

Prevention of type 2 diabetes: Making the evidence work in the UK

NHS



Bernie Stribling
and Dr Tom Yates

Aims of the presentation

- Structured education in the prevention of diabetes
- The PREPARE and Walking Away programmes
- Lessons from implementation

Prediabetes

- ❑ Evidence suggests that 80-90% of all cases of type 2 diabetes could be prevented through lifestyle factors
- ❑ Lifestyle interventions have been shown to reduce the risk of type 2 diabetes by 40-60%
(Gillies et al. BMJ 2007)

Preventing diabetes in the “real world”

- Interventions used in international RCTs have been very resource intensive – not suitable for translation into routine care

More worrying still.....

- Traditional diabetes prevention programmes in the UK have had limited effectiveness

Preventing diabetes in the UK

- Interventions compatible with primary health care resource and infrastructure limitations needed

Do examples of such interventions exist?

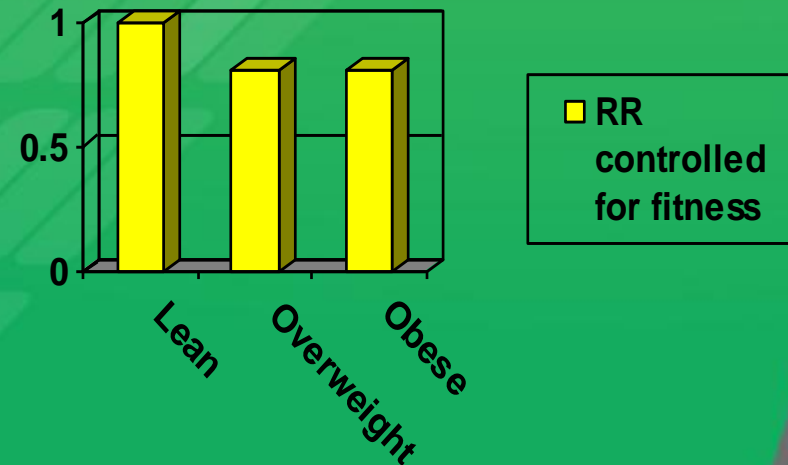
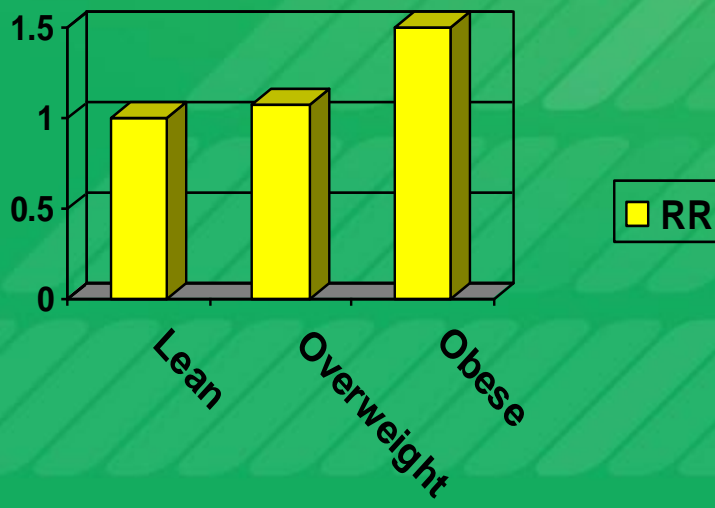
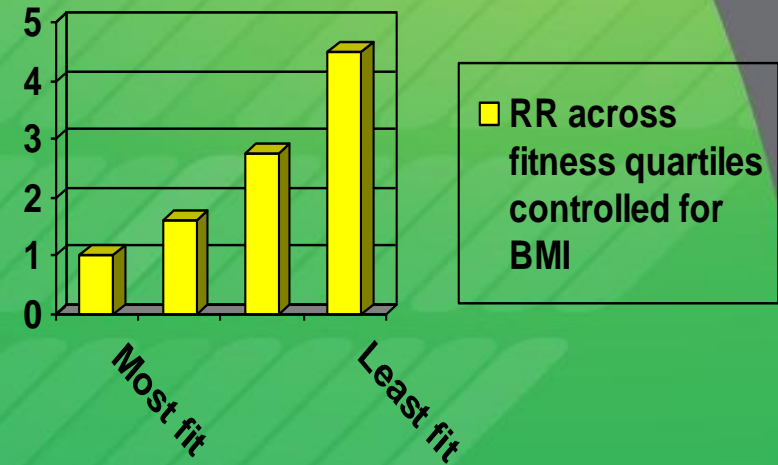
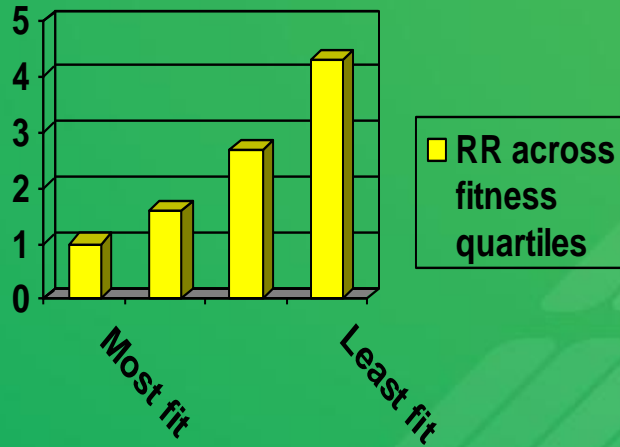
- Yes – structured education!

Choice of behaviour to promote

- There is a need to prioritize information and behavioural targets in the real world
- Evidence-based approach needed
- Traditional advice has been “weight loss” centric
- Emphasis on physical activity needed

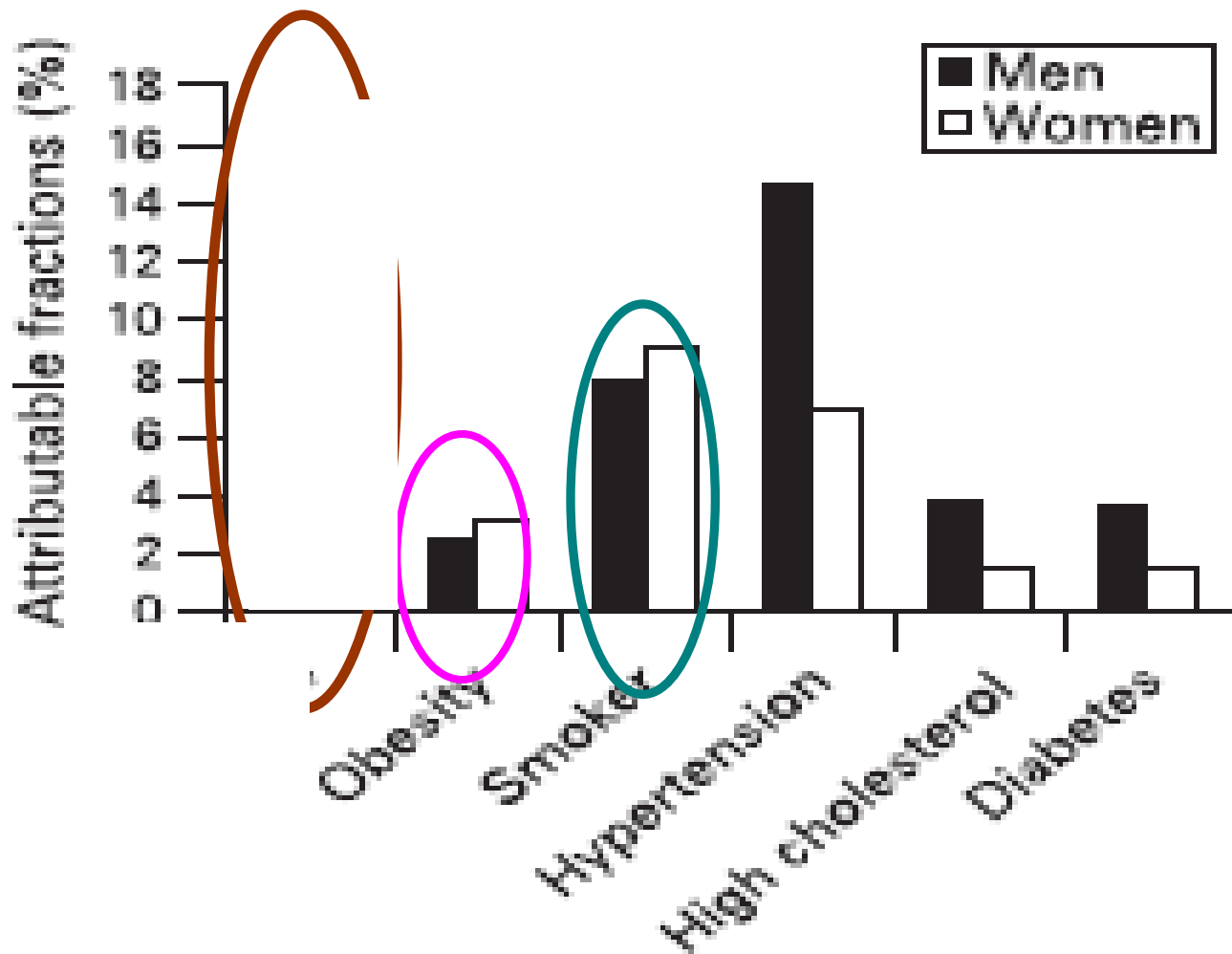
Relative risk of all-cause mortality in men with type 2 diabetes

(Church et al. Diabetes Care, 2004)



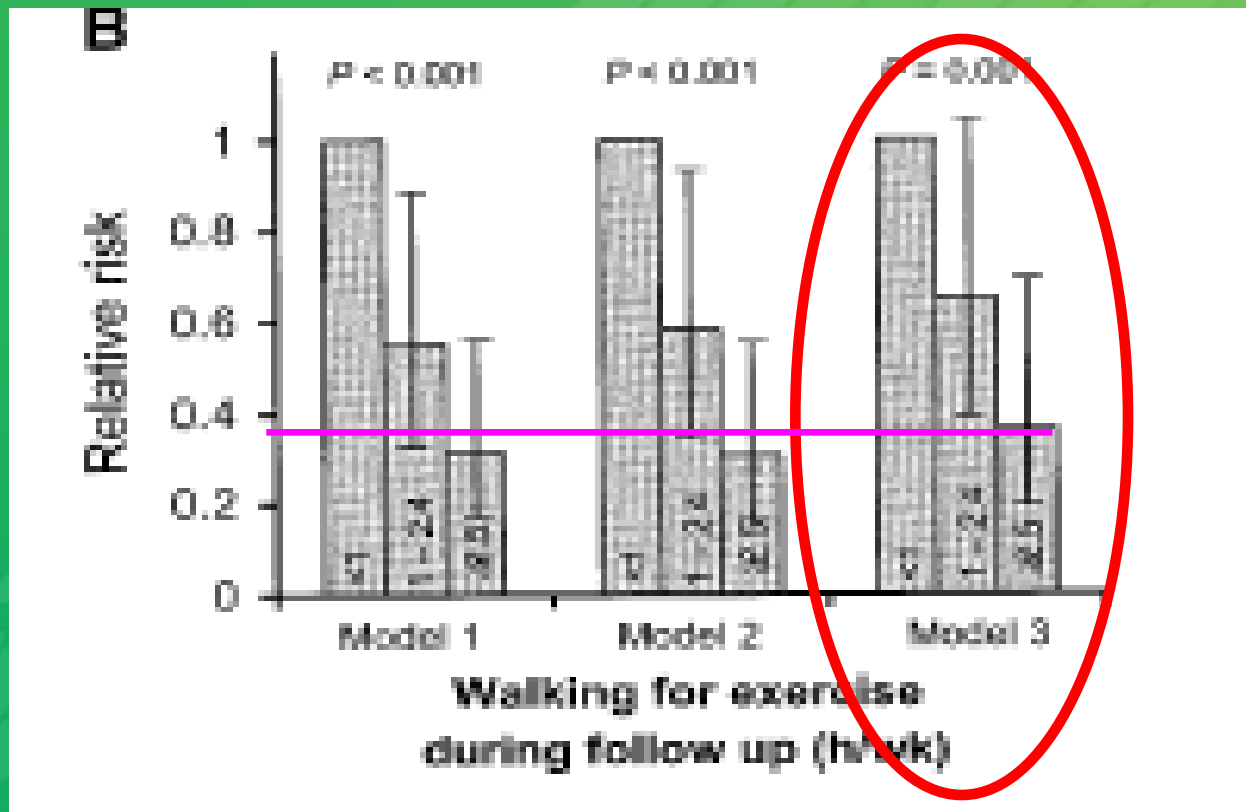
The importance of physical activity

(Blair BJSM 2009)



Self-reported walking activity

(Laaksonen et al. Diabetes, 2005)



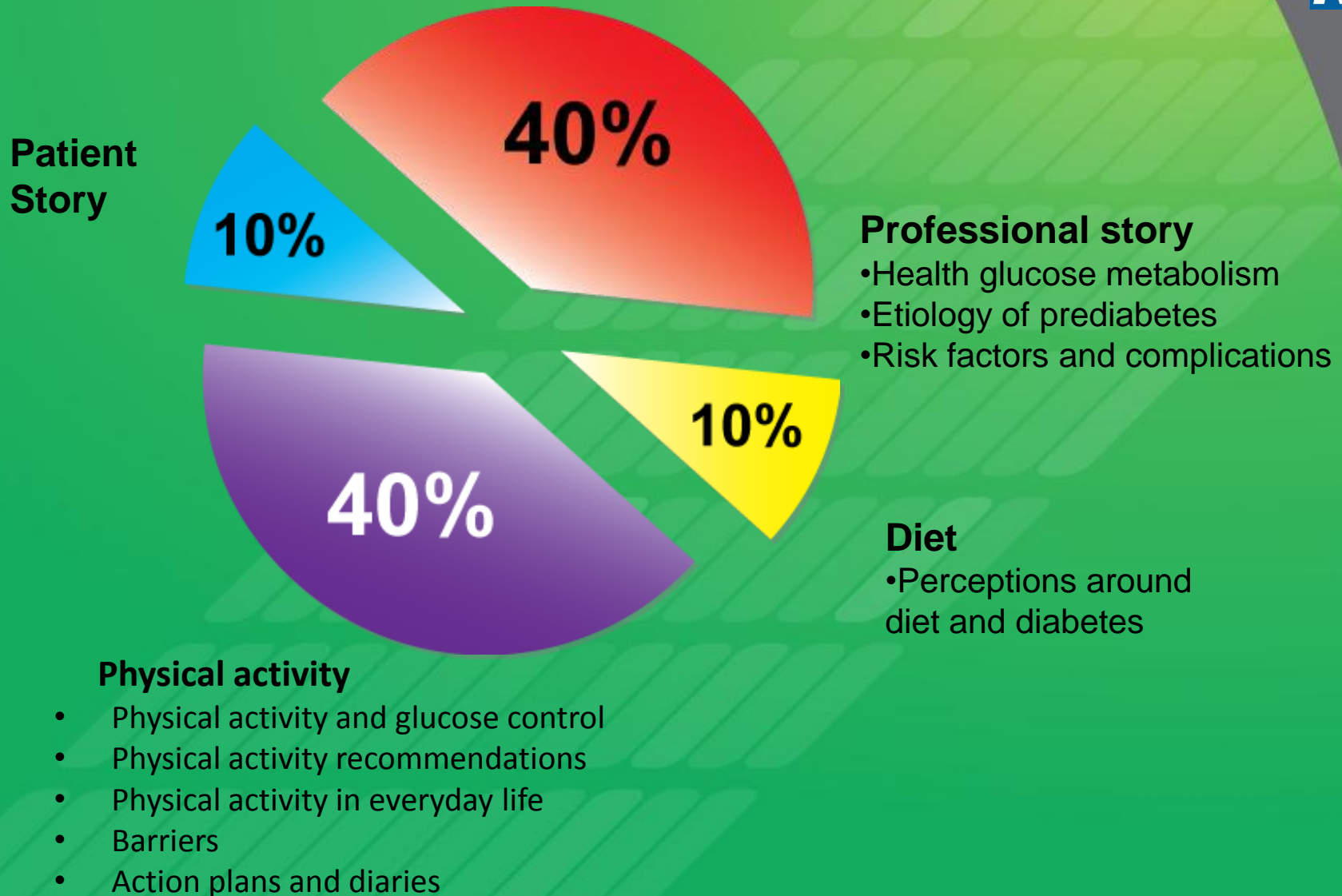
The PREPARE programme

(Yates et al. Diabetes Care 2009)

- Single session
- 3 hours long
- Written, theory-driven curriculum
- Person-centred philosophy

The PREPARE programme

(Yates et al. 2008, Patient Education and Counseling 73, 264-271)



Randomized controlled trial

- Participants with impaired glucose tolerance were recruited from ongoing diabetes screening programmes
- Three groups
 - Control (detailed leaflet)
 - PREPARE programme
 - PREPARE programme plus pedometers
- Primary outcome
 - Oral glucose tolerance test (2-hour post-challenge glucose)
- Follow-up at 3, 6 and 12 months
- Ongoing annual follow-up

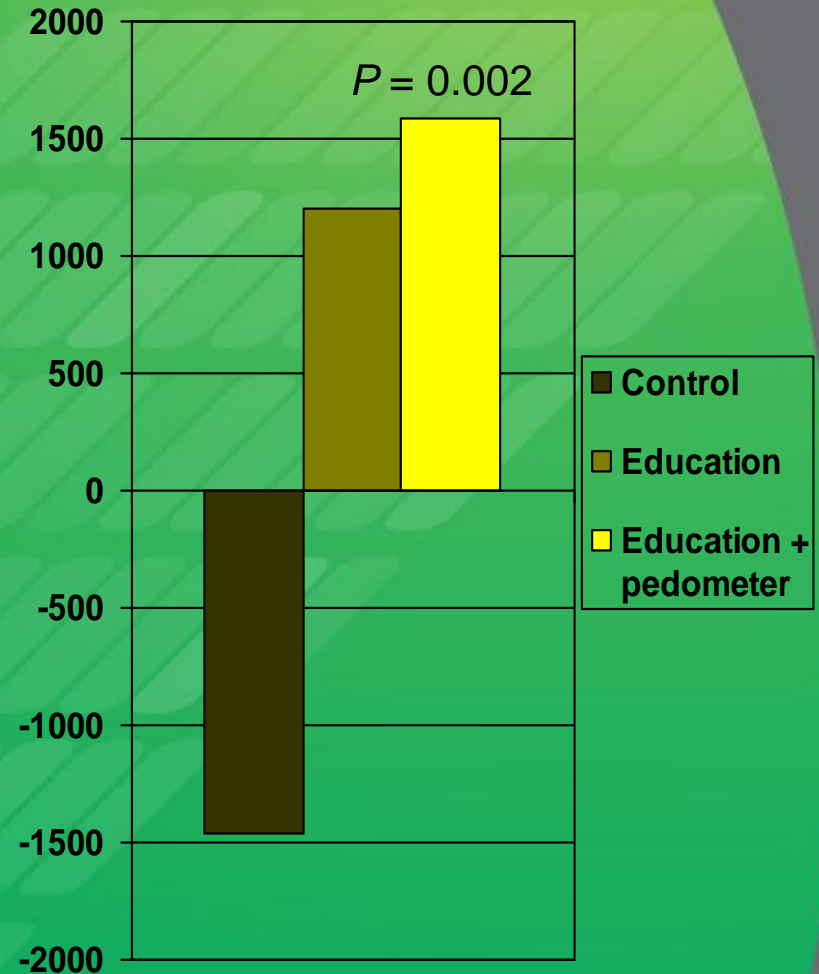
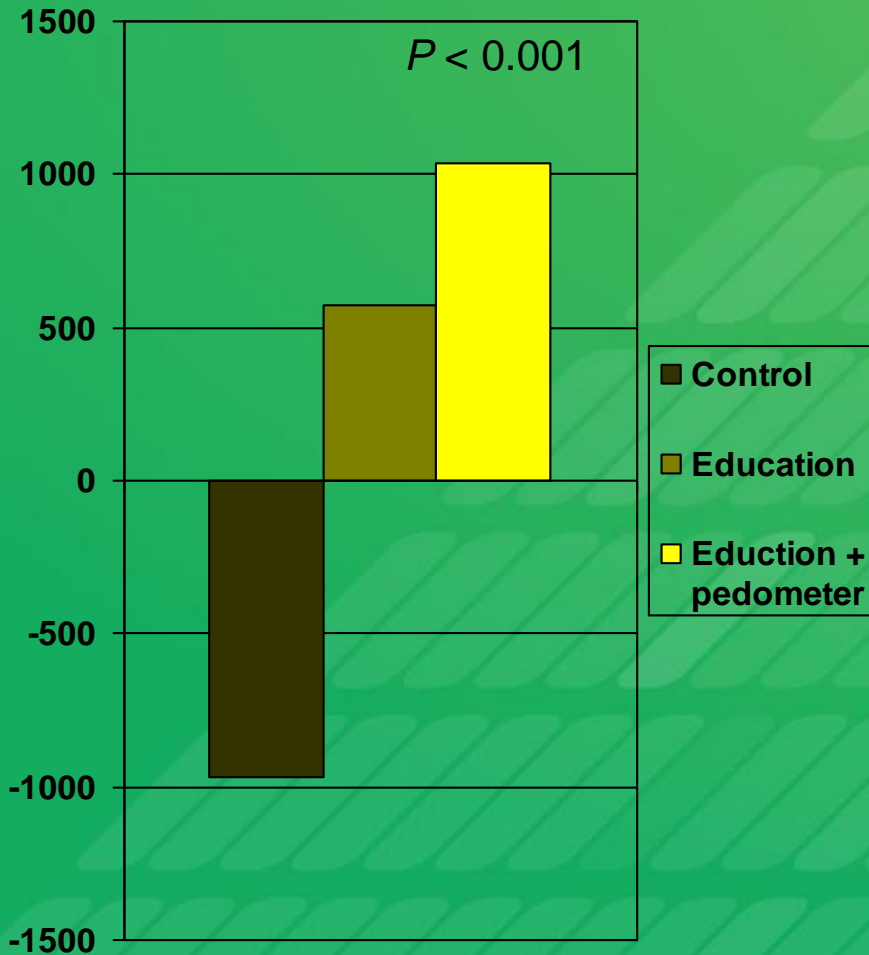


Results at 12-months: Physical activity



Change in pedometer counts (steps per day)

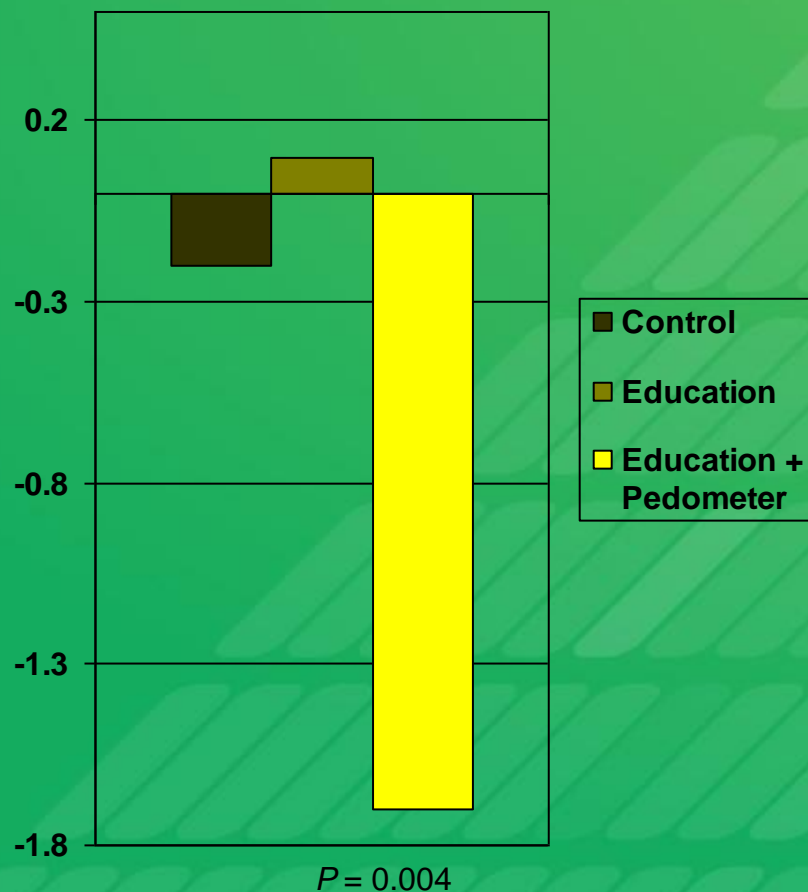
Change in self-reported physical activity (MET-minutes/week)



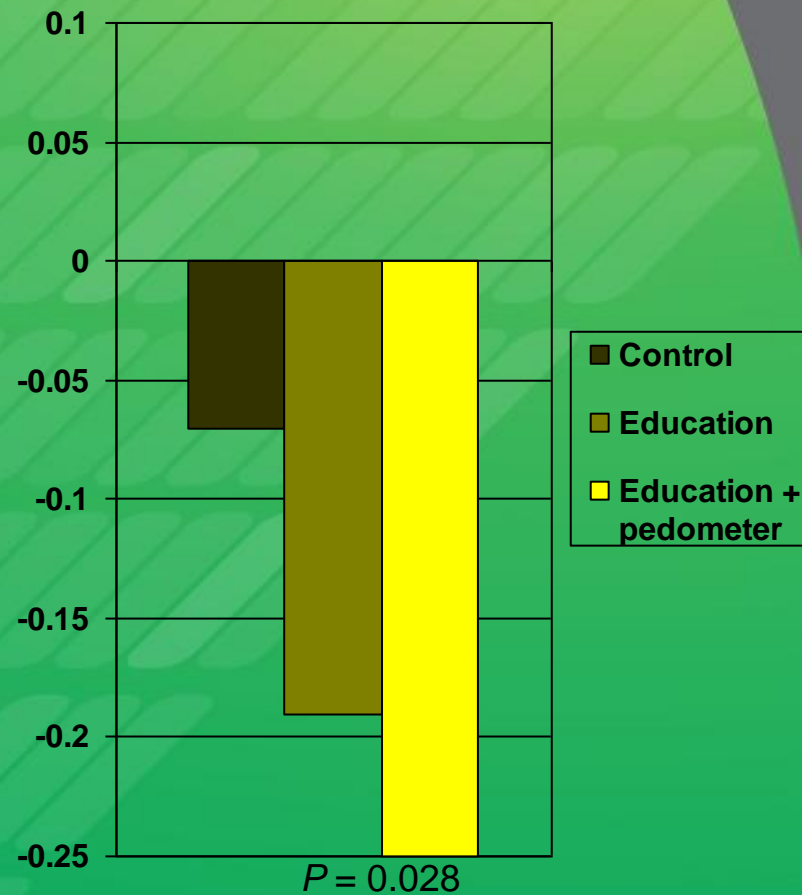
Results at 12 months: Glucose control

(Yates et al. Diabetes Care 2009)

Change in 2-hour glucose (mmol/l)



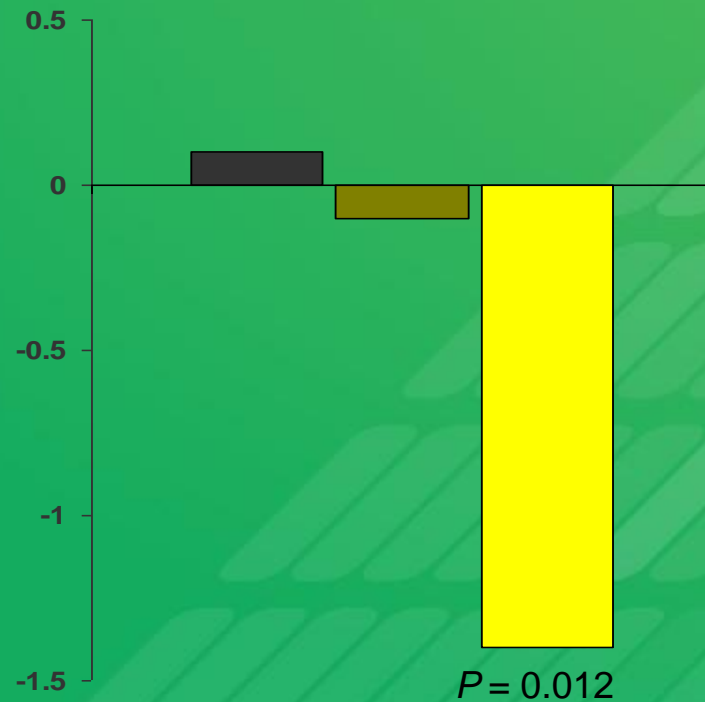
Change in fasting glucose (mmol/l)



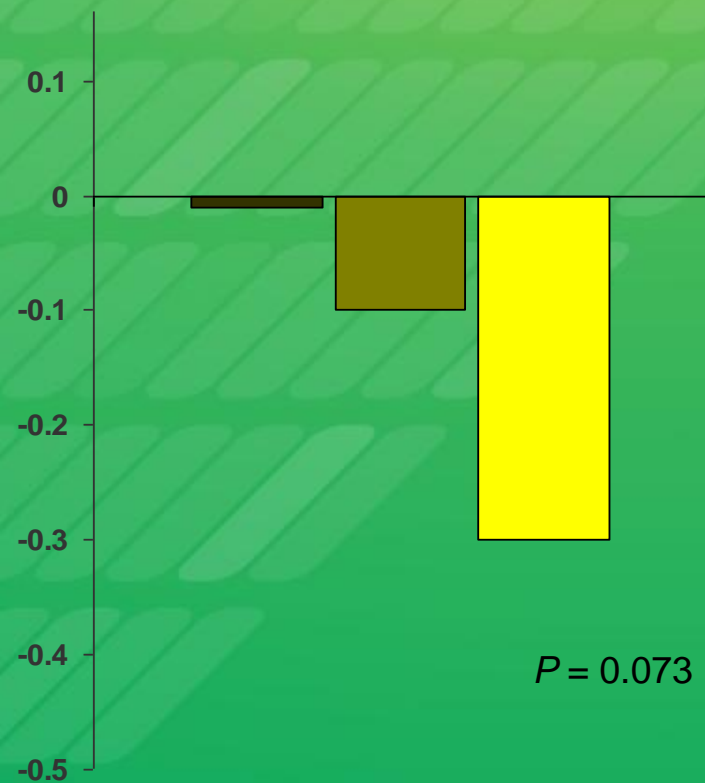
Results at 24-months: Glucose control

(Yates et al. 2011, Diabet Med in press)

Change in 2-h glucose
(mmol/l)



Change in fasting glucose
(mmol/l)

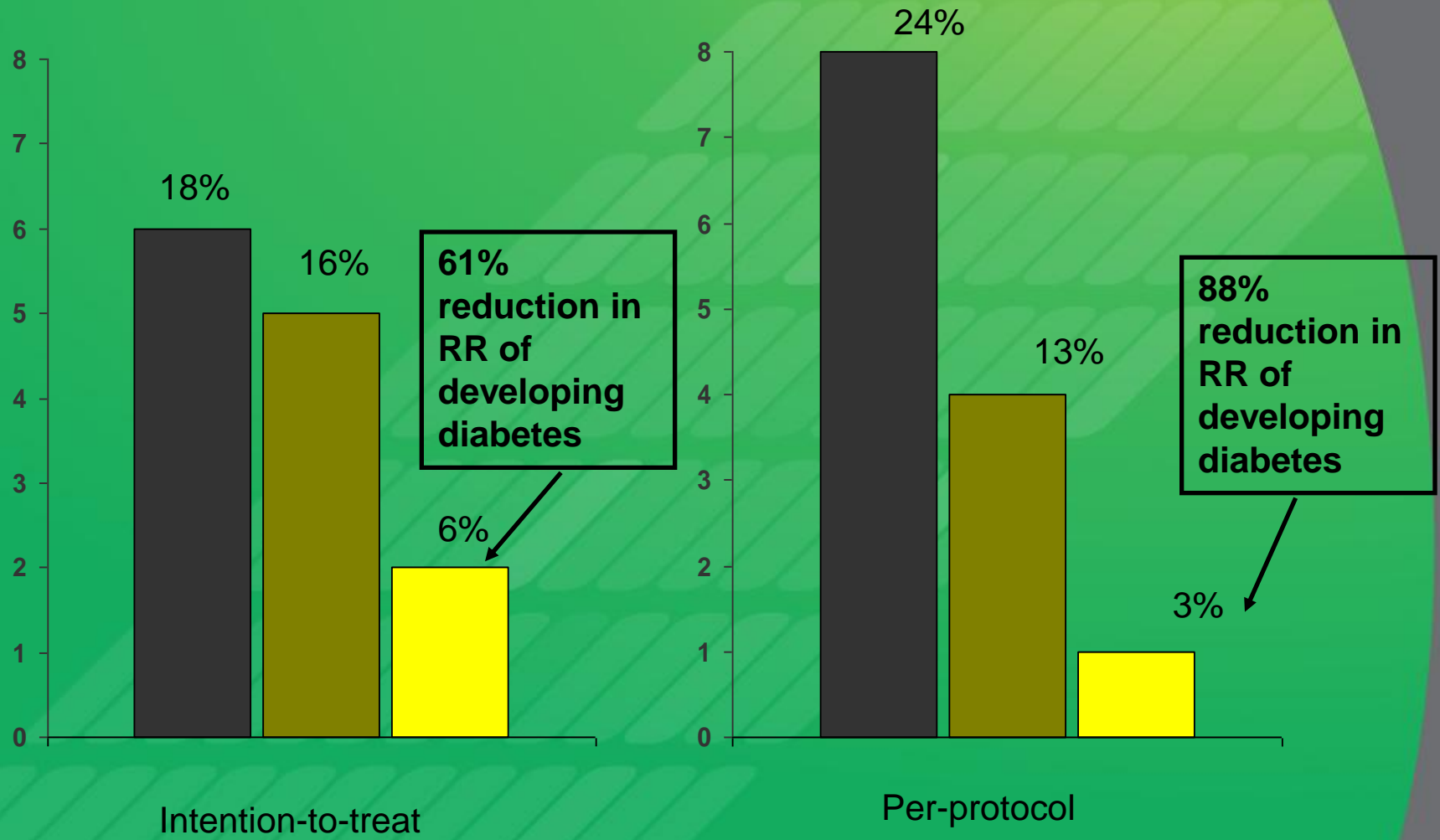




Results at 24-month: progression to diabetes



(Yates et al. 2011, Diabet Med in press)



Identification

- OGTTs not routinely carried out in primary care
- Pragmatic methods of finding those with a high risk of diabetes are needed
- International best practice suggests that risk scores are a cheap and effective method of identifying those with a high risk of diabetes

Walking Away from Type 2 Diabetes

- Aimed at individuals with a high risk of diabetes identified through pragmatic methods (such as a risk score)
- Includes a fully developed educator training and quality assurance programme
- Both the curriculum and educator training programme have been fully piloted and found to be effective

Risk Assessment Score

Know Your Score

- How old are you?

49 and younger	<input type="checkbox"/> 0	60 - 69	<input type="checkbox"/> 9
50 - 59	<input type="checkbox"/> 5	70 and older	<input type="checkbox"/> 13
- Are you male or female?

Male	<input type="checkbox"/> 1	Female	<input type="checkbox"/> 0
------	----------------------------	--------	----------------------------
- How would you describe your ethnicity?

White European	<input type="checkbox"/> 0	Other Ethnic Group	<input type="checkbox"/> 6
----------------	----------------------------	--------------------	----------------------------
- Do you have a father, mother, brother, sister and/or own child with Type 1 or Type 2 diabetes?

Yes	<input type="checkbox"/> 5	No	<input type="checkbox"/> 0
-----	----------------------------	----	----------------------------
- What is your waist circumference?

Less than 90 cm	<input type="checkbox"/> 0	100 - 109 cm	<input type="checkbox"/> 6
Less than 35.3 inches		39.4 - 42.9 inches	
90 - 99 cm	<input type="checkbox"/> 4	110 cm & above	<input type="checkbox"/> 9
35.4 - 39 inches		43 inches and above	
- What is your Body Mass Index (BMI)? (See instructions)

Less than 25	<input type="checkbox"/> 0	30 - 34	<input type="checkbox"/> 5
25 - 29	<input type="checkbox"/> 3	35 & above	<input type="checkbox"/> 8
- Has a doctor given you medicine for high blood pressure OR told you that you have high blood pressure?

Yes	<input type="checkbox"/> 5	No	<input type="checkbox"/> 0
-----	----------------------------	----	----------------------------

Add up your score here -



Your Score



0-6

You are at low risk of diabetes - keep up the good work with leading a healthy lifestyle!

- Low Risk: 0-6 points
- Everyone is at some risk, a low score will increase with time if you do nothing. It is important to keep active and a healthy weight for your size.

7-15

Moderate Risk: 7-15 points

- This means you are at an increased risk of having diabetes now, BUT you may be at higher risk in the future.
- Taking more exercise and thinking about the kinds and amounts of food you eat will help to control your risk.
- Contact your doctor or practice nurse and talk to them about how you can reduce your risk of diabetes

16 or More

High Risk: 16 or more points

- You are at much greater risk of developing diabetes or having undiagnosed diabetes.
- You need to see your GP or pharmacist for a blood test as soon as possible. The blood test is very important to confirm or rule out diabetes.

My Health Profile

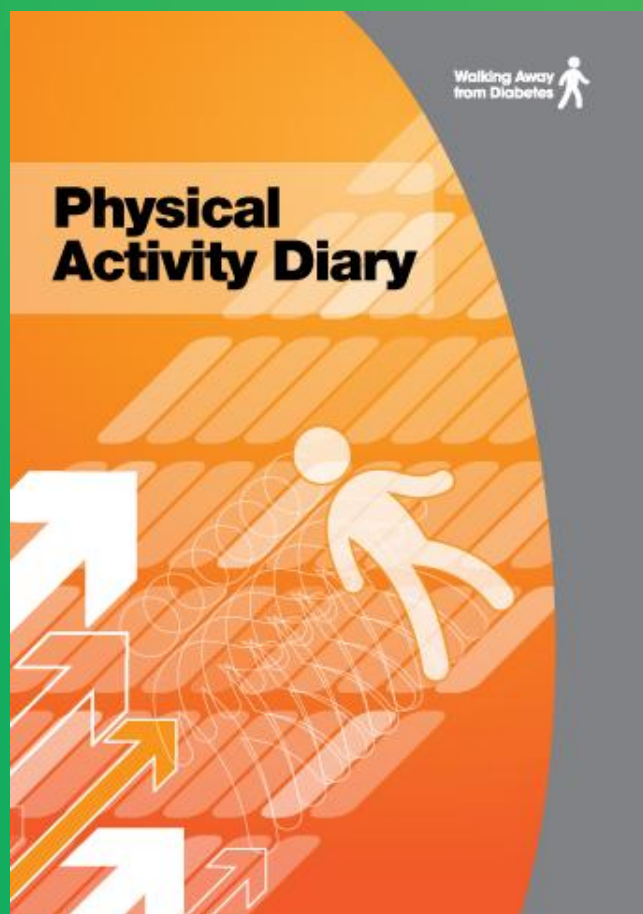
My Health Profile



My Risk Factors








Risk Factor	My Risk Factor	Can I change this risk factor?
South Asian or African Caribbean	
Family History of Diabetes	
Getting Older	
Abnormal Blood Glucose	
High Blood Pressure	
High Blood Cholesterol	
Being Less Active	
Weight around the middle	
Eating Saturated Fat	
Depression or chronic stress	

Physical Activity Diary



Week 1 Date started: _____

My goal for this week is: _____

Sun	What did I do today?	For how long for?	Total number of steps taken today  _____
Mon	What did I do today?	For how long for?	Total number of steps taken today  _____
Tue	What did I do today?	For how long for?	Total number of steps taken today  _____
Wed	What did I do today?	For how long for?	Total number of steps taken today  _____
Thu	What did I do today?	For how long for?	Total number of steps taken today  _____
Fri	What did I do today?	For how long for?	Total number of steps taken today  _____
Sat	What did I do today?	For how long for?	Total number of steps taken today  _____

How did I do?
.....

What might I change?
.....

Exercise Goals



2000 steps = 1 mile

Lands End to John O'Groats
= 850 miles

Lands End to John O'Groats
= 1,700,000 steps

National Implementation



Lessons Learned

- Most effective when a systematic and locally led pathway is in place
- Accurate pedometer crucial
- Likely to be very cost effect with an estimated cost of £30 per patient
(Westgate 2011 Diabetes UK)