“Health Matters”

— a Baker IDI public lecture series —

Eat, Move, Monitor:
Diabetes prevention and management

Tuesday 29 November 2016

5pm – 6.30pm

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HEART & DIABETES INSTITUTE

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Baker IDI Heart and Diabetes Institute is an independent, internationally-renowned medical research facility, with a history spanning more than 90 years.

www.bakeridi.edu.au

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Diabetes:
Prevention and Management

Maggie Stewart: Credentialled Diabetes Nurse Educator

29th November 2016

Diabetes: The Facts and Figures

Worldwide

- In 2015 415 million people had diabetes
- This equates to 1 in every 11 adults
- Predicted that in 2040 642 million people will have diabetes
- This equates to 1 in every 10 adults

Australia

- 280 people develop diabetes every day
- That is 1 adult every 5 minutes
- Around 1.7 million Australians have diabetes

http://www.idf.org/about-diabetes/facts-figures
https://www.diabetesaustralia.com.au/diabetes-in-australia

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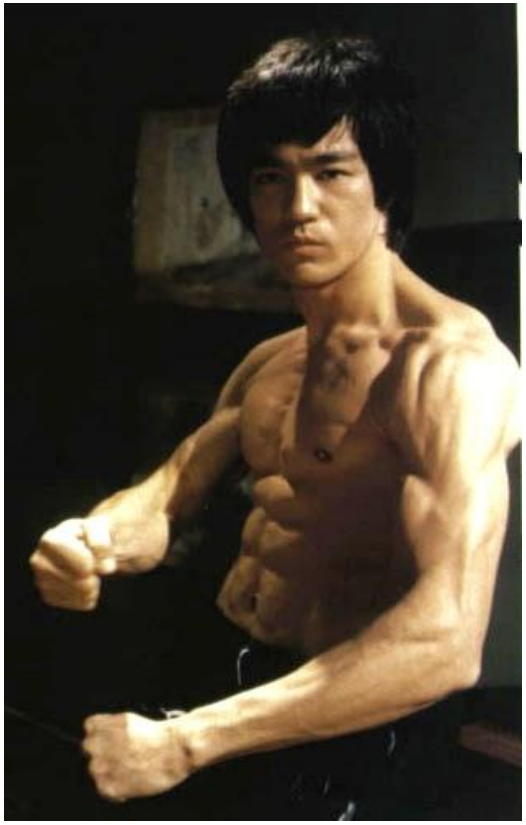
Why is this number growing?

Lifestyle

- Our jobs are sedentary
- We use time saving and time wasting devices
- We do not exercise enough
- We eat too much / or too well

This is what the Aussie male thinks he looks like



But the reality is more like this!

The proportion of people who are obese has increased across all age groups over time.

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Pre Diabetes: *What does it mean?*

- Pre Diabetes occurs when the insulin in the body is not working effectively, causing insulin resistance.

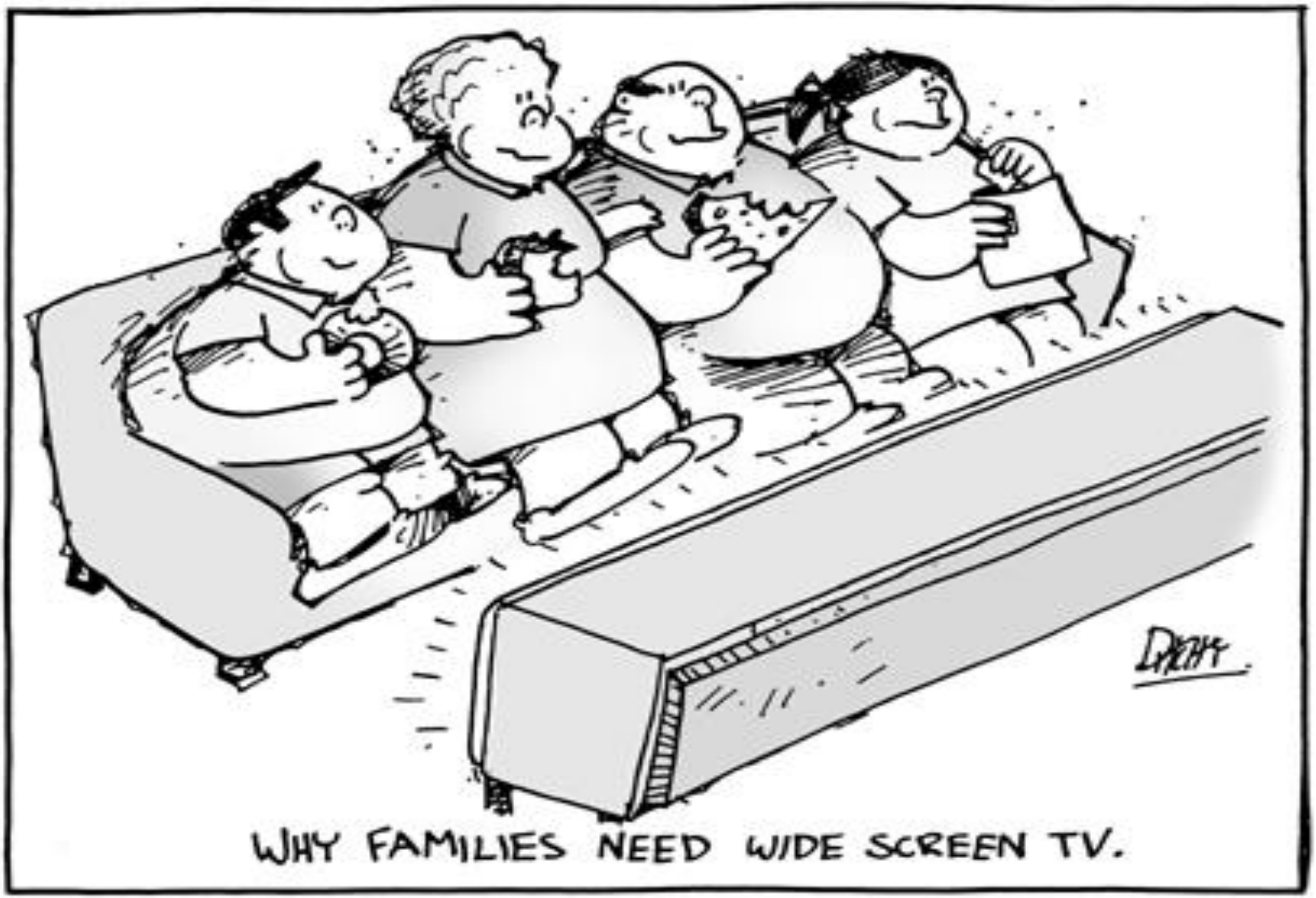
- Both pre diabetes and diabetes are conditions where the level of glucose in the blood is higher than normal.

Pre Diabetes: *Why do we manage it?*

Having Pre Diabetes increases your risk of:

- Developing Type 2 Diabetes
- Developing Diabetes within next ten years.
- Heart disease and stroke.

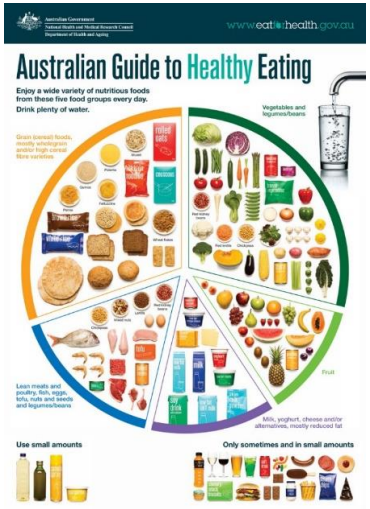
Progression to Type 2 Diabetes can be delayed or prevented by treating Pre-Diabetes.


WHY FAMILIES NEED WIDE SCREEN TV.

Pre Diabetes: *How do we manage it?*

The aim is to:

- Reduce risk of heart disease and stroke
- Prevent or delay the development of type 2 diabetes.
- Reduce risk factors such as:
  - Overweight
  - Physical inactivity



Reducing these risk factors can also help to delay or reduce the complications associated with diabetes.

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Diabetes: *What is it?*

- Diabetes is a disease characterised by high blood glucose levels
- It results from poor insulin secretion, action or both.

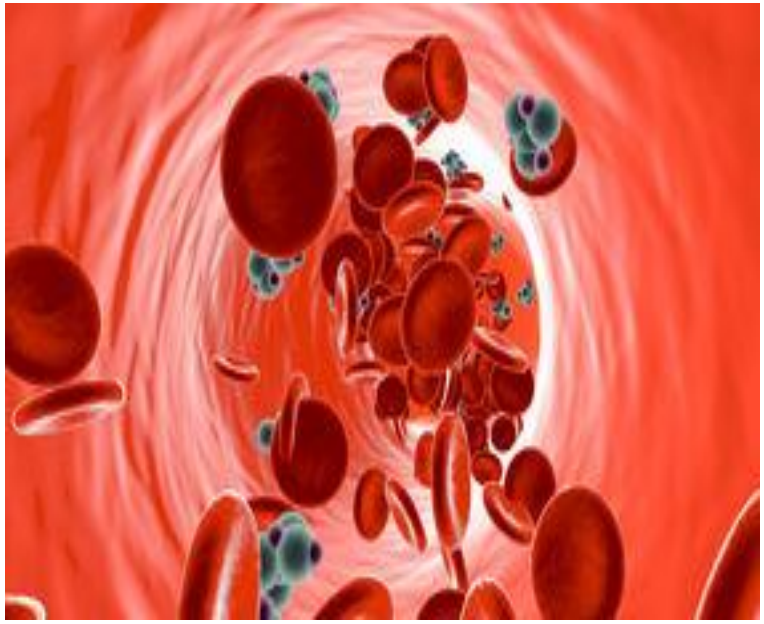
Diabetes: *What is it?*

Just as a **car** needs **fuel** to give it the energy to keep working,

Our **body** needs **fuel** to provide energy to keep working.

We get this **fuel** from our **food.**

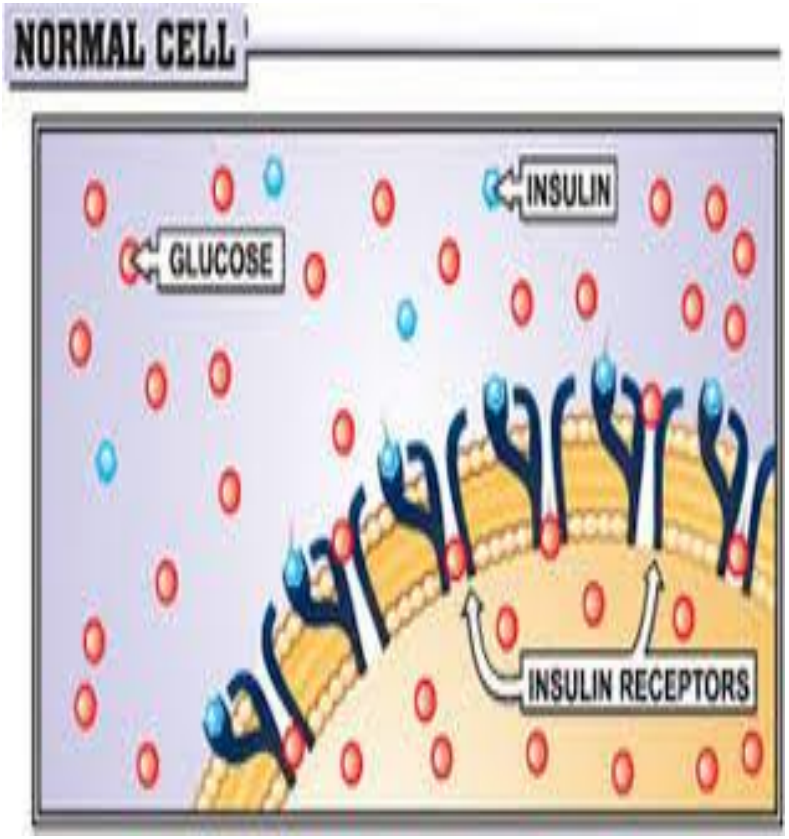
Foods containing carbohydrates get digested and the end product is glucose



https://www.dreamstime.com/illustration/blood-glucose-meter.html

- Glucose gives our body energy
- Glucose travels in our blood stream but cannot be used as energy until it gets into our body cells

The Role of Insulin



- Insulin is the key that lets the glucose move from blood stream into our cells
- This give us energy.

Picture from http://theheartysoul.com/insulin-test-to-detect-diabetes/

Insulin: What Happens in Diabetes?

If there is not enough insulin or the insulin is being produced but not able to do its job. This results in:

- Higher levels of glucose in the blood stream
- Cells don't have access to that glucose
- The cells don't have the energy to work well
- This can make people sick

Type 2 Diabetes

- Accounts for 85-90% of diabetes
- Influenced by your genes and your lifestyle
- Pancreas produces insulin, but not enough
- Insulin resistance
- Slow onset

Risk Factors for Type 2 Diabetes

Risk factors which cannot be changed:

- Family history of diabetes (genetic)
- Age – risk increases as we get older
- Chinese/Indian/Pacific Islander >35yrs
- Aboriginal/Torres Strait Islander >35yrs
- Gender – men at higher risk
- Women who have:
  - ✓ Diabetes in pregnancy / given birth to a baby > 4.5kgs (9lbs)
  - ✓ Polycystic ovarian syndrome

Risk factors which can be changed:

- Lifestyle
  - ✓ Level of physical activity
  - ✓ The type of food we eat
- Blood pressure
- Cholesterol
- Waist – as waist increases risk increases
- Weight
- Smoking

Screening for Diabetes

People considered at high risk of developing type 2 diabetes include:

- People with prediabetes
- Aboriginal and Torre Strait Islanders aged >18 years
- All people >40 years should be screened using the AUSDRISK
- People age >40 with a BMI > 30kg/m2
- Women with a history of diabetes in pregnancy
- People with a history of heart disease or stroke
- Women with polycystic ovarian syndrome, particularly if obese
- Those with a first degree relative with type 2 diabetes
- People taking anti-psychotic medication

The Australian Type 2 Diabetes Risk Assessment Tool (AUSDRISK)

1. Your age group

Under 35 years	0 points
35 – 44 years	2 points
45 – 54 years	4 points
55 – 64 years	6 points
65 years or over	8 points

2. Your gender

Female	0 points
Male	3 points

3. Your ethnicity/country of birth:

3a. Are you of Aboriginal, Torres Strait Islander, Pacific Islander or Maori descent?

No	0 points
Yes	2 points

3b. Where were you born?

Australia	0 points
Asia (including the Indian sub-continent), Middle East, North Africa, Southern Europe	2 points
Other	0 points

4. Have either of your parents, or any of your brothers or sisters been diagnosed with diabetes (type 1 or type 2)?

No	0 points
Yes	3 points

5. Have you ever been found to have high blood glucose (sugar) (for example, in a health examination, during an illness, during pregnancy)?

No	0 points
Yes	6 points

6. Are you currently taking medication for high blood pressure?

No	0 points
Yes	2 points

7. Do you currently smoke cigarettes or any other tobacco products on a daily basis?

No	0 points
Yes	2 points

If you scored 6-11 points in the AUSDRISK you may be at increased risk of type 2 diabetes. Discuss your score and your individual risk with your doctor. Improving your lifestyle may help reduce your risk of developing type 2 diabetes.

8. How often do you eat vegetables or fruit?

Every day	0 points
Not every day	1 point

9. On average, would you say you do at least 2.5 hours of physical activity per week (for example, 30 minutes a day on 5 or more days a week)?

Yes	0 points
No	2 points

10. Your waist measurement taken below the ribs (usually at the level of the navel, and while standing)

Waist measurement (cm) ☐

For those of Asian or Aboriginal or Torres Strait Islander descent:

Men	Women	
Less than 90 cm	Less than 80 cm	0 points
90 – 100 cm	80 – 90 cm	4 points
More than 100 cm	More than 90 cm	7 points

For all others:

Men	Women	
Less than 102 cm	Less than 88 cm	0 points
102 – 110 cm	88 – 100 cm	4 points
More than 110 cm	More than 100 cm	7 points

Add up your points ☐

Your risk of developing type 2 diabetes within 5 years*:

☐ *5 or less: Low risk*
Approximately one person in every 100 will develop diabetes.

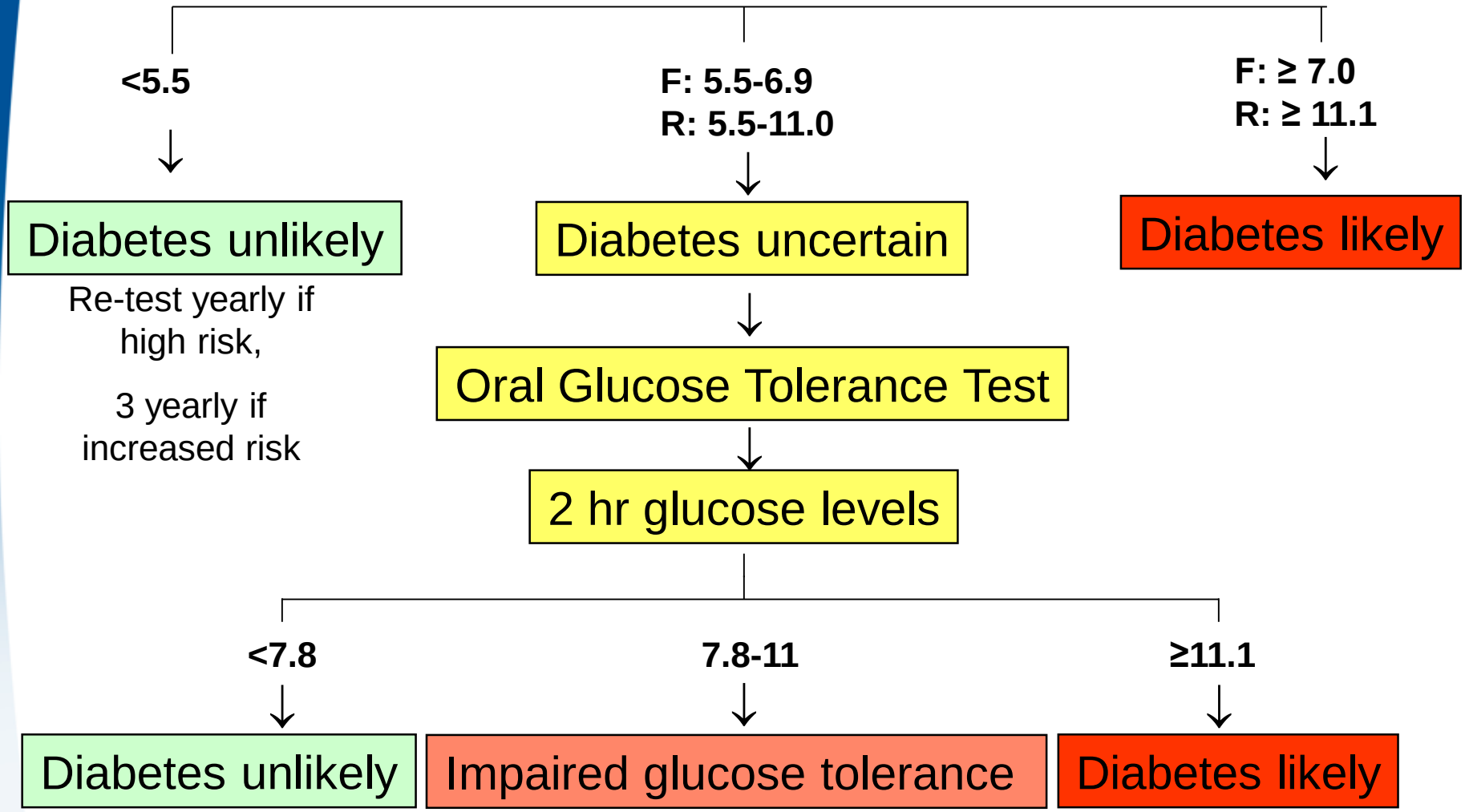
☐ *6-11: Intermediate risk*
For scores of 6-8, approximately one person in every 50 will develop diabetes. For scores of 9-11, approximately one person in every 30 will develop diabetes.

☐ *12 or more: High risk*
For scores of 12-15, approximately one person in every 14 will develop diabetes. For scores of 16-19, approximately one person in every 7 will develop diabetes. For scores of 20 and above, approximately one person in every 3 will develop diabetes.

*The overall score may overestimate the risk of diabetes in those aged less than 25 years

If you scored 12 points or more in the AUSDRISK you may have undiagnosed type 2 diabetes or be at high risk of developing the disease. See your doctor about having a fasting blood glucose test. Act now to prevent type 2 diabetes.

Diagnosis of Pre-diabetes and Type 2 Diabetes



RACGP guidelines https://static.diabetesaustralia.com.au/s/fileassets/diabetes-australia/5d3298b2-abf3-487e-9d5e-0558566fc242.pdf

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Diabetes: *Why do we treat it?*

- High blood glucose levels increase risk of damage to your blood vessels.
- This increases your risk of:
  - heart disease and stroke
  - diabetic eye disease
  - kidney problems
  - nerve problems with your feet
  - gum disease and tooth decay

Aims of Treatment

- Aim for BGLs between 6-8mmol/L before meals.
- Aim for BGLs between 8-10mmol/L 2 hours after meals.
- HbA1c 7% or less
- Prevention / early detection and treatment of complications

RACGP guidelines https://static.diabetesaustralia.com.au/s/fileassets/diabetes-australia/5d3298b2-abf3-487e-9d5e-0558566fc242.pdf

Complications Screening

3-6 Monthly

- Blood pressure – 140/90
- HbA1c – 7% or less
- Weight and waist
- Foot assessment
  - Protective sensation
  - Pulses

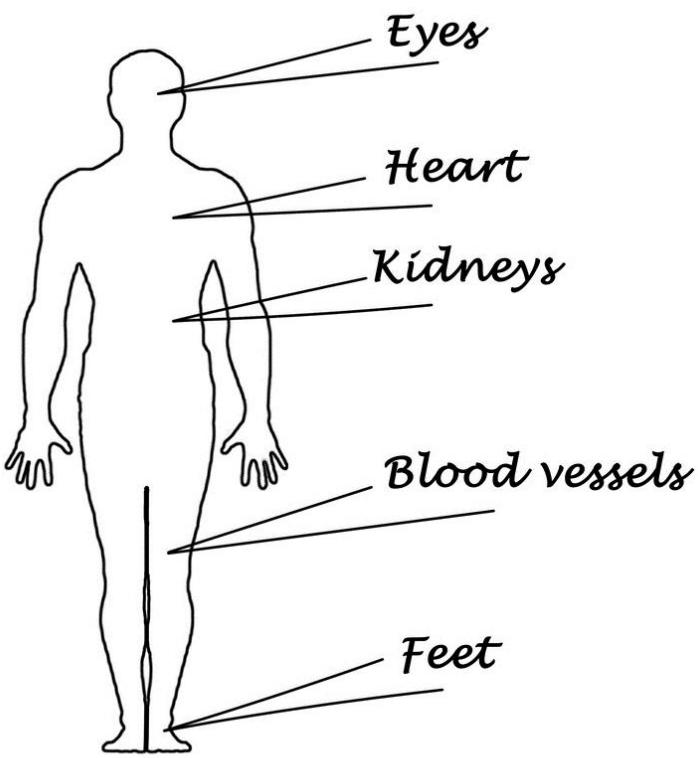
12 Monthly

- Blood Lipids
  - Total cholesterol <4mmol/l
  - HDL > 1 mmol/l
  - LDL <2.0 mmol/l
  - Triglyceride <2.0 mmol/l
- Urine microalbumin – checks kidney function
- Eye check
- Dental check

The Benefits of Action

By changing diet and lifestyle this will assisting in preventing:

- Heart attacks and strokes: *up to **4 times more likely** in people with diabetes*
- Blindness (retinopathy): ***1 in 6 people** with diabetes*
- Kidney damage: ***3 times more common** in people with diabetes*
- Amputations: ***15 times more common** in people with diabetes*



https://www.diabetes.ie/living-with-diabetes/living-type-1/complications/

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Healthy Eating:
With or without diabetes

Marisa Mafrici (nee Nastasi)
Accredited Practising Dietitian

What is a Healthy Diet?

Appropriate portion sizes

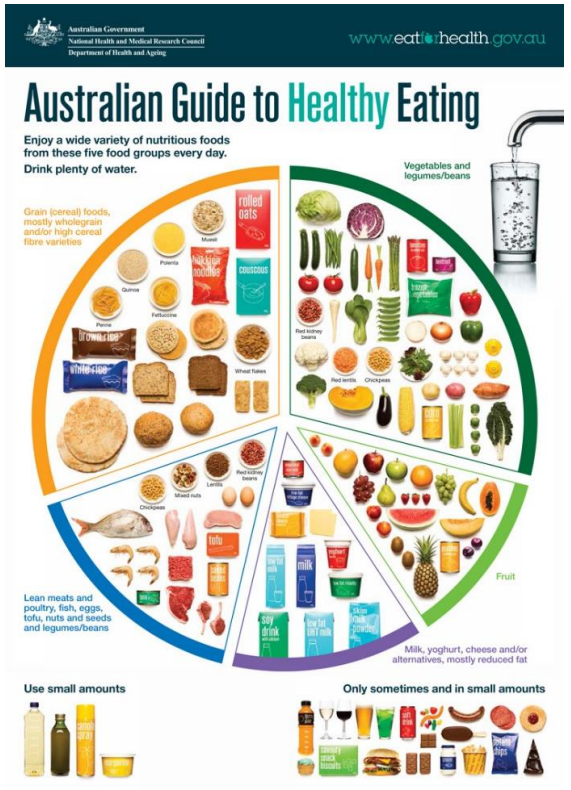
Low Glycaemic Index (GI)

Reduced saturated fats, added sugar and salt

High dietary fibre

Healthy weight

Prevention or management of a chronic disease



Australian Guide to Healthy Eating
www.eatforhealth.gov.au

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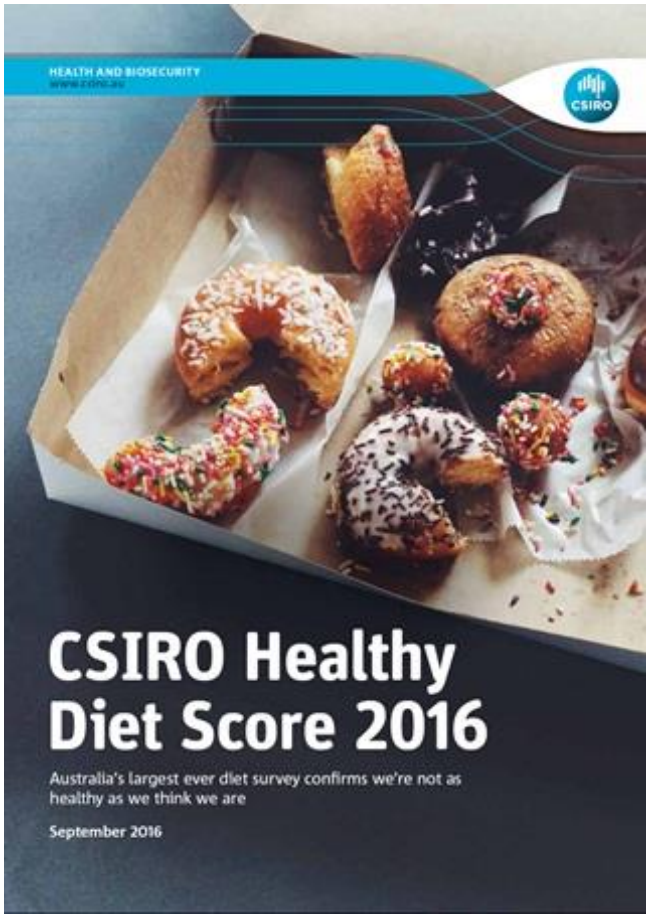
Rating Your Diet

- Launched May 2015 by CSIRO →Healthy Diet Score
- Australian average score of 59 out of 100
- Women have better diets than men
- Older Australians have better diets
- Construction workers had the poorest quality diets
- Intake of discretionary foods is too high



https://my.totalwellbeingdiet.com/healthy-diet-score

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Label Reading

- Allows healthy packaged foods to be chosen
- Use Per 100g column
  - ✓ Reduced **saturated fat**
  - ✓ Reduced **added sugar**
  - ✓ Reduced **salt (sodium)**
  - ✓ High **fibre**

Use the food labelling criteria below to choose the best everyday foods. Limit foods that don't meet these criteria.

FOOD	BEST CHOICE (PER 100G)
Saturated Fats	2g or less
Sugars	15g or less
Sodium	120mg or less is best, 120mg-400mg is acceptable
Fibre	5g or more

This information is provided as a general guide.
You should seek independent professional advice where appropriate.

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Low Fat vs High Fat

- Compared to a low fat diet, a diet rich in unsaturated fats such as extra virgin olive oil and nuts can have positive impacts on overall health.
- 50-60ml extra virgin olive oil (e.g. 3 tablespoons) and/or 30g nuts (e.g. x20 almonds) per day when consumed in conjunction with a Mediterranean-style diet can improve:
  - ✓ Blood pressure, cholesterol and blood glucose management
  - ✓ Weight loss maintenance

Babio N et al. *(CMAJ. 2014)*

A Mediterranean Diet: *What is it?*

- Olive oil: 60mls/day (3 tablespoons)
- Leafy vegetables with every lunch and dinner meal:
  100g green leafy vegetables, 100g tomato, 200g of other vegetables
- 2+ legume based meals per week (250g x 2/week)
- 2+ serves (150-200g) of fish per week, including oily fish
- Red meat and chicken (smaller portions and less frequently)
- Fresh fruit and yoghurt every day
- Wholegrain breads and cereals (smaller portions)
- Wine in moderation with meals
- Sweets and processed meat for special occasions only

Breakfast	Lunch	Dinner	Snacks
 	 	 	 

Babio N et al. *(CMAJ. 2014)*

Include:








Limit:




Fats: Which to use for Cooking

Use

- Canola oil
- High Oleic oil
- Sunflower oil
- Grapeseed oil
- Olive oil
- Corn oil
- Soybean oil
- Peanut oil
- Blended Vegetable oil or Vegetable oil that **meets** the criteria

Replace

- Beef tallow
- Duck fat
- Cottonseed oil
- Solid fat
- Palm oil
- Coconut oil
- Ricebran oil
- Lard
- Blended Vegetable oil or Vegetable oil that does **not** meet the criteria

Is My Cooking Oil Healthy?

A healthy oil should have:

Saturated Fat: 21.7grams per 100 grams or LESS

Trans Fat: 1.1 grams per 100 grams or LESS

Where to Look?

Check the **Nutrition Information Panel** on the oil drum you are currently using.

www.heartfoundation.org.au

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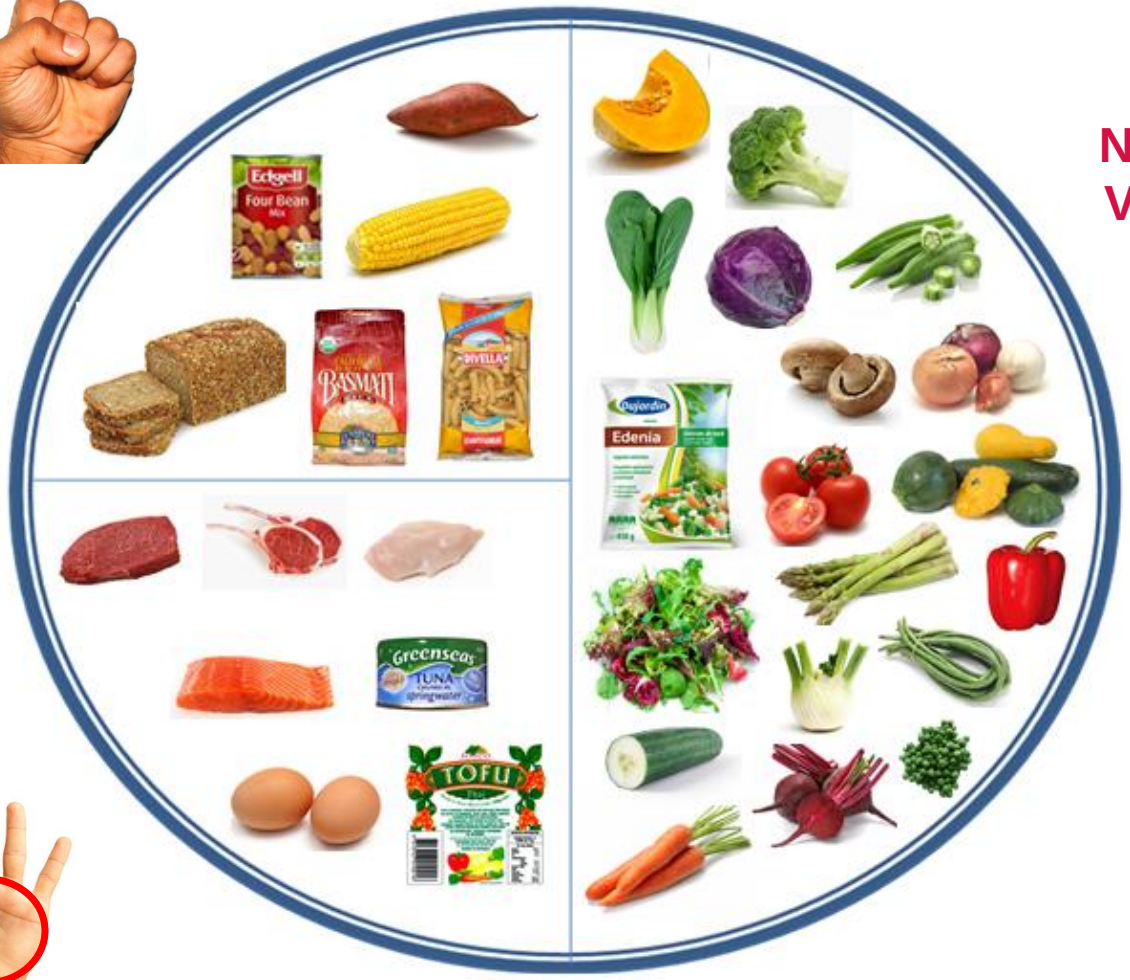
Achieving Correct Portion Sizes

Carbohydrates

- Bread
- Rice
- Potato and Corn
- Pasta and Noodles
- Legumes and Lentils

Protein

- Lean Meat
- Skinless Poultry
- Fish
- Tofu
- Eggs
- Reduced fat cheese



Non Starch Vegetables & Herbs

(except potato, sweet potato and corn)

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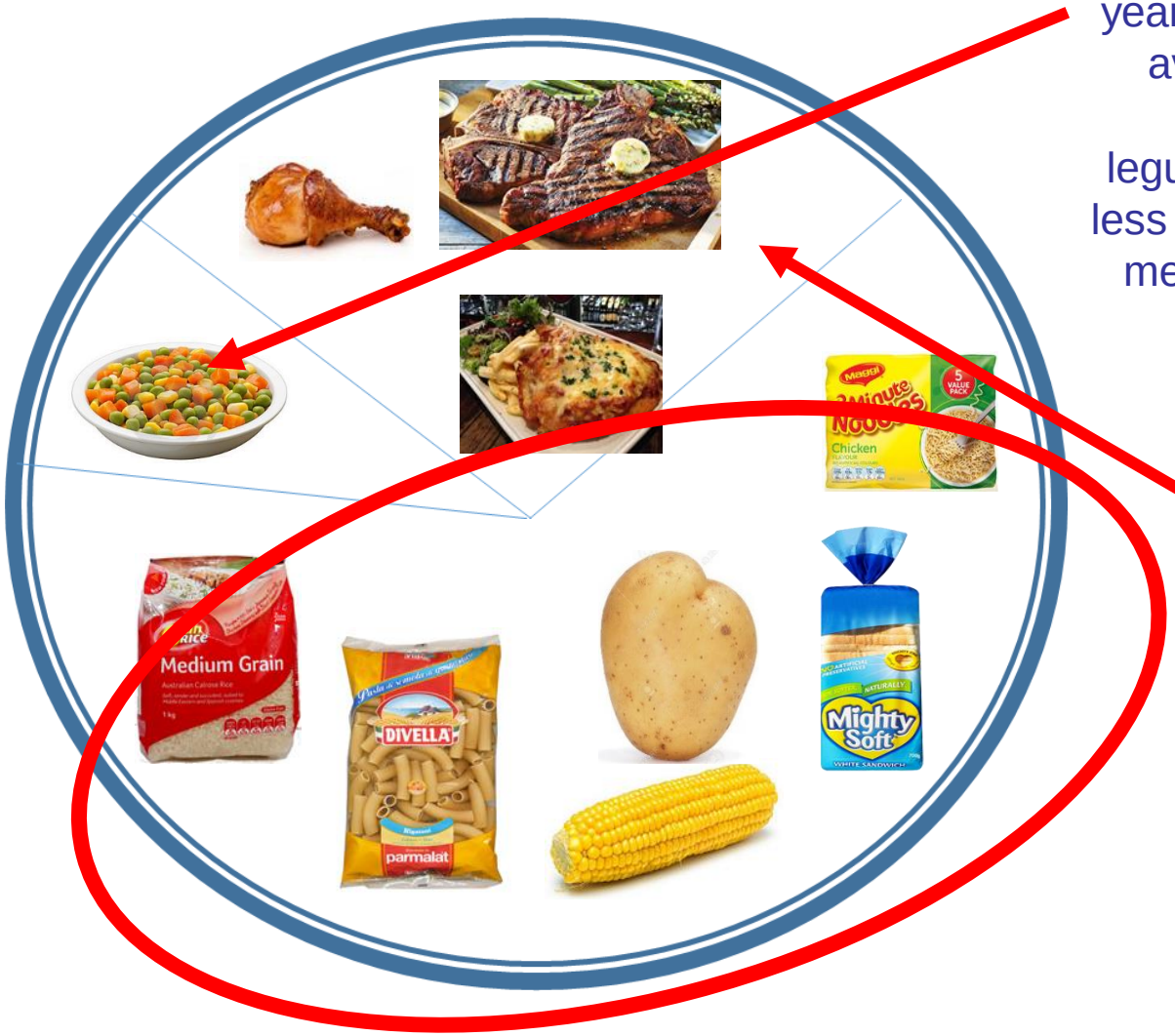
The Reality…



Overall, Australians aged two years and over consumed an average of 2.7 serves of vegetables and legumes/beans per day, with less than 4% of the population meeting the recommended number of serves.

Around 14% of Australians met the recommended consumption of lean meats and alternatives.

Source: Australian Bureau of Statistics, Australian Health Survey: Consumption of Food Groups from the Australian Dietary Guidelines, 2011-12

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Carbohydrate Digestion and Glycaemic Index (GI)

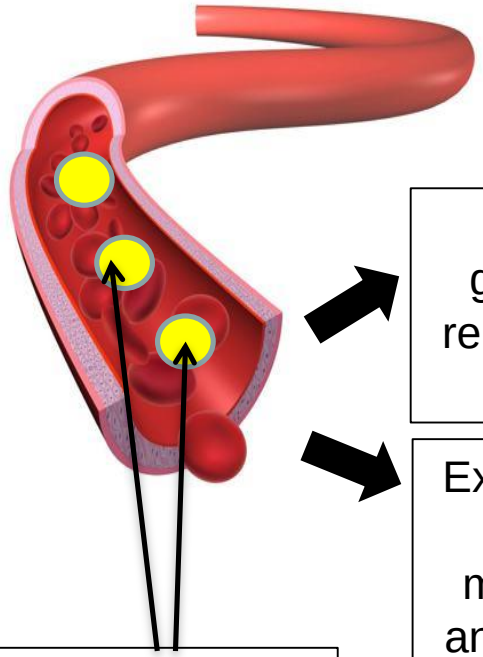
Carbohydrates

Quick digestion = High GI

Digestion

Speed of digestion of carbohydrates = GI

Slow digestion = Low GI



Glucose used for energy

In diabetes glucose may remain in blood for longer

Excess glucose stored in muscles, liver and as body fat

Glucose enters the blood stream

Lower vs. Higher Glycaemic Index Carbohydrates

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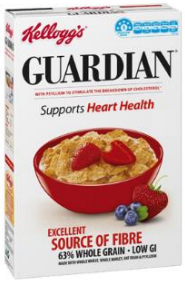
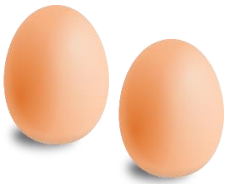
Practical Examples: *Breakfast*



¾ cup cereal, 150mls milk, 1 cup strawberries, 2 teaspoons LSA



2 slices bread, 2 whole eggs, ¼ avocado, 1 cup mixed vegetables

½ cup fruit and nut muesli, 150g low fat yoghurt

2 slices of seeded fruit loaf, 1 tablespoon cottage cheese and 1 fruit e.g. ½ cup blueberries

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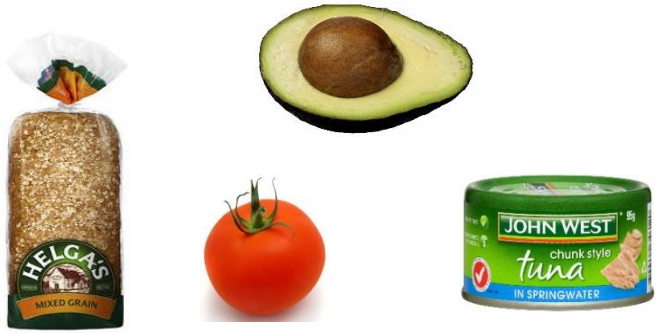
Practical Examples: *Lunch*

2/3 cup long grain rice, salad (1.5 cups), 150g skinless chicken breast



2 slices wholegrain bread, 90g tuna, ¼ avocado, tomato

1 cup soba noodles, 1 cup steamed vegetables and 170g tofu with soy and sesame oil dressing

150g cooked lentils, 40g feta, 1.5 cups mixed vegetables,10 walnuts, fresh herbs, and dressing of olive oil and lemon juice

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Practical Examples: *Dinner*

1 cup cooked pasta with Bolognese sauce, plus side salad

Slow cooked lamb (150g), Sweet potato (200g) and carrot and green beans

Chicken (150g), Vegetable and Soba Noodle (1cup) stir-fry

Lentil dahl (100g) and basmati rice (2/3 cup) with cauliflower and spinach

Practical Examples: *Snacks*

Carbohydrate snacks

Low carbohydrate snacks

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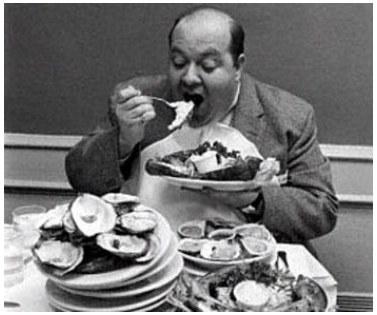
Common Issues During the Festive Season

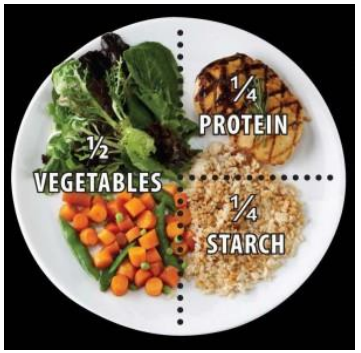
- Over filling the plate
- Multiple courses
- Eating because its there
- Increased snacking
- Dessert/s
- Sauces/Condiments
- Soft drinks
- Alcohol



Useful Tips during the Festive Season

- **Assess all your options** before you dig in!
- Fill your main meal plate **ONCE** *(with the exception of vegetables)*
- Aim to fill half the plate with **salad or vegetable** options before making room for meat or carbohydrate (starch) foods.
- **Make salads and vegetables more exciting** with low fat feta, walnuts or almonds, sliced pear, sliced egg, avocado and extra virgin olive oil.
- Request **small serves** if someone else is serving.
- It is OK to **leave some food** on your plate.
- **Alternate alcoholic beverages** with non alcoholic beverages.
- Use the following rule for desserts: **Rule of 1:**

  1 Slice, 1 Scoop, 1 Spoon, 1 Piece servings!



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Choosing wisely..

40g camembert

=

4 prawn rice paper rolls

50g chocolate

=

4 tubs chocolate mousse

1 slice fruit cake with 2 spoons custard

=

4 cups of fruit with vanilla yoghurt

½ cup honey glazed cashews

=

100g salmon, green beans and 1 small potato

8 biscuits

=

2 fresh bruschetta

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Education Services at Baker IDI

- Made up of Credentialled Diabetes Nurse Educators, Accredited Practising Dietitians and Accredited Exercise Physiologists.
- Individual appointments and group education programs available.
- Appointments do NOT require a referral.
- Fees range from $10-$95 for an initial consultation.
- Services provide education and support for:
  - ✓ Understanding diabetes
  - ✓ Self blood glucose monitoring
  - ✓ Commencing new medications
  - ✓ Weight loss and/or management
  - ✓ Tailored dietary and exercise advice

To make an appointment, you can call reception (03) 8532 1800
(Located Alfred Centre, Level 4, 99 Commercial Road, Melbourne)

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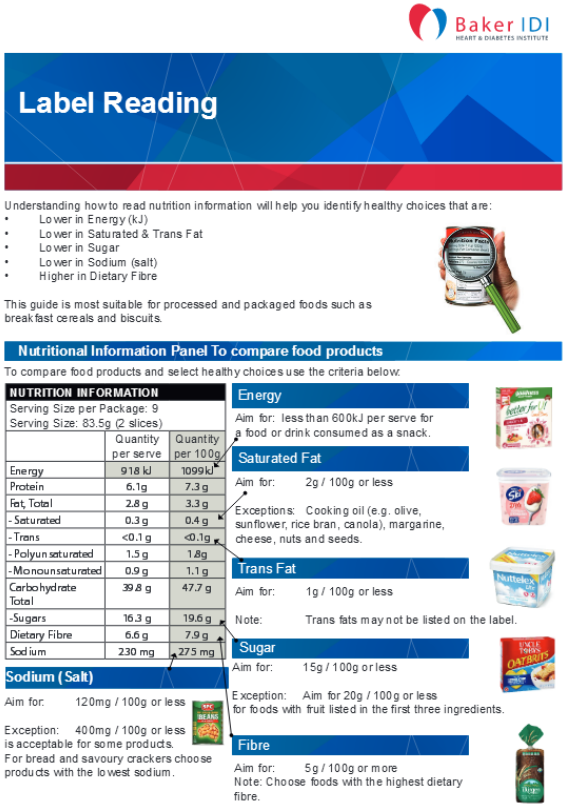
Accessing the Baker IDI Fact Sheets

- Label Reading
- Portion Sizes
- Salt and Blood Pressure
- Glycaemic Index
- Supermarket Shopping Guide

And many more……



www.bakeridi.edu.au/health-hub/fact-sheets

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Exercise for the prevention and treatment of Type 2 Diabetes

Dr Steve Fraser

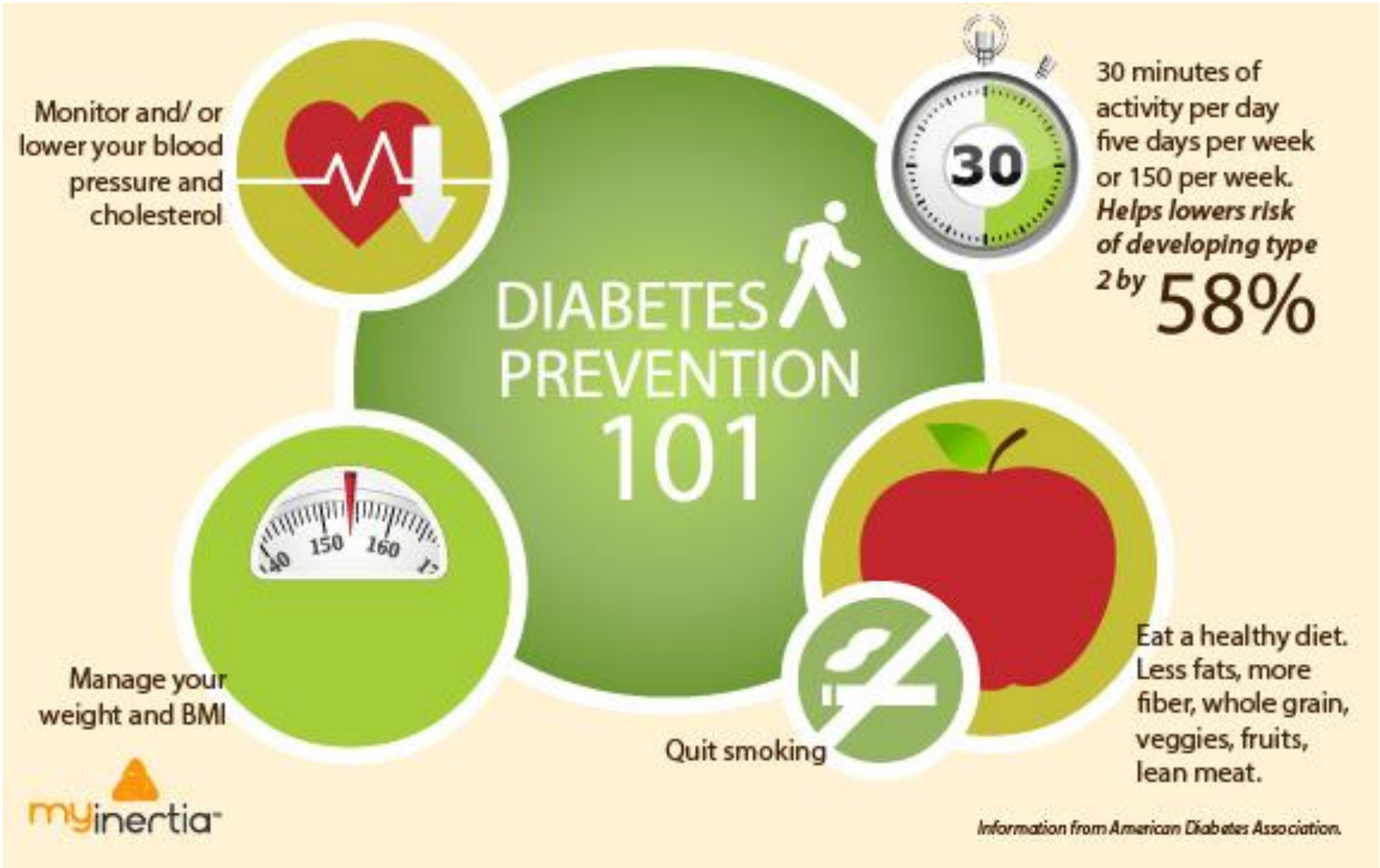
Director, Master of Clinical Exercise Physiology

School of Exercise and Nutrition Sciences

Faculty of Health, Deakin University

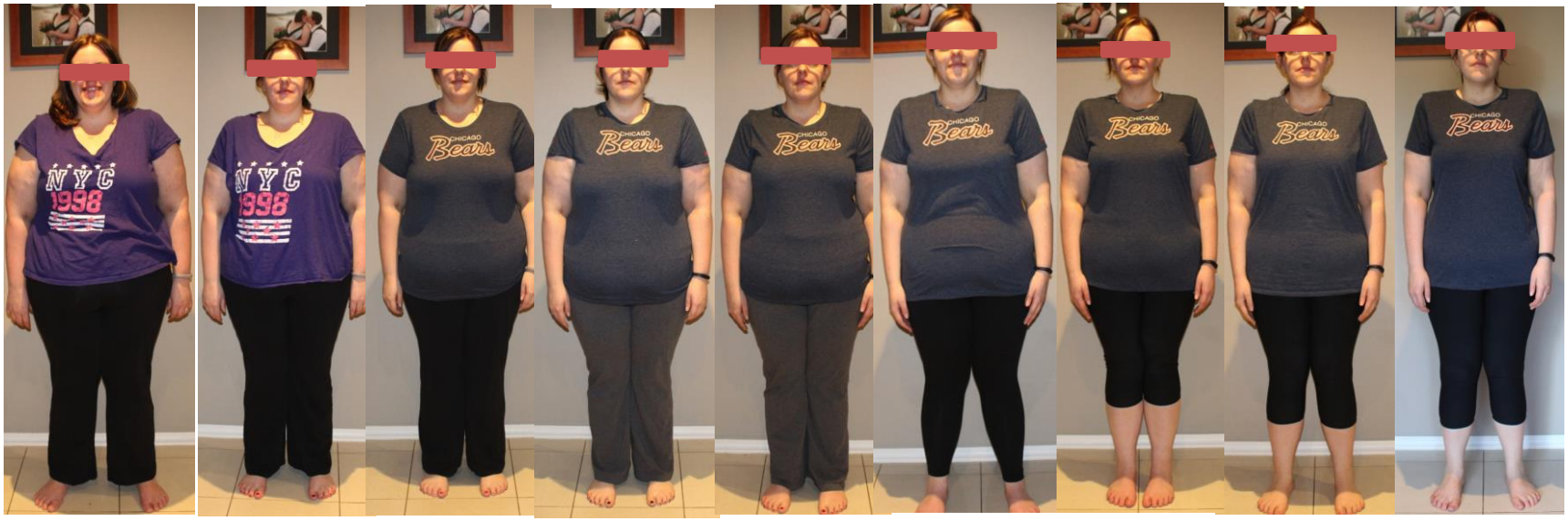
What you might get out of today's session?

- How can you help prevent type 2 diabetes
- How does exercise help?
- What exercises should you do?
- How to exercise safely and make it part of your routine
- Where to next?



IPAN INSTITUTE FOR PHYSICAL ACTIVITY AND NUTRITION

DEAKIN UNIVERSITY


NYC
1998
CHICAGO
Bears

Sit Less/move more

Each additional hour beyond average of 9 hours you are sitting/sedentary each day ↑diabetes risk by 20%

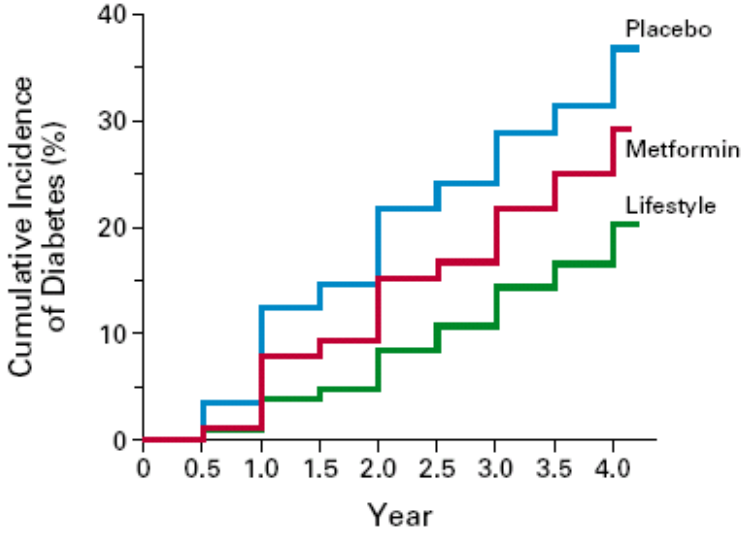
Take activity breaks every half hour

Preventing Type 2 Diabetes

Incidence of Diabetes:

- Lifestyle: 58% decrease
- Metformin: 31% decrease

- Beneficial effects of prevention or delay of diabetes persisted for at least 10 years



Diabetes Prevention Program Research Group. N Eng J Med, 2002
Knowler WC et al. Lancet 2009; Crandall JP et al. Nat Clin Pract Endo Metab 2008

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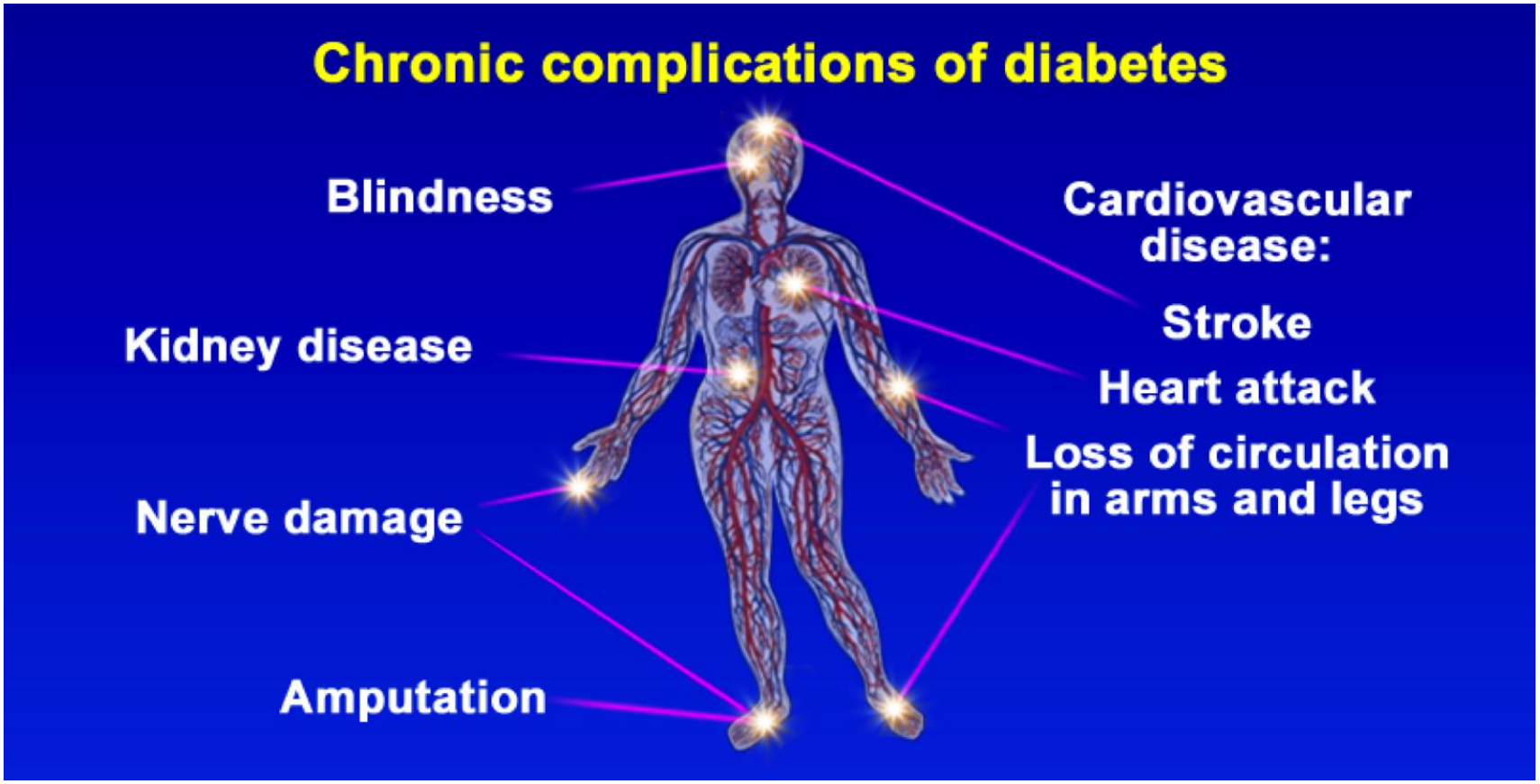
How can exercise help?

- Help clear glucose
- Improve insulin action
- Lowers HbA_1C by 0.66%
- Reduce cardiovascular risk
- Helps keep weight off
- Helps build muscle
- Improves quality of life



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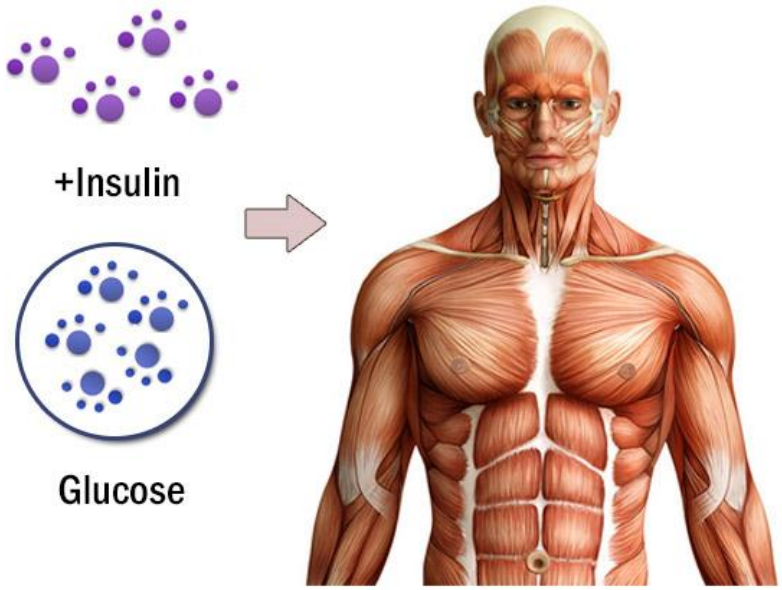
Exercise Improves Glucose Control

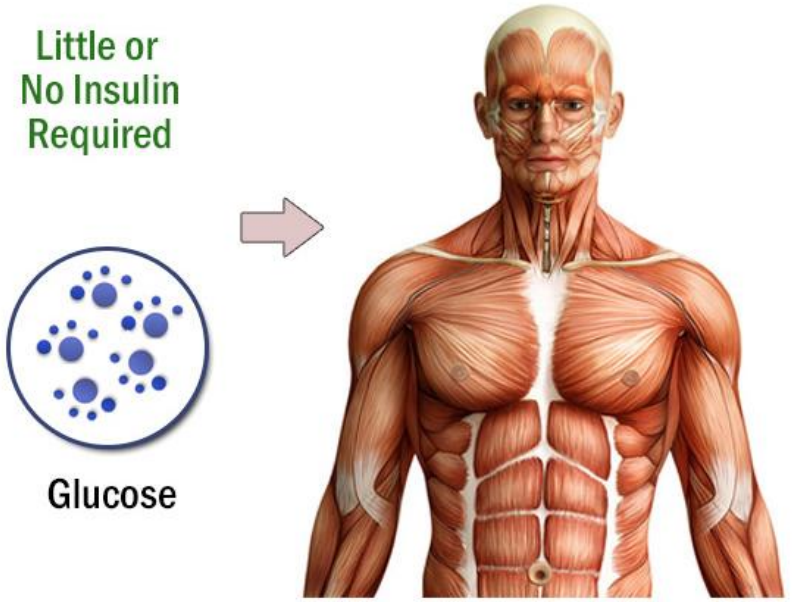
Insulin Dependent Glucose Uptake

Pre-exercise: Insulin is required to transport glucose into tissues



Insulin Independent Glucose Uptake

Post-exercise: Tissues can uptake glucose without the use of insulin



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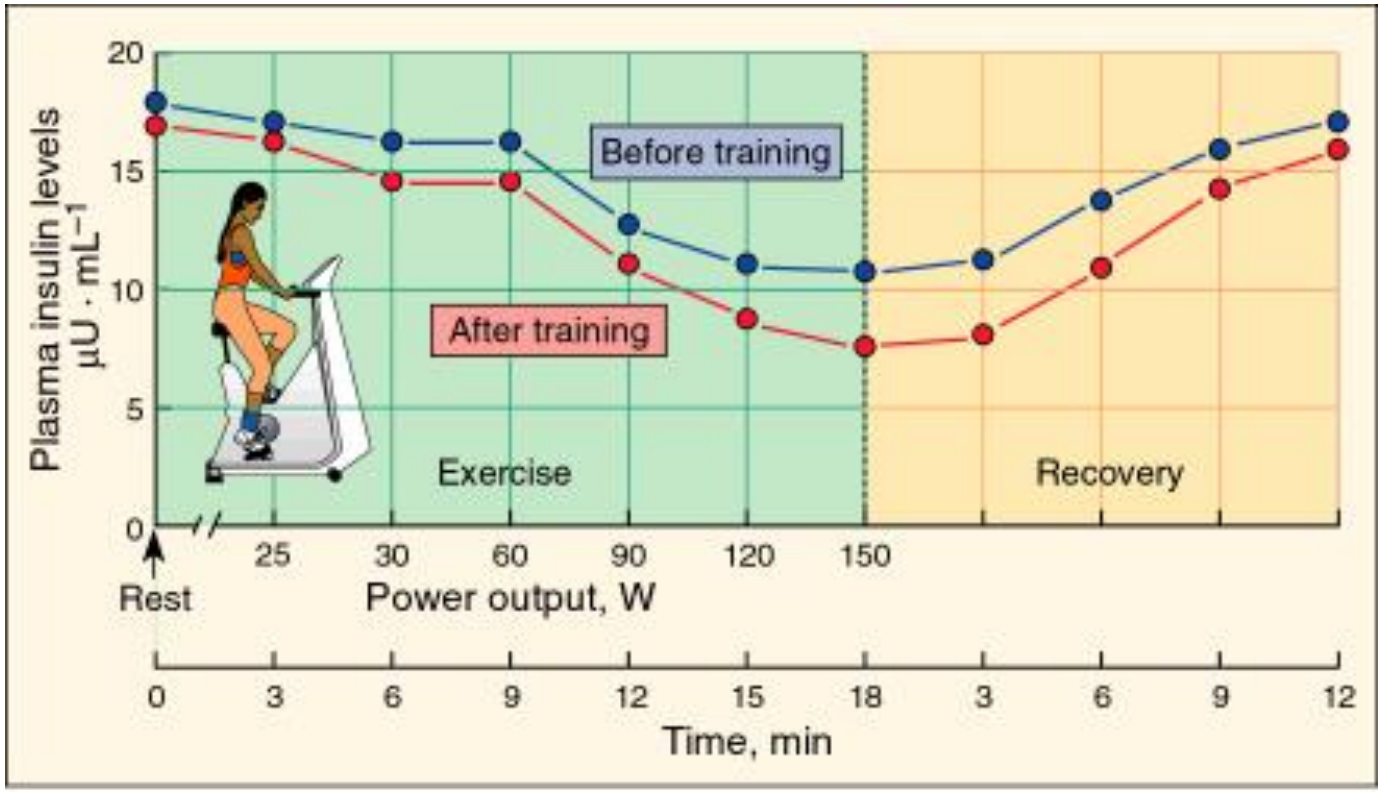
Exercise training ↑ insulin sensitivity



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Exercise Is Medicine

- Dose 50-70% of max
- Frequency, at least every 2 days
- 210 mins per week

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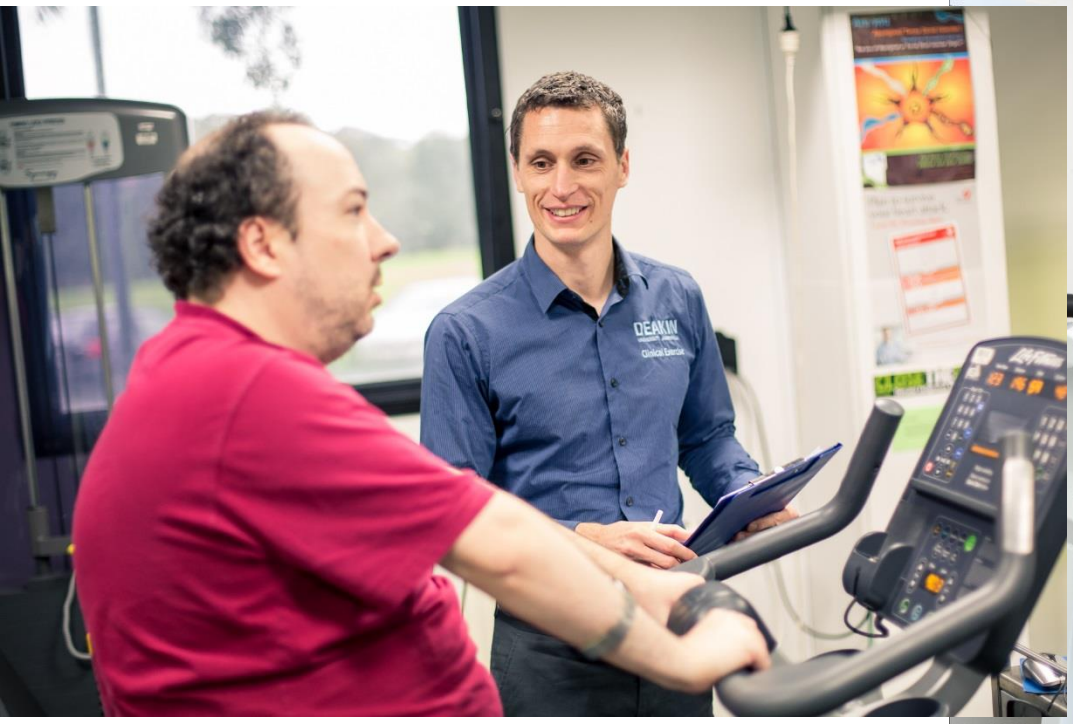
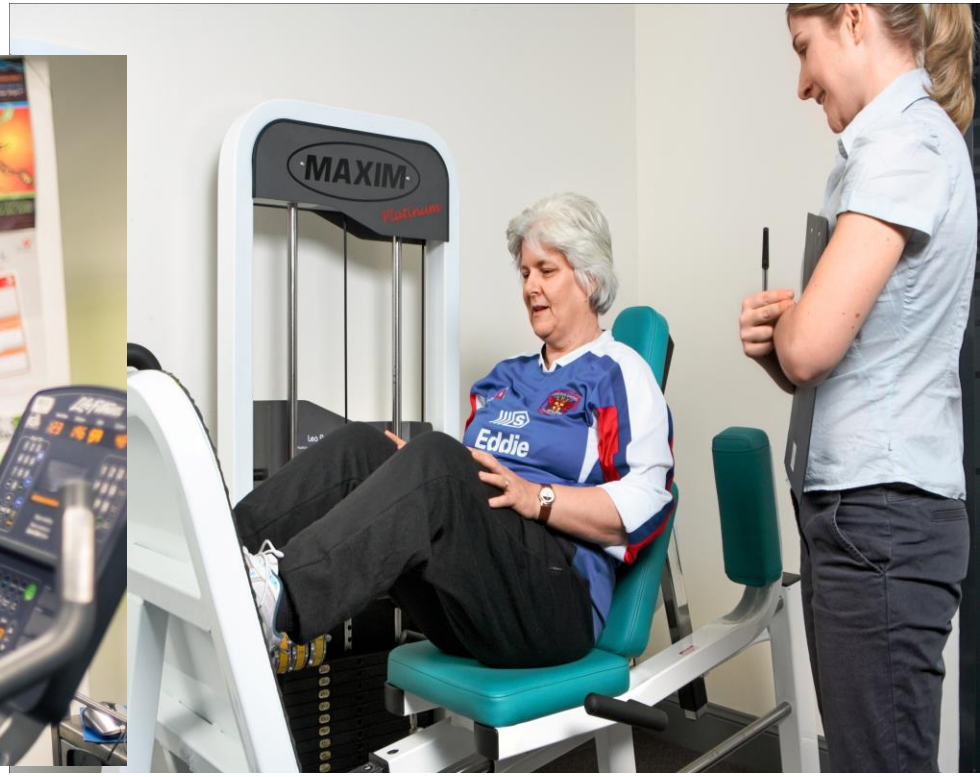
What Exercise is Best?





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Exercise Guidelines

Aerobic exercise 50-70% of max heart rate

Frequency, at least every 2 days

5-7 times per week

Resistance training 8-10 exercises

2 or more sessions per week

www.essa.org.au

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Exercise Safely

Consult GP

Aim to exercise 1-3 hours after eating

Appropriate footwear/fluid intake

Monitor blood glucose before, during and after exercise

If unsure seek advice from an accredited exercise physiologist

What is your biggest barrier that prevents you from exercising

Don’t have time

Lack of knowledge

Don’t enjoy it

Costly (gym membership)

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- CLINICAL EXERCISE PHYSIOLOGY SERVICES
  - What is an accredited exercise physiologist?
  - Benefits of Exercise
  - What you can expect
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- LIFT FOR LIFE
- ONLINE STORE
- BIOBANK
- GUIDELINES
- RELATED LINKS

Clinical Exercise Physiology Services are available at the Baker IDI Clinics. Exercise physiologists deliver exercise, lifestyle and behavioural modification programs for the rehabilitation, prevention and management of chronic diseases and injuries. This service is staffed by fully accredited exercise physiologists from Deakin University who have experience with a wide variety of conditions and clientele.The services are provided in a new, fully equipped gymnasium with change rooms, lockers and showering facilities.

Regular exercise can prevent or assist with the treatment of cardiovascular disease and diabetes

HOW TO BE REFERRED

You may be referred to Baker IDI's exercise physiology service by your GP or specialist. Bulk billing is also available if your GP refers you for *allied health visits* as part of a *Team Care Arrangement*. Self-referrals are also welcome.

CONTACT DETAILS:

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— a Baker IDI public lecture series —

Eat, Move, Monitor:
Diabetes prevention and management

Tuesday 29 November 2016

5pm – 6.30pm

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