops below an optimal nadir. As always, interpreting the volumes of data and studies is difficult due to differences in population characteristics, types of studies and perhaps most importantly whether the studies are observational cohort studies or prospective randomised trials of BP lowering. There is a big difference between actively trying to lower BP, with all of the challenges of multiple medications, interactions and side effects, and simply comparing outcomes of individuals where BP is a product of multiple uncontrolled factors. So yes this study is interesting that lower BP is again shown to be predictive of better outcomes, but it still doesn’t tell us how hard we should be pushing the individual in front of us to achieve this!

Reference: BMJ 2016;354:i4070

Abstract

Pioglitazone use and risk of bladder cancer in patients with type 2 diabetes

Authors: Korhonen P et al.

Summary: The association between pioglitazone use and bladder cancer was explored using data from 56,337 pioglitazone recipients with type 2 diabetes and 317,109 matched patients with type 2 diabetes treated with other agents. Over mean follow-up of 2.8–2.9 years, bladder cancers occurred in 130 pioglitazone recipients, 153 controls from a 1:1 nearest matched cohort and 970 from a 1:10 multiple matched cohort. Pioglitazone recipients did not have an increased risk of bladder cancer compared with controls from the 1:1 and 1:10 matched cohorts (respective adjusted HRs 0.99 [95% CI 0.75, 1.30] and 1.00 [0.83, 1.21]), and there was no increased bladder cancer risk for >48 months of pioglitazone use or for a cumulative dose of >40,000mg compared with controls from the 1:1 matched cohort (0.86 [0.44, 1.66] and 0.65 [0.33, 1.26]).

Comment: Much has been written about the accumulating side effect profile of the thiazolidinediones, with bladder cancer being a recent addition to the list. For many of us the broad profile of side effects has meant that we are less frequently initiating pioglitazone, and even withdrawing it in some individuals. Sometimes this means that people who may derive benefit in glucose control are needing to use insulin therapy or pay for unfunded medications to achieve good glycaemic control. Therefore I bring this study to your attention, as it takes some of the heat off pioglitazone, specifically around the risk of bladder cancer. Although it is a retrospective cohort study, it is multicentre and multicountry, with good numbers of people in real-world clinical practice. The study does not support previous claims of increased risk of bladder cancer with pioglitazone, and suggests that at least this adverse outcome has been inappropriately attributed to this drug.

Reference: BMJ 2016;354:i3903

Abstract

Choose Lantus® for type 2 diabetes.

- Long acting basal insulin taken once daily
- Early and sustained glycaemic control for patients with type 2 diabetes
- Associated with a lower risk of nocturnal hypoglycaemia than NPH
- Easy to initiate and titrate

References:

Lantus® Abridged Data Sheet

Please review Full Data Sheet before prescribing – available at www.medsafe.govt.nz or from the sponsor.

Lantus® (insulin glargine).

Indications: Once-daily subcutaneous administration for type 1 and type 2 diabetes mellitus patients who require insulin for control of hyperglycaemia. Contraindications: Hypersensitivity to insulin glargine or any excipient. Precautions: Hypoglycaemia, possibly with delayed recovery or altered warning symptoms; hepatic, renal and visual impairment; lipodystrophy and other injection site effects; antibody production; not studied in children ≤18 years, pregnancy category B, lactation; not intended for i.v. use; not recommended for treatment of diabetic ketoacidosis; LANTUS® MUST NOT BE DILUTED OR MIXED WITH ANY OTHER INSULIN OR SOLUTION; Patient instruction on intact conditions; blood glucose monitoring; injection technique; Interactions: Oral antidiabetic agents; cardiovascular, anti-infectory, neurological, antipsychotic agents; antibiotics, corticosteroids, other hormonal therapies, diuretics, placebo; Adverse effects: Hypoglycaemia, injection site reactions; visual disturbances; others. Dosage and Administration: Subcutaneous, once daily; abdominal, thigh or deltoid administration; blood glucose monitoring is recommended. Lantus® is equipotent to human insulin. Initial dose should be determined individually, depending on desired blood glucose levels and doses and timing of any antidiabetic medication, including Lantus®. For changeover from once-daily NPH initial dose usually not changed; for changeover from twice-daily NPH to once-daily Lantus®, initial dose usually reduced by approximately 20% compared to total daily NPH dose; for initiation of type 2 patients, initial dose is usually approximately 10U. For secondary dose adjustments, renal, hepatic impairment see Full Data Sheet. Medicine Classification: Prescription Medicine. Presentations: Lantus® (insulin glargine injection) 100 U per mL, is available in packs of 5x3mL cartridges, 5x0.3mL cartridges in SoloStar pre-filled pens and 10mL vials. Sponsor Sanofi New Zealand, Level B, 56 Cavenly Street, Ellerslie, Auckland. Free phone 0800 283 684. Lantus® is a Funded Medicine. TAPS PF7302 SANZ.GLA.11.0.0339 Date of preparation October 2015
Body-mass index and all-cause mortality

Authors: The Global BMI Mortality Collaboration

Summary: This was an individual participant data meta-analysis of 189 prospective studies enrolling 3,951,455 never-smokers in Australasia, Asia, Europe and North America. Compared with BMI 22.5–<25.0 kg/m², the risk of death from any cause was not increased for BMI 20–25 kg/m², but was for lower BMI ranges of 18.5–<20 and 15–<18.5 kg/m² (respective adjusted HRs 1.13 [95% CI 1.09, 1.17] and 1.51 [1.43, 1.59]), the highest nonobese ranges of 25–<27.5 and 27.5–<30 kg/m² (1.07 [1.07, 1.08] and 1.20 [1.18, 1.22]) and the obese ranges of 30–<35, 35–<40 and 40–60 kg/m² (1.45 [1.41, 1.48], 1.94 [1.87, 2.01] and 2.76 [2.60, 2.92]). Each 5 kg/m² increase in BMI over 25 kg/m² was associated with increased mortality risk in participants from Australasia (adjusted HR 1.31 [95% CI 1.27, 1.35]) as well as the other continents included (1.29–1.39); this increased risk decreased with age in individuals aged 35–49 years than in those aged 70–89 years (1.52 vs. 1.21 [p<0.0001 for heterogeneity]) and was greater in men than women (1.51 vs. 1.30 [p<0.0001 for heterogeneity]), but did not differ between self-reported and measured BMI values.

Comment: As a clinically useful tool, BMI has its supporters and its critics. Critics point to the multitude of scenarios where BMI is not a valid estimate of body fatness, such as extremes of age, specific chronic disease states, etc. One other major limitation is the systematic differences in body composition between populations with different ethnicity or genetic background. This has led to proposed alterations in the threshold to define obesity in different populations. This present study is therefore of interest, as it shows pretty consistent relationships between BMI and mortality across different populations, including Asian and mixed European populations. NZ with our broad range of ethnicities is represented in these data. As you might guess, I am a supporter of BMI as a practical simple tool that is relevant in clinical practice, and I believe it still has real utility in helping identifying people at risk of chronic disease and premature mortality.


Abstract

Dual Action NovoMix® 30

NovoMix® 30 is a prescription medicine that is fully funded. Before prescribing please review NovoMix® 30 Data Sheet available at www.medsafe.govt.nz

NovoMix® 30 (insulin aspart (r_sy)). NovoMix® 30 contains soluble insulin aspart (r) and protamine-crystallised insulin aspart (r) 100 units per mL, in the ratio of 30:70. Indication: Treatment of diabetes mellitus. Contraindications: Hypoglycaemia, Hypersensitivity to insulin aspart or excipients. Precautions: Inadequate dosing or discontinuation of treatment, especially in type 1 diabetes, may lead to hyperglycaemia and diabetic ketoacidosis. Where blood glucose is greatly improved, e.g. by intensified insulin therapy, patients may experience a change in usual warning symptoms of hypoglycaemia, and should be advised accordingly. The impact of the rapid onset of action should be considered in patients who a delayed absorption of food might be expected. Do not use in insulin infusion pumps. No studies in children and adolescents under the age of 18. No clinical experience in pregnancy. When thiazolidinediones (TZDs) are used in combination with insulin, patients should be observed for signs and symptoms of congestive heart failure, weight gain and oedema; discontinuation of TZDs may be required. Insulin administration may cause insulin antibodies to form and, in rare cases, may necessitate adjustment of the insulin dose. Interactions: Oral hypoglycaemic agents, octreotide, lanreotide, monoamine oxidase inhibitors, nonelective beta-adrenergic blocking agents, angiotensin converting enzyme (ACE) inhibitors, salicylates, alcohol, anabolic steroids, alpha-adrenergic blocking agents, quinine, quinidine, sulphonamides, oral contraceptives, thiadiazides, glucocorticoids, thyroid hormones, sympathomimetics, growth hormone, diazoxide, aspiraginase, nicotinic acid. Adverse Effects: Hypoglycaemia. Dosage and Administration: Dosage as determined by physician. NovoMix® 30 should be administered immediately before a meal, or when necessary after the start of a meal. Resuspend immediately before use. Discard the needle after each injection. Subcutaneous injection only. NovoMix® 30 must not be administered intravenously. (May 2014).


For more information, please go to http://www.medsafe.govt.nz
Association of specific dietary fats with total and cause-specific mortality

Authors: Wang DD et al.

Summary: Associations of specific dietary fats with total and cause-specific mortality were explored in 83,349 women from the US Nurses’ Health Study and 42,884 men from the Health Professionals Follow-up Study who were free of CV disease, cancer and diabetes at baseline. There were 33,304 deaths recorded during 3,439,954 person-years of follow-up. Total dietary fat versus total carbohydrates was inversely associated with total mortality (adjusted HR comparing extreme quintiles 0.84 [95% CI 0.81, 0.88]; p<0.001 for trend). Comparisons of extreme quintiles found that mortality risk was increased with consumption of saturated and trans fats (respective adjusted HRs 1.08 [95% CI 1.03, 1.14] and 1.13 [1.07, 1.19], and decreased with consumption of polyunsaturated and monounsaturated fatty acids (0.81 [0.78, 0.84] and 0.89 [0.84, 0.94]; p<0.001 for trend). It was estimated that mortality risk would be reduced by 27% and 13% by replacing 5% of energy from saturated fats with equivalent energy from trans fats (respective adjusted HRs 1.08 [95% CI 1.03, 1.14] and 1.13 [1.07, 1.19]), and decreased with consumption of polyunsaturated and monounsaturated fatty acids (0.81 [0.78, 0.84] and 0.89 [0.84, 0.94]; p<0.001 for trend). It was estimated that mortality risk would be reduced by 27% and 13% by replacing 5% of energy from saturated fats with equivalent energy from polyunsaturated or monounsaturated fatty acids, respectively. Comparing extreme quintiles of ω-6 polyunsaturated fatty acid consumption, the mortality risk was reduced (HR 0.85 [95% CI 0.81, 0.89]), with intake of ω-6 polyunsaturated fatty acid, particularly linoleic acid, inversely associated with mortality due to most major causes, whereas marine ω-3 polyunsaturated fatty acid intake decreased mortality risk only modestly (0.96 [0.93, 1.00]).

Comment: This study is perhaps timely in the long-running debate about dietary macronutrients, which often becomes highly emotional and played out in the lay press. It is a debate that is often poorly informed by science and serves to continue to confuse the population about what they should be eating. This study reports from the long-running Nurses’ Health Study and Health Professionals Follow up Study, which have yielded so much valuable epidemiological data, but do still have the limitation of being observational studies. These data add to the knowledge that saturated and trans fats are harmful, with an analysis of mortality. As with effects on CV disease and cancer, trans fats particularly increase mortality with monounsaturated and polyunsaturated fats being protective. It is striking that from these data replacing 5% of energy from saturated fat with monounsaturated and polyunsaturated fatty acids would reduce the estimated mortality by 27%. That is a very achievable dietary change to make at a population level.


Abstract

Pregnant women lack accurate knowledge of their BMI and recommended gestational weight gain

Authors: Jeffs E et al.

Summary: Knowledge of NZ pregnant women’s BMI and gestational weight gain guidelines was explored using data from 644 women attending their nuchal translucency scan at between 11 and 13 weeks’, 6-days’ gestation. Correct self-identification of BMI category was achieved by 66% of the women, and 31% identified their correct gestational weight gain recommendation. Compared with normal bodyweight women, those who were overweight and those who were obese were significantly more likely to underestimate their BMI (p<0.001 for both) and overestimate their weight gain recommendation (respective odds ratios 4 and 18 [p<0.001 for both]), whereas normal bodyweight women were significantly more likely to underestimate their weight gain recommendation (p<0.001). Underestimation of recommended gestational weight gain was significantly less likely among women of NZ European ethnicity compared with those of other non-Māori/non-Pacific Island ethnicities, and more likely among younger women.

Comment: With a steady rise in rates of gestational diabetes and the consequent short- and long-term risks this has for both mother and baby, focusing on ways to reduce the incidence is an important goal. We know that people who are overweight tend to have a distorted perspective of their weight and generally underestimate their BMI. This NZ study is very informative in adding to this knowledge in the setting of pregnancy, where it demonstrates the same finding. It also adds important data on population knowledge of the recommendations around healthy weight gain during pregnancy. A disturbingly small percentage of women had an accurate understanding of this, which may increase their risk of excess weight gain and of developing gestational diabetes. Women in pregnancy are generally very motivated to be healthy and provide the best environment for their growing baby. Therefore it can be an ideal time to educate and facilitate healthy lifestyle choices. I agree with the authors that strategies to improve the knowledge around healthy weight gain during pregnancy are urgently required.


Abstract
First-year evaluation of Mexico’s tax on nonessential energy-dense foods

Authors: Batis C et al.

Summary: This observational study examined the impact Mexico’s tax on energy dense foods and sugar-sweetened beverages had on packaged food purchases for 6248 households. Compared with pretax trends (2012–2013), there was a 5.1% reduction in mean volume of purchases of taxed foods of 25g per capita per month with no change in untaxed food purchases. The respective average reductions in taxed food purchases for low and medium socioeconomic households were 10.2% and 5.8% (44 and 28g per capita per month), with no change seen for high socioeconomic households.

Comment: ATTENTION THE BEEHIVE: It is time to stop using the argument that there are no data to support a tax on unhealthy food. Mexico has one of the highest rates of obesity worldwide and was one of the first countries to take the leap to introduce a central tax on energy dense foods and sugar-sweetened beverages. This study reports on the effect of this on purchasing of these foods after 12 months of implementation. It is acknowledged that this is not a controlled trial, and that causality cannot be attributed specifically to the tax, but there is a very clear reduction in the purchasing of these food items. Perhaps surprisingly the effect was greatest in those with lower socioeconomic status. One might argue that that is a good thing, as in most countries this is the group who have the greatest rates of obesity and related-health consequences and who therefore are most likely to benefit from reduced consumption of these foods and beverages. Although it does only represent a 12-month effect, this study is very encouraging. We will wait with interest for the 24-month and longer data, however, it very strongly supports a call for action on taxes in this country.


Abstract

Associations between recreational and commuter cycling, changes in cycling, and type 2 diabetes risk

Authors: Rasmussen MG et al.

Summary: Associations between recreational and commuter cycling and risk of type 2 diabetes were explored in a cohort of 52,513 Danish adults aged 50–65 years who were free of chronic disease at baseline. There were 6779 incident cases of type 2 diabetes documented during mean follow-up of 14.2 years (743,245.4 person-years). Compared with no cycling, the risk of type 2 diabetes was decreased with cycling for 1–60, 61–150, 151–300 and >300 minutes per week (respective adjusted HRs 0.87 [95% CI 0.82, 0.93], 0.83 [0.77, 0.89], 0.80 [0.74, 0.86] and 0.80 [0.74, 0.87]; p<0.001 for trend), including among individuals who only started cycling during the study period (0.80 [0.89, 0.91]).

Comment: I can never resist a good cycling paper and this further supports the earlier study from the BMJ on exercise. Scandinavians are enthusiastic cyclists and commuting by cycle is common and a well-accepted part of Danish culture. In this prospective observational cohort study, there was a clear reduction in risk of developing type 2 diabetes in middle-aged men and women who regularly cycled at even relatively modest levels. In many parts of NZ, regular cycling, particularly as a commute to work, is limited by multiple factors including terrain, wind, road, distances and work facilities for showering, etc. However, these data clearly show the benefits of trying to break down these barriers. There has been some recent interesting preliminary data from a study using electric bikes, which could help to address at least some of these issues. Back on your bikes people…


Abstract

Obesogenic retail food environments around New Zealand schools

Authors: Vandevijvere S et al.

Summary: This NZ research investigated the densities and proximities of fast food, takeaway and convenience outlets to schools stratified by urban/rural area and socioeconomic deprivation in 2015. Convenience stores were located ≤800m from 68.5% and 14.0% of urban and rural schools, respectively, and fast food or takeaway outlets were located ≤800m from 62.0% and 9.5%. Compared with the least socioeconomically deprived schools, the most deprived schools had a shorter median road distance to the closest convenience store in urban areas (521 vs. 617m [p<0.001]), whereas the opposite was seen for rural schools. For urban schools, the median and maximum densities for fast food, takeaway and convenience outlets within 800m were 2.4 and 85 per km², respectively, and the density was significantly higher around the most versus least socioeconomically deprived urban schools (p<0.01).

Comment: This study provides evidence of what we all suspected was the case. Sadly, access to and promotion of unhealthy food choices to our children close to where they spend most of their time, at school, is of major concern. Whilst these data do not capture consumption of these foods, it is hard to imagine that these food outlets would be there if they weren’t selling their wares! There is clearly no easy answer to the problem of childhood obesity, and solutions will need to be multifactorial, but it is very easy to see that reducing accessibility of unhealthy choices and increasing access to healthy ones is one of these. I agree with the authors that provisions to allow local councils to restrict new outlets are an easy first start.


Abstract

eCALD®
Culturally And Linguistically Diverse
An excellent suite of online training programme in cultural competence and Culturally and Linguistically Diverse (CALD) topics is available for the New Zealand health workforce to develop CALD cultural competencies. Free courses are available for those who are eligible.

For information about courses, eligibility, cost and registration details visit www.eCALD.com

© 2016 RESEARCH REVIEW