



CEBM
CENTRE FOR EVIDENCE-BASED MEDICINE

How to get your patients to exercise

David Nunan PhD

Research Fellow

Department of Primary Care Health Sciences and
Centre for Evidence Based Medicine
University of Oxford



Human Performance Laboratory



From this.....



To this.....

CHILD SAFETY: PROTECT YOURSELF FROM YOUR CHILD AND CHILDREN!

WARNING:



WHEN CHANGING A BABY OR TODDLER, KEEP AN ADEQUATE SPACE BUFFER TO AVOID SUDDEN PERIL-ZONE IMPACTS.

ALERT: BIOLOGICAL PERIL CAN STRIKE FROM EVEN A SAFE DISTANCE, SO STAND TO THE SIDE SLIGHTLY, OUT OF THE "LINE OF PERIL."



howtobeadad.com 

Objectives





- Why is exercise on the primary care agenda?
- Discuss (some of) the evidence for physical activity(PA)/exercise for prevention and treatment of disease
- Current model for increasing PA/exercise in primary care and the evidence underpinning this
- What else could we do? Is it evidenced based? Does it matter?

Definitions



- Physical activity (PA)
 - ‘..bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure.’
- Exercise
 - ‘..a type of physical activity, defined as a planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness
- Metabolic equivalent (MET)
 - ‘..physiological measure expressing the energy cost of physical activities’ = ratio of metabolic rate during activity to resting metabolic rate (1kcal/kg/hour OR 3.5 ml O₂/kg/min)
 - 1 MET = what you are doing now
 - 2.3 MET = what I am doing now

Why PA in primary care?



Page 1 of 1

HOUSE OF LORDS
Science and Technology

NEWS

Spreading the word


Across the UK, almost 900,000 GP consultations occur daily,² meaning primary care has by far the greatest exposure to the population as a whole within the NHS system. The average patient will visit their GP about four times per year, with 78% of people consulting their GP at least once a year.³ One in four people stated that they would become more active if they were advised to do so by a doctor or a nurse.¹⁶

Primary care is therefore ideally positioned to be the interface with the population, in screening patients regarding their physical activity status, promoting the health benefits of physical activity, and using exercise to deliver therapeutic benefits. Increasingly, the responsibility for chronic disease management rests in general practice, which means that the clinicians most frequently dealing with the complex medical issues which may benefit from exercise operate in primary care.

Department of Health.

Surgeons, midwives, and health visitors, as well as GPs and nurses, will be expected to sign up to the "make every contact count" plan in a bid to curb the soaring costs of healthcare and treatment as a result of people's lifestyle.

Sue Shipman, chief executive of the Foundation Trust network of the NHS Confederation, told the *BMJ* that she welcomed the emphasis on education and training but said that the key would be in getting the "incentives right" so as to be able to afford to do this in a time of austerity.



What do NICE say?

Current practice

The NICE costing report for public health guidance 2 (NICE 2006) estimated that brief interventions for physical activity were instigated on an opportunistic basis in 25% of the total appropriate instances, i.e. to inactive adults presenting to general practice. No information was identified to assess baseline practice of brief interventions for physical activity in the context of disease management.

Other interventions in primary care, exercise referral schemes, pedometers and community-based exercise programmes for walking and cycling

Lord Darzi's Next Stage Review highlighted that the growth in the prevalence of conditions such as type 2 diabetes, depression and COPD can be attributed not only to unhealthy choices, but also to missed prevention opportunities. This underlines the importance of the NHS and its partners responding to shifting epidemiology by providing personalised care for long-term conditions.

The health service is not always good enough at helping people make the right choices – 54 per cent of patients said that their GP had not provided advice on diet and exercise.⁷

What do your peers think?

Review

1. Promoting PA in primary care is important
 - 92% of GPs and 99% of nurses “agreed” or “strongly agreed”
2. Promoting PA with patients is part of the HCPs role
 - 1997-2007: 93%-99% GPs “agreed”
 - 59% of GPs and 64% of nurses felt nurses were most appropriate to carry out health promotion (incl. PA)
3. How confident are you in your ability to provide PA counselling?
 - 48%-92% of HCPs felt ‘confident’ or ‘very confident’
 - However, less confident about specific PA
4. How successful are you in changing your patients health-related behaviour?
 - NO physicians perceived success as “very successful”
 - Only 32% rated “successful”

► An additional appendix is published online only. To view this file please visit the journal online (<http://bjsm.bmj.com/content/46/9.toc>).

¹Division of Health Promotion and Behavioral Sciences, University of Texas School of Public Health, Austin Regional Campus, Austin, Texas, USA

ABSTRACT

Objective The evidence regarding the effectiveness of promoting PA in primary care is unclear. The present study systematically reviews the literature on PA counselling to identify the barriers and enablers to PA counselling in primary care practice.

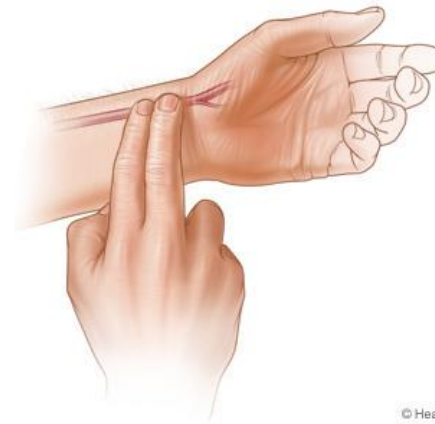
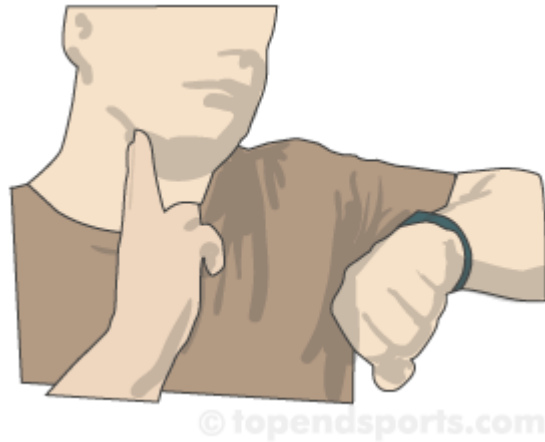
Design A systematic literature review (through 2011) of quantitative or qualitative studies was conducted.

Results The review identified 15 health objectives related to PA promotion. There are 15 health objectives related to PA promotion. The objectives include: increasing the number of adults who engage in no leisure-time PA by 10% (10%); increasing the number of adults who meet the current aerobic PA guidelines of 150 min per week and increasing the proportion of adults who engage in muscle strengthening activities.

TIME TO MOVE.....



HOW FIT ARE YOU?



HOW FIT ARE YOU?



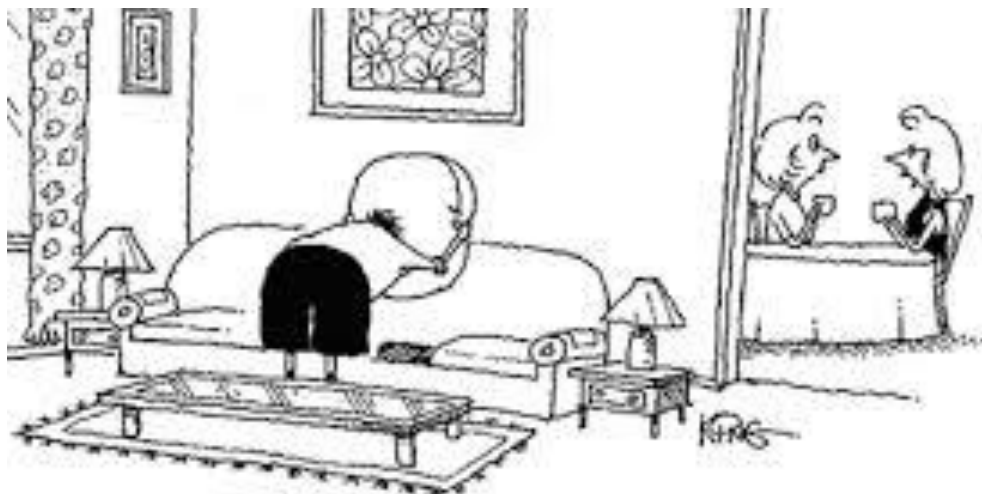
Inches

WAIST	24	25	26	27	28	30	31	33	34	36	38	40	43	47
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Centimetres

WAIST	61	64	66	69	71	75	79	83	86	91	97	102	109	119
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Why should I prescribe PA?

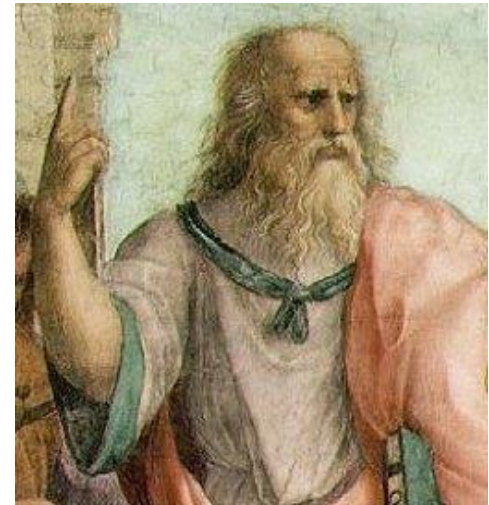


The doctor said he needed more activity. So
I hide his T.V. remote three times a week.

Why physical activity (PA)?



“..in order to remain healthy, the entire day should be devoted exclusively to ways and means of increasing one's strength and staying healthy, and the best way to do so is through physical exercise.”
Hippocrates (460-377 BC)



“..medicine is the sister art to physical exercise.”
Plato (427-347 BC)

First 'real' evidence



Lancet 1953;262:1111-1120

CORONARY HEART-DISEASE AND PHYSICAL ACTIVITY OF WORK

J. N. MORRIS

M.A. Glasg., M.R.C.P., D.P.H.

J. A. HEADY

M.A. Oxf

OF THE SOCIAL MEDICINE RESEARCH UNIT, MEDICAL RESEARCH
COUNCIL

P. A. B. RAFFLE

M.D. Lond., D.P.H., D.I.H.

OF THE MEDICAL DEPARTMENT, LONDON TRANSPORT EXECUTIVE

C. G. ROBERTS

B.A., M.D. Camb.

J. W. PARKS

M.B.E., M.D. Camb., D.C.

OF THE TREASURY MEDICAL SERVICE

(Concluded from p. 1057)

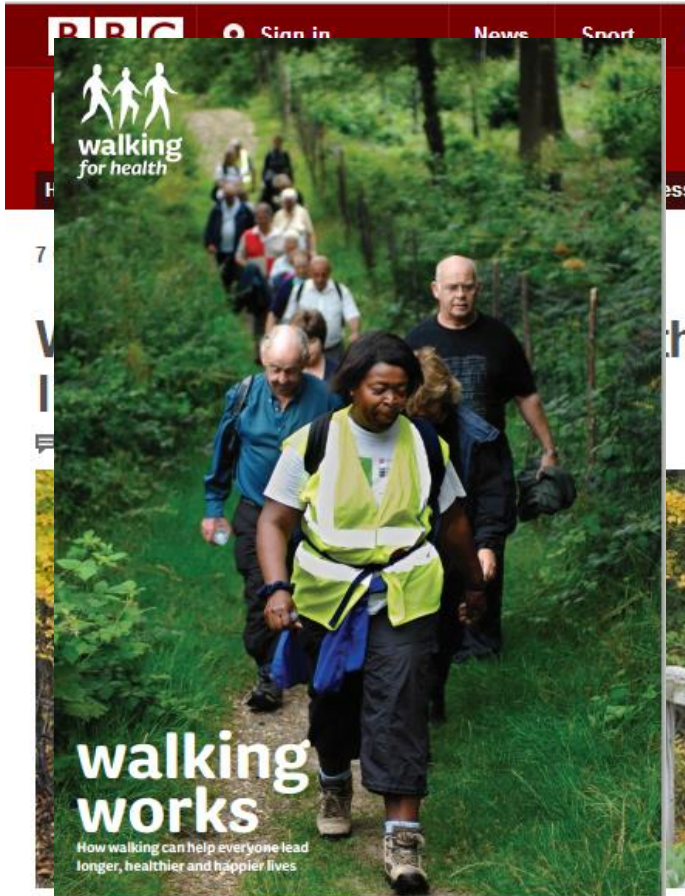
II. STATEMENT AND TESTING OF PROVISIONAL HYPOTHESIS

EXECUTIVE OFFICERS AND CLERKS WERE OBSERVED DURING 1949-50. Bus conductors (on double-decker vehicles) were found to have less coronary heart-disease than bus drivers, and postmen less than telephonists, executive officers, and clerks. Moreover, what disease the conductors and postmen had was less severe.

On the basis of these observations, the hypothesis was advanced that

Men in physically active jobs have a lower incidence of coronary heart-disease in middle age than have men in physically inactive jobs. More important, the

PA – current evidence



If everyone in England was active enough it could prevent:

36,815

people dying prematurely

12,061

people going to hospital for emergency coronary heart disease treatment

6,735

cases of breast cancer

4,719

cases of colorectal cancer

294,730

cases of diabetes.

And the benefits don't end there. Being active:

- helps you stay a healthy weight
- increases 'good' cholesterol
- reduces blood pressure
- builds healthy muscles and bones
- improves balance
- reduces the risk of falls.

If everyone in England got the message about being active it could prevent:

- 36,815 people dying prematurely
- 12,061 people going to hospital for emergency coronary heart disease treatment
- 6,735 cases of breast cancer
- 4,719 cases of colorectal cancer
- 294,730 cases of diabetes.¹⁶

Condition	Risk reduction	Strength of evidence
Death	20-35%	Strong
Coronary heart disease (CHD) and stroke	20-35%	Strong
Type 2 diabetes	35-50%	Strong
Colon cancer	30-50%	Strong
Breast cancer	20%	Strong
Hip fracture	36-68%	Moderate
Depression	20-30%	Strong
Alzheimer's disease	40-45%	Moderate

“If a medication existed which had a similar

Tens of thousands of lives could be saved each year if the people got off the sofa and stretched their legs more, say charities.

PA – current evidence

Physical activity and all-cause mortality: what is the dose-response relation?

I-MIN LEE and PATRICK J. SKERRETT

Brigham and Women's Hospital and Harvard Medical School, Harvard School of Public Health, Boston, MA



RESEARCH RECOMMENDATIONS

Although the most rigorous data for a cause-and-effect relation come from well-designed and conducted randomized clinical trials, it is simply not feasible to conduct such trials in the context of examining the dose-response relation between physical activity and all-cause mortality. Thus, answers concerning this relation must come from observational epidemiologic studies. These observational data will be strengthened by data from randomized clinical trials of physical activity and short-term health outcomes that in themselves predict mortality (e.g., blood pressure, lipid profile, glucose tolerance), as well as by data from laboratory studies on plausible biologic mechanisms linking physical activity with decreased mortality rates.

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With regard to observational epidemiologic studies that directly assess the dose-response relation between physical

POLICY
REPORT

US
/POLICY
/REPORT

IC REVIEW
ATURE

AL/CROSS
TUDIES OF
PHYSICAL
ITY

e-response curve

Low

PHYSICAL ACTIVITY
OR FITNESS LEVEL

Very active
or fit



PA – emerging evidence



The NEW ENGLAND JOURNAL of MEDICINE

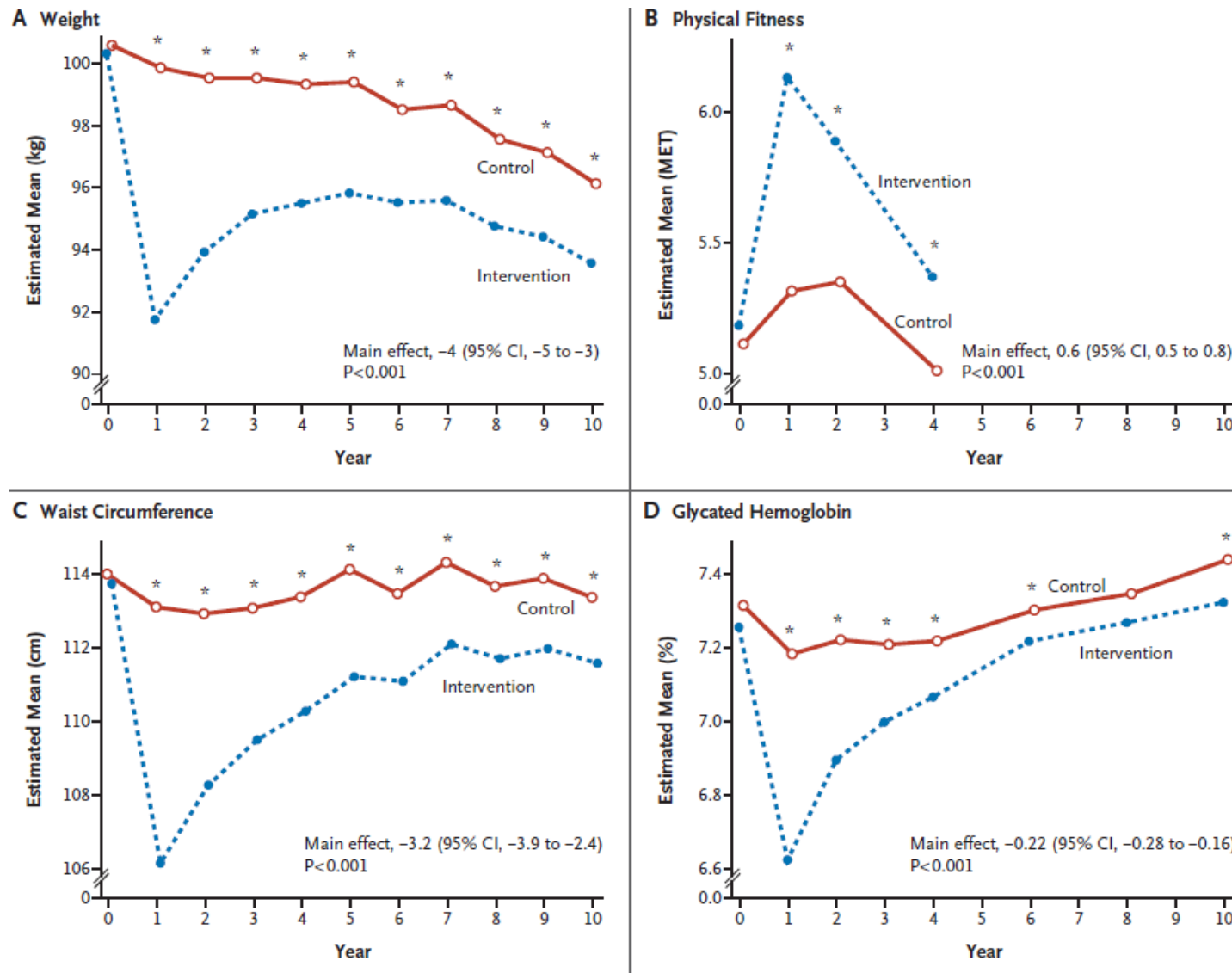
ORIGINAL ARTICLE

Cardiovascular Effects of Intensive Lifestyle Intervention in Type 2 Diabetes

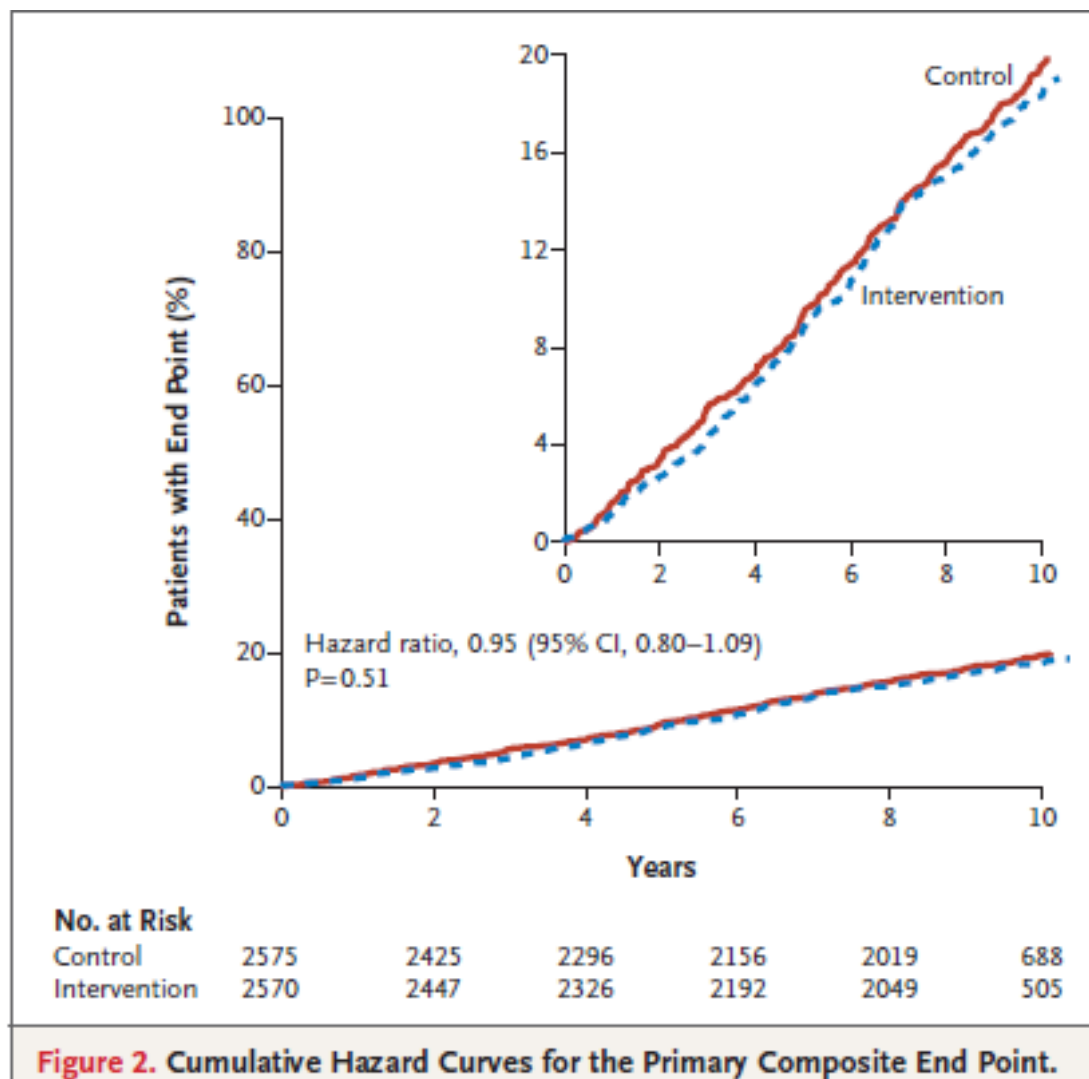
The Look AHEAD Research Group*

- P - 5145 overweight or obese with T2DM
- I - Lifestyle intervention (weekly group and individual counseling for 1st 6 months decreasing to 1 a month after year 4 and pedometer, calorie goals and 175 mins of MIA PA per week, 9.6 years (median) follow up)
- C - Diabetes support and education (3 group sessions per year on diet, exercise and social support [years 1-4])
- O - Composite of death from CV, nonfatal MI, stroke or hospitalisation for angina

PA – emerging evidence



PA – emerging evidence



Death from CV causes,
nonfatal MI, nonfatal
stroke, or hospitalisation
for angina

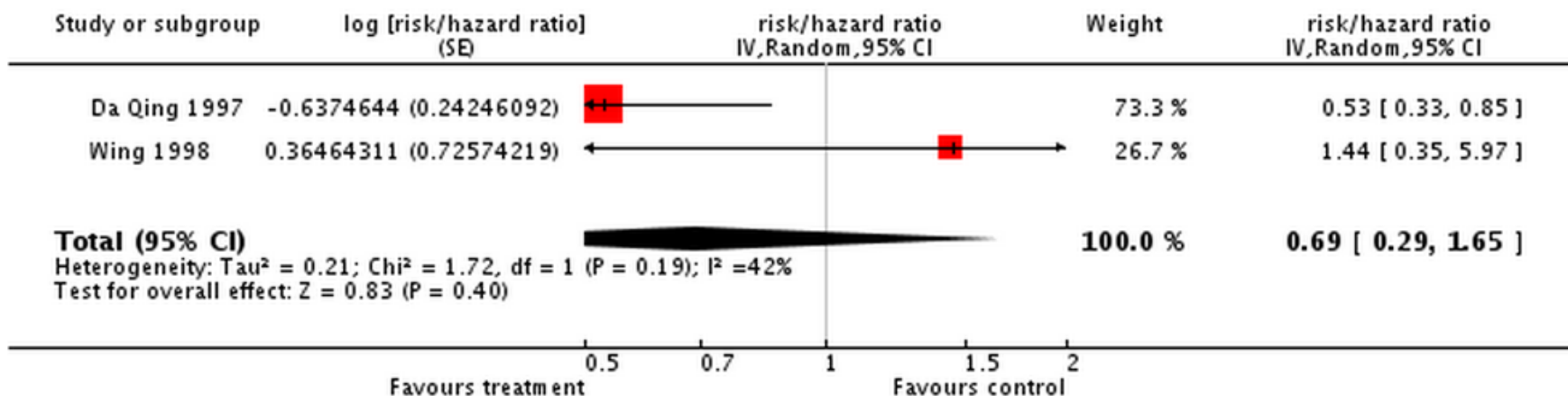
PA – emerging evidence

Exercise or exercise and diet for preventing type 2 diabetes mellitus (Review)

Orozco LJ, Buchleitner AM, Gimenez-Perez G, Roqué i Figuls M, Richter B, Mauricio D



Comparison: 2 Exercise vs standard recommendations (overall analysis)
Outcome: 1 Diabetes incidence - ITT (RR/HR)

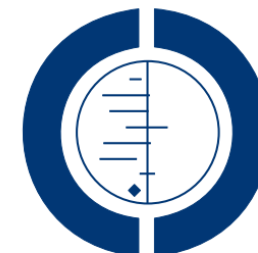


PA – emerging evidence

Exercise-based cardiac rehabilitation for coronary heart disease (Review)

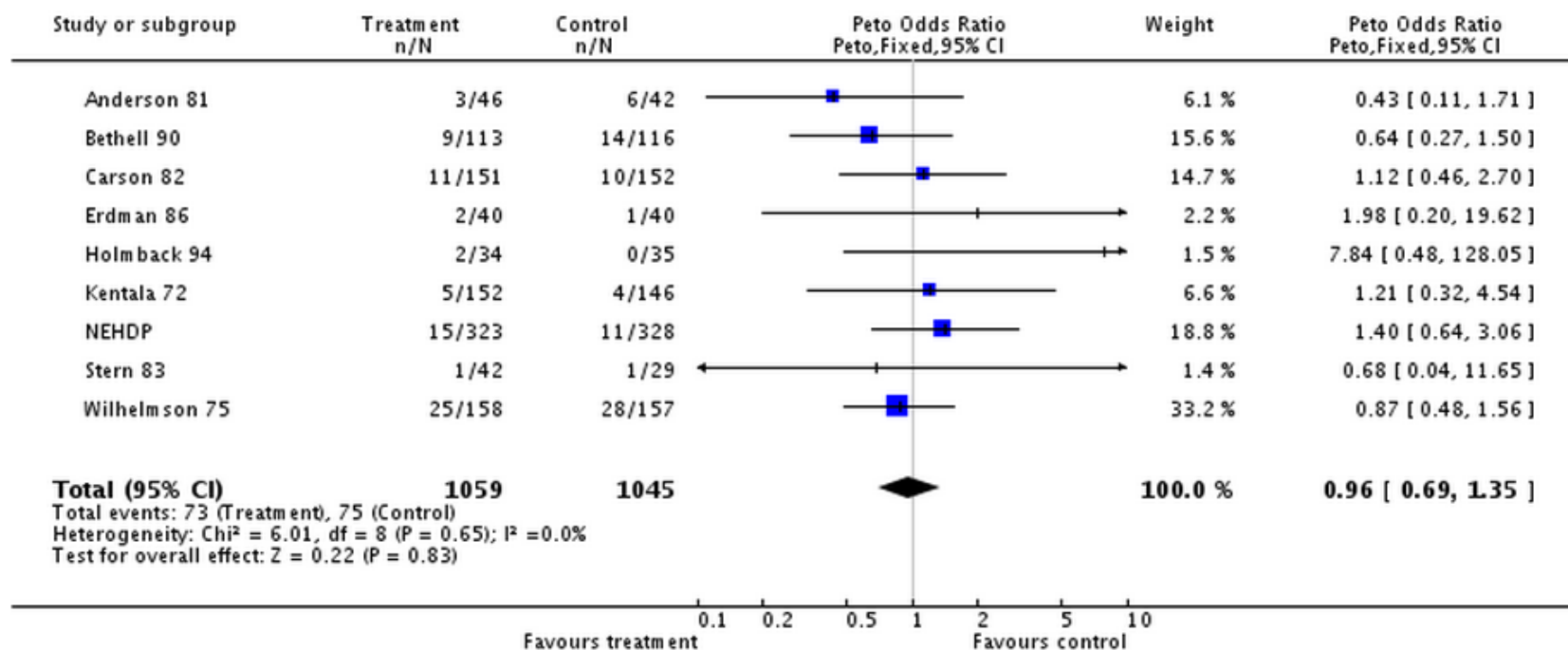
Heran BS, Chen JMH, Ebrahim S, Moxham T, Oldridge N, Rees K, Thompson DR, Taylor RS

nt Effect
Studie



THE COCHRANE
COLLABORATION®

Review: Exercise-based rehabilitation for coronary heart disease
Comparison: 1 Exercise only versus usual care
Outcome: 3 Non fatal MI



PA – evidence that is needed



Exercise for life

Physical activity in health and disease

Recommendations of the Sport and Exercise
Medicine Committee Working Party of the Royal
College of Physicians

-
- to examine the feasibility of producing a practical guide to exercise prescription for medical generalists and professionals allied to medicine, specifically relating to disease states; for example, the development of a 'BNF' for exercise – a text- or internet-based service giving clinicians clear evidence-based guidance and the capacity for risk stratification

PA - Evidence that is needed



Nunan *et al. Systematic Reviews* 2013, 2:56
<http://www.systematicreviewsjournal.com/content/2/1/56>



PROTOCOL

Open Access

Physical activity for the prevention and treatment of major chronic disease: an overview of systematic reviews

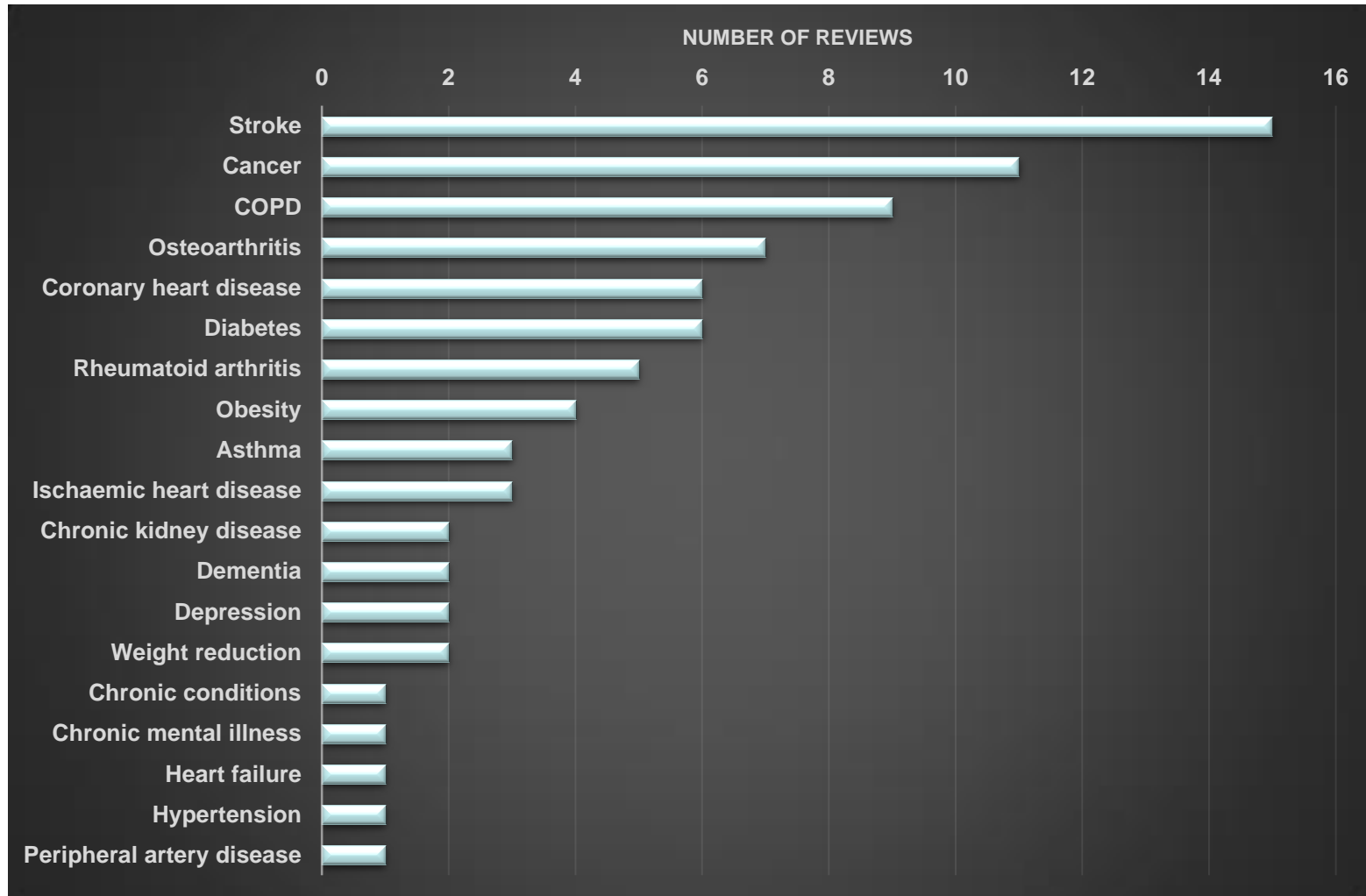
David Nunan^{1*}, Kamal R Mahtani¹, Nia Roberts² and Carl Heneghan¹

NHS
**National Institute for
Health Research**

School for
Primary Care
Research

- Cochrane reviews
- WHO 2008-2013 non-communicable disease action plan:
 - 13 major chronic diseases/conditions
- Treatment relevant outcomes (e.g. mortality/morbidity, management of condition/disease, HRQoL, functional capacity)
- Subgroup analyses
 - Setting (primary/secondary care, community, other)
 - Type of PA intervention (structured/unstructured; aerobic/resistance; intensity, frequency, duration)

Included reviews: title and abstract (n=82)



TIME TO MOVE.....



What is the current model in Primary care?



“It’s not a rash, it’s moss. You need to start being more active than a tree.”

1. UK PA Guidelines

- Who's knows the recommendations?
 - YES =
 - NO =

QUIZ

1. Rank the following risk factors for global mortality (most common-least common)
 - Diabetes
 - Physical Inactivity
 - Tobacco
 - High BP
 - Obesity

Quiz...



2. Which of the following fulfils the current UK guidelines for adults (19-64)
 - 20min of moderate intensive activity (MIA) on at least 5 days a week
 - 60min of MIA twice a week
 - 30min of MIA on at least 5 days a week
 - 60min vigorous activity (VA) once a week
 - 30min VA twice a week
3. What is current UK-recommended maximum units of alcohol each week for adults?

How do you compare?



Original Article

Major limitations in knowledge of physical activity guidelines among UK medical students revealed: implications for the undergraduate medical curriculum

Michael Dunlop,¹ Andrew Duncan Murray²

- 177 final year medical students in 2 Scottish medical schools

***Dunlop M, et al. Br J Sports Med 2013;00:1–3.
doi:10.1136/bjsports-2012-091891***

Results

1. Rank the following risk factors for global mortality (most common-least common)

• Diabetes	(6%)	3	3
• Physical Inactivity	(6%)	3	5
• Tobacco	(9%)	2	1
• High BP	(13%)	1	4
• Obesity	(5%)	4	2

Results 2

2. Which of the following fulfils the current UK guidelines for adults (19-64)

- 20min of moderate intensity activity (MIA) on at least 5 days a week 23%
- 60min of MIA twice a week 3%
- 30min of MIA on at least 5 days a week 68%
- 60min vigorous activity (VA) once a week 0%
- 30min VA twice a week 6%

3. What is current UK-recommended maximum units of alcohol each week for adults?

- Men = 21 units
 - Women = 14 units
- Correctly identified in 97% of responses

Each of us should aim to participate in an appropriate level of physical activity for our age. Each of the lifecourse chapters provides an introduction, sets out the guidelines for that age group, summarises the evidence and discusses what the guidelines mean for people. We hope that this report will be read by policy makers, healthcare professionals and others working in health improvement. The guidelines are designed to help professionals to provide people with information on the type and amount of physical activity that they should undertake to benefit their health, in particular to prevent disease. The age groups covered in this report are:

- early years (under 5s)
- children and young people (5–18 years)
- adults (19–64 years)
- older adults (65+ years).

EARLY YEARS (under 5s)

1. Physical activity should be encouraged from birth, particularly through floor-based play and water-based activities in safe environments.
2. Children of pre-school age who are capable of walking unaided should be physically active daily for at least 180 minutes (3 hours), spread throughout the day.
3. All under 5s should minimise the amount of time spent being sedentary (being restrained or sitting) for extended periods (except time spent sleeping).

CHILDREN AND YOUNG PEOPLE (5–18 years)

1. All children and young people should engage in moderate to vigorous intensity physical activity for at least 60 minutes and up to several hours every day.
2. Vigorous intensity activities, including those that strengthen muscle and bone, should be incorporated at least three days a week.
3. All children and young people should minimise the amount of time spent being sedentary (sitting) for extended periods.

ADULTS (19–64 years)

1. Adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week.
2. Alternatively, comparable benefits can be achieved through 75 minutes of vigorous intensity activity spread across the week or a combination of moderate and vigorous intensity activity.
3. Adults should also undertake physical activity to improve muscle strength on at least two days a week.
4. All adults should minimise the amount of time spent being sedentary (sitting) for extended periods.


- 150 mins moderate intensity activity (MIA), bouts of 10 mins or more e.g. 30 mins 5x week, or,
- 75 mins vigorous activity (VA) spread across week
- Muscle strength activity \geq 2 days/week
- MIA?
- VA?

OLDER ADULTS (65+ years)

1. Older adults who participate in any amount of physical activity gain some health benefits, including maintenance of good physical and cognitive function. Some physical activity is better than none, and more physical activity provides greater health benefits.
2. Older adults should aim to be active daily. Over a week, activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of 10 minutes or more – one way to approach this is to do 30 minutes on at least 5 days a week.
3. For those who are already regularly active at moderate intensity, comparable benefits can be achieved through 75 minutes of vigorous intensity activity spread across the week or a combination of moderate and vigorous activity.
4. Older adults should also undertake physical activity to improve muscle strength on at least two days a week.
5. Older adults at risk of falls should incorporate physical activity to improve balance and co-ordination on at least two days a week.
6. All older adults should minimise the amount of time spent being sedentary (sitting) for extended periods.

- As for adults plus:
- At risk of falls = PA to improve balance and co-ordination \geq 2 days/week

Brief advice - or is it?

**NICE** National Institute for Health and Care Excellence

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NICE public health guidance Issued: May 2013

PH44 **Physical activity: brief advice for adults in primary care**

[View the summary and implementation tools](#)

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1 Recommendations

Background

Recommendation 1 Identifying adults who are inactive

Recommendation 2 Delivering and following up on brief advice

Recommendation 3 Incorporating brief advice in commissioning

Recommendation 4 Systems to support brief advice

Recommendation 5 Providing information and training

Introduction: scope and purpose of this guidance

1 Recommendations

2 Public health need and practice

3 Considerations

4 Recommendations for research

5 Related NICE guidance

6 References

7 Summary of the methods used to develop this guidance

Brief advice - or is it?

- “The term 'brief advice' is used in this guidance to mean verbal advice, discussion, negotiation or encouragement, with or without written or other support or follow-up.”
- “It can vary from basic advice to a more extended, individually focused discussion.”
- “The availability of local opportunities to be active will influence whether brief advice has an impact on people's physical activity levels.”

Brief advice - or is it?

Identify adults who are inactive

- Use validated tool e.g. GPPAQ
- Arrange time to discuss PA
- Can refer to other member of primary care team
- Ensure person leaves initial consultation aware of the health benefits of PA
- Record outcomes of PA assessment

Delivering and following up on brief advice

- Advise to do more physical activity, aiming to achieve UK PA guidelines
- Tailor advice to person's motivations and goals (refer to NICE Behaviour change guidance), current level of activity, circumstances/preferences/barriers and health status.
- Provide information on local opportunities
- Consider giving written outline of the advice and goals
- Record outcomes of discussion
- Follow up at another appointment or when there is opportunity

Brief advice - evidence


BMJ

BMJ 2012;344:e1389 doi: 10.1136/bmj.e1389 (Published 26 March 2012)

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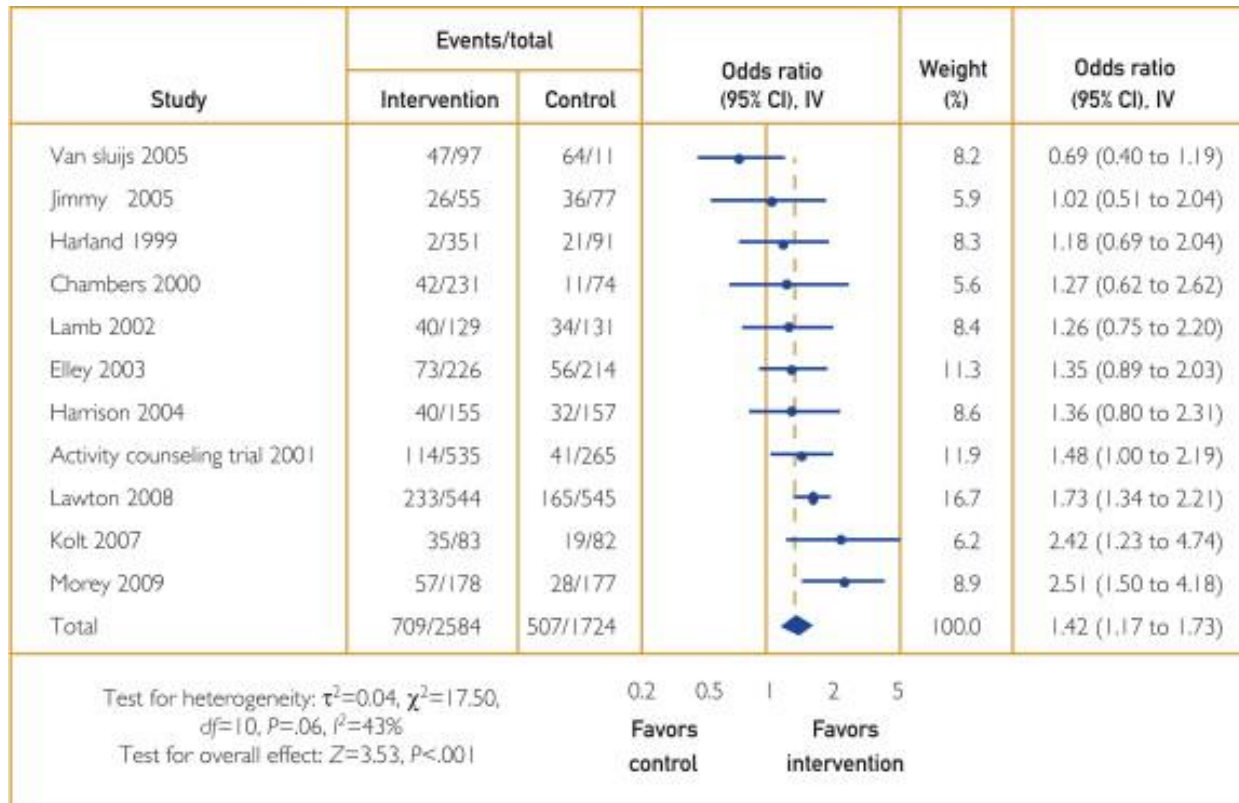
RESEARCH

Effectiveness of physical activity promotion based in primary care: systematic review and meta-analysis of randomised controlled trials

 OPEN ACCESS

Gillian Orrow *academic clinical fellow in general practice*, Ann-Louise Kinmonth *foundation professor of general practice*, Simon Sanderson *senior clinical research associate*, Stephen Sutton *professor of behavioural science*

Brief advice - evidence



- NNT = 12; for 1 additional person meeting recommended PA at 12 months
- This compares to NNT of 50 to 120 for smoking cessation advice

Brief advice - evidence

HOWEVER.....

- Most interventions included written materials and two or more sessions of advice or counselling on physical activity, delivered face to face.
- Advice or counselling was delivered by a combination of two professionals from different disciplines in most studies.
- Only one study reported an objective measure of physical activity in all participants. The mean intervention effect for this measure....was not significant at 12 month follow-up (-0.04 (95% confidence interval -0.16 to 0.08)).

Brief advice - evidence

REVIEW



Physical Activity Promotion in the Health Care System

Ilkka M. Vuori, MD, PhD; Carl J. Lavie, MD; and Steven N. Blair, PED

Abstract

Brief advice - evidence

- Encouraging patients to be more active = as simple as basic message from guidelines: “more is better than none”
- Walking the most common and feasible PA for most
- **Improving effectiveness of PA/ET advice:**
 - Advising persons with increased risk of chronic disease
 - Individual assessments of needs, motivation, current habits, barriers etc.,
 - Simple, clear, realistic message
 - Valid behaviour change methods e.g. self-regulatory (goal setting, self-monitoring)
 - Follow up
 - Face-to-face delivery
- Wide and sustainable applications in HCS = organisations and leaders need to change perceptions of PA/ET from “leisure time pursuits” to an “evidence-based medical measure comparable with pharmaceutical agents...”

GPPAQ



**The General Practice Physical Activity
Questionnaire (GPPAQ)**

**A screening tool to assess adult physical activity
levels, within primary care**

Updated May 2009

- 10 item questionnaire commissioned by DOH and LSH&TM 2002
- Assess PA level of adults aged 16-74
- 4-level physical activity index (PAI)
- Inform HCP when a brief intervention for PA needed = PAI < 3 (active)
- Available online at www.patient.co.uk

General Practice Physical Activity Questionnaire

Date.....

Name.....

1. Please tell us the type and amount of physical activity involved in your work.

		Please mark one box only
a	I am not in employment (e.g. retired, retired for health reasons, unemployed, full-time carer etc.)	
b	I spend most of my time at work sitting (such as in an office)	
c	I spend most of my time at work standing or walking. However, my work does not require much intense physical effort (e.g. shop assistant, hairdresser, security guard, childminder, etc.)	
d	My work involves definite physical effort including handling of heavy objects and use of tools (e.g. plumber, electrician, carpenter, cleaner, hospital nurse, gardener, postal delivery workers etc.)	
e	My work involves vigorous physical activity including handling of very heavy objects (e.g. scaffolder, construction worker, refuse collector, etc.)	

2. During the last week, how many hours did you spend on each of the following activities?
Please answer whether you are in employment or not

		Please mark one box only on each row			
		None	Some but less than 1 hour	1 hour but less than 3 hours	3 hours or more
a	Physical exercise such as swimming, jogging, aerobics, football, tennis, gym workout etc.				
b	Cycling, including cycling to work and during leisure time				
c	Walking, including walking to work, shopping, for pleasure etc.				
d	Housework/Childcare				
e	Gardening/DIY				

Not used in PAI

3. How would you describe your usual walking pace? Please mark one box only.

Slow pace (i.e. less than 3 mph)	<input type="checkbox"/>	Steady average pace	<input type="checkbox"/>
Brisk pace	<input type="checkbox"/>	Fast pace (i.e. over 4mph)	<input type="checkbox"/>

Used when PAI =
'less than active'
but walk \geq 3 hours

General Practice Physical Activity Questionnaire

Date.....

Name.....

1. Please tell us the type and amount of physical activity involved in your work.

		Please mark one box only
a	I am not in employment (e.g. retired, retired for health reasons, unemployed, full-time carer etc.)	
b	I spend most of my time at work sitting (such as in an office)	X
c	I spend most of my time at work standing or walking. However, my work does not require much intense physical effort (e.g. shop assistant, hairdresser, security guard, childminder, etc.)	
d	My work involves definite physical effort including handling of heavy objects and use of tools (e.g. plumber, electrician, carpenter, cleaner, hospital nurse, gardener, postal delivery workers etc.)	
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		Please mark one box only on each row			
		None	Some but less than 1 hour	1 hour but less than 3 hours	3 hours or more
a	Physical exercise such as swimming, jogging, aerobics, football, tennis, gym workout etc.				X
b	Cycling, including cycling to work and during leisure time	X			
c	Walking, including walking to work, shopping, for pleasure etc.				X
d	Housework/Childcare				X
e	Gardening/DIY			X	

3. How would you describe your usual walking pace? Please mark one box only.

Slow pace (i.e. less than 3 mph)		Steady average pace	X
Brisk pace		Fast pace (i.e. over 4mph)	



EXERCISE

see what happens when you leave your computer?

more awesome pictures at THEMETAPICTURE.COM



GPPAQ – what do you do next?

Physical exercise and / or cycling (hr/wk)	Occupation			
	Sedentary	Standing	Physical	Heavy Manual
0	Inactive	Moderately Inactive	Moderately Active	Active
Some but < 1	Moderately Inactive	Moderately Active	Active	Active
1-2.9	Moderately Active	Active	Active	Active
≥ 3	Active	Active	Active	Active

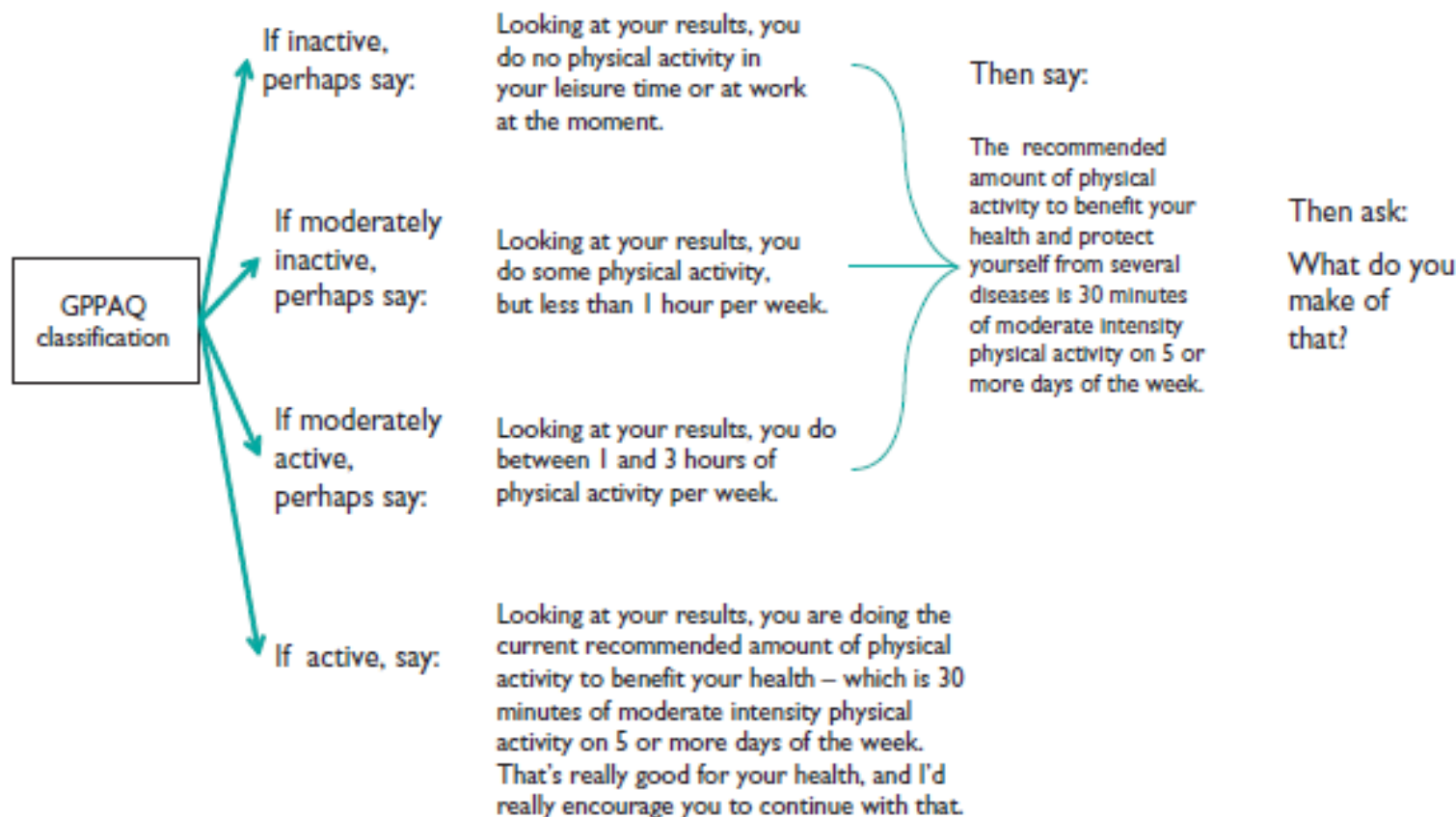
If < Active = give brief intervention supporting behaviour change to increase PA (follow NICE 2006 Guidance)

If Active = give verbal reinforcement reflecting current level of PA and encourage to either make small increases or continue with current level

If < Active but say they walk = further investigation is required into the frequency and intensity.

Feedback from GPPAQ

Providing non judgemental feedback



GPPAQ – what do you do next?

ANNEX 2:

A. AN EXAMPLE OF A MOTIVATIONAL INTERVIEW WITHIN A PHYSICAL ACTIVITY BRIEF INTERVENTION

Practitioners can consider the following example of a brief verbal intervention for inactive patients based on the principles of Motivational Interviewing (MI).

Any intervention should be consistent with the agenda on patient led consultations and choice. One way to do this is to base behaviour-change negotiations on the principles of motivational interviewing (MI). Although developed in the field of addictions, brief versions of MI have been adapted and applied to a wide variety of behaviours and conditions such as smoking, diet, physical activity, medical adherence and diabetes, with evidence of effectiveness (Resnicow et al., 2002; Rollnick, 1999, Rubak, 2005).

Motivational Interviewing elicits change talk in the patient, empowering them to change their own behaviour. Below are example questions for an MI based dialogue.

Example Dialogue for Inactive Patients

Question set One:

"On a scale from 0 to 10, where 0 is not important at all, and 10 is extremely important, how important is getting more active for you?"

"Why did you pick this number?"

"Why did you not pick a lower number?"

"What would you need to do to get you to a higher number?"

Question set Two:

"Now think about why you want to do this. Think about how you'll feel, what you'll look like, what you'll be able to do that you can't do now. Also think about what might be stopping you from changing and what will happen if you don't?"

Why you want to change

e.g. To be able to play with children / grandchildren; To help health

Exercise referral schemes?



*"Visiting your health club's website
is a start, but I'd prefer you actually
go there and exercise."*

Exercise referral schemes

Issue date: March 2006

Quick reference guide



*National Institute for
Health and Clinical Excellence*

Four commonly used methods to increase physical activity:

brief interventions in primary care, exercise referral schemes, pedometers and community-based exercise programmes for walking and cycling

Exercise referral schemes

- “An exercise referral scheme directs someone to a service offering an assessment of need, development of a tailored physical activity programme, monitoring of progress and a follow-up”
- “The Fitness Industry Association estimates that there are around 600 schemes in England.”
- “....there was insufficient evidence to recommend the use of exercise referral schemes to promote physical activity, other than as part of research studies where their effectiveness can be evaluated.”

Exercise referral schemes - evidence

BMJ

BMJ 2012;344:e1389

BMJ 2012;344:e1389 doi: 10.1136/bmj.e1389 (Published 26 March 2012)

Page 1 of 17

RESEARCH

Effectiveness of physical activity promotion based in primary care: systematic review and meta-analysis of randomised controlled trials

OPEN ACCESS

Gillian Orrow *academic clinical fellow in general practice*, Ann-Louise Kinmonth *foundation professor of general practice*, Simon Sanderson *senior clinical research associate*, Stephen Sutton *professor of behavioural science*

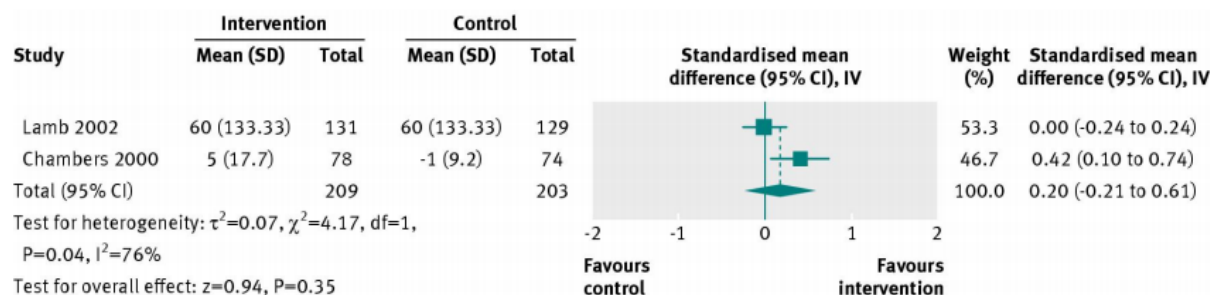


Fig 7 Individual study and pooled effects of physical activity promotion on self reported physical activity at 12 months, exercise referral interventions only (continuous data). Random effects model used. SD=standard deviation; 95% CI=95% confidence intervals; IV=inverse variance

Exercise referral schemes

Pathway

NICE guidance

Recommendations about
local strategy, policy and
commissioning



Exercise referral, pedometers,
walking and cycling schemes

Exercise referral, pedometers, walking and cycling schemes

Exercise referral schemes

Practitioners, policy makers and commissioners should **only endorse [exercise referral schemes](#) to promote physical activity that are part of a properly designed and controlled research study** to determine effectiveness. Measures should include intermediate outcomes such as knowledge, attitudes and skills, as well as measures of physical activity levels. **Individuals should only be referred to schemes that are part of such a study.**

Pedometers and walking and cycling schemes

See [providing individual support](#) and [community-wide walking programmes](#) in the 'Walking and cycling' pathway.

Pedometers



1.3 Pedometers, walking and cycling schemes

Pedometers are a common aid to increasing physical activity through walking. Much of the research about pedometers has involved comparing the validity and reliability of different models. This guidance focuses on how effective they are at increasing people's physical activity levels.

PHIAC determined that there was insufficient evidence to recommend the use of pedometers

Pedometers – emerging evidence



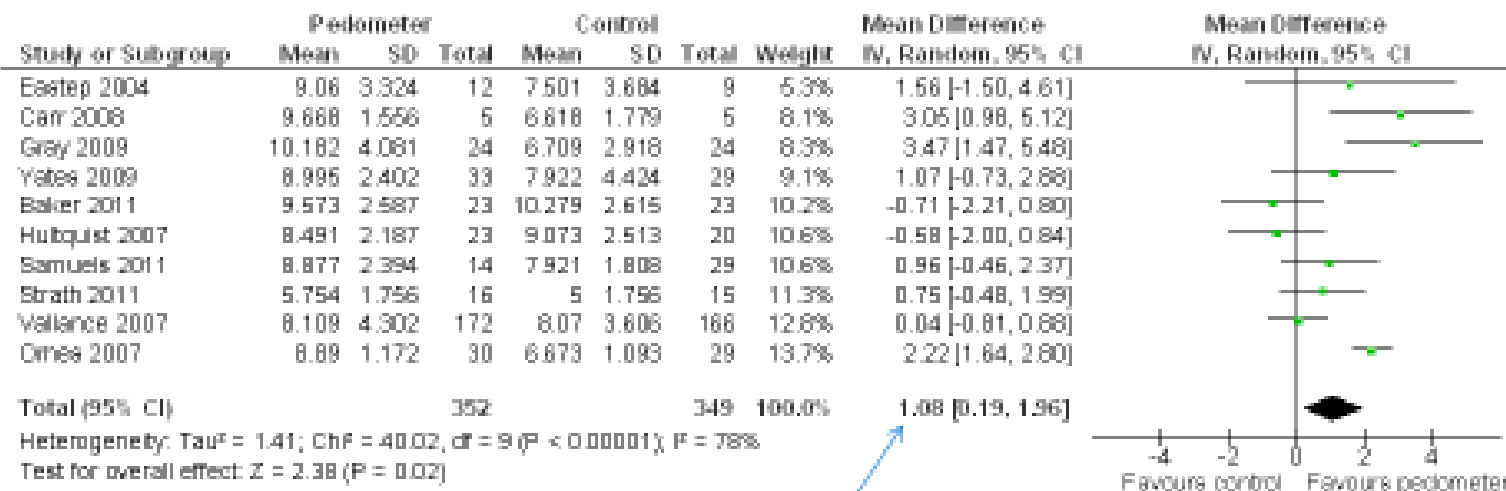
The effectiveness of pedometers to increase physical activity: a systematic review and meta-analysis.

Dan Mason (1), Laura Lamming, Ed Wilson,
Vijay Singh GC, Sally Pears, Katie Morton,
Maaike Bijker, Stephen Sutton, Wendy
Hardeman.

(1) The Behavioural Science Group, Institute of Public Health, Cambridge, UK

Pedometers – emerging evidence

Results – pooled steps per day (1000s), N=10



Estimate 1080 steps per day
advantage with pedometer

TIME TO MOVE.....





What is 'fitness'?

- Physical fitness has been defined as a set of attributes or characteristics that people have or achieve that relates to the ability to perform physical activity.

President's Council on Fitness, Sports & Nutrition:

Physiological	Health related	Skill related	Sports
<ul style="list-style-type: none">• Metabolism• Morphological• Bone integrity• Other	<ul style="list-style-type: none">• Body composition• Cardiovascular fitness• Flexibility• Muscular endurance• Muscle strength	<ul style="list-style-type: none">• Agility• Balance• Coordination• Power• Speed• Reaction time• Other	<ul style="list-style-type: none">• Team sport• Individual sport• Lifetime• Other

Measuring 'fitness' in primary care?

Updated Data Release of the 2001 National Family Physician Workforce Survey

The College of Family Physicians of Canada

The Janus Project: *Family Physicians Meeting the Needs of
Tomorrow's Society*

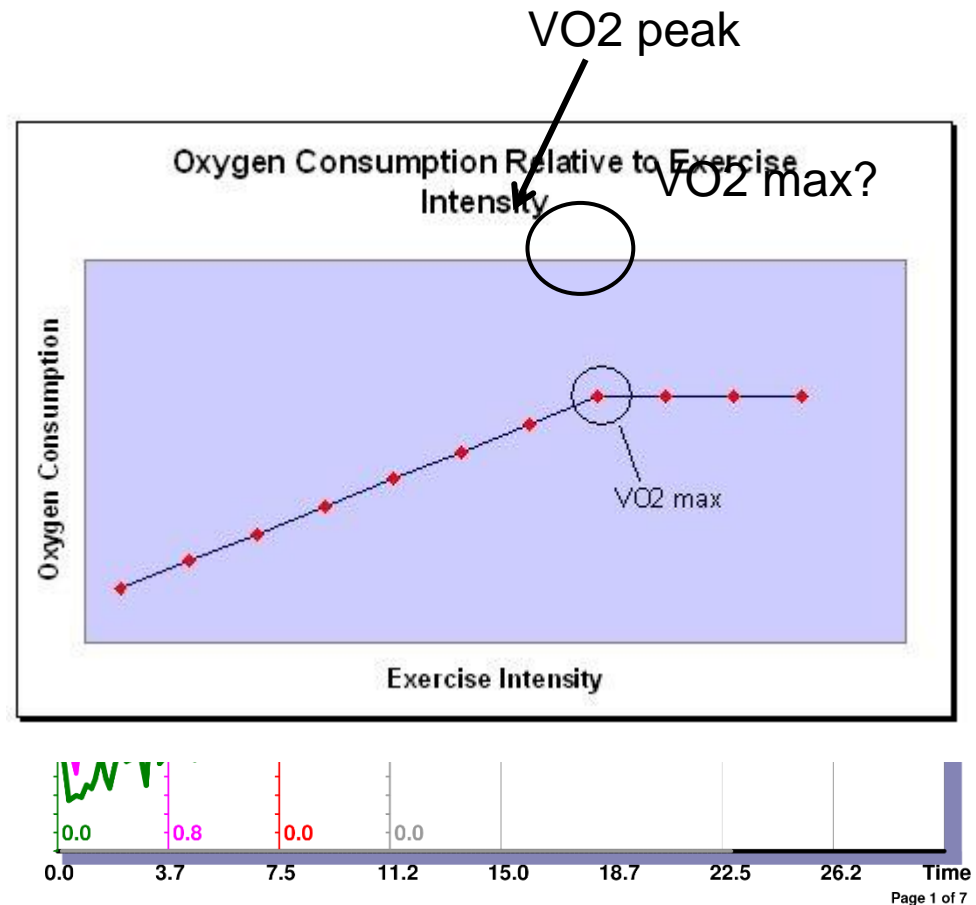
PHYSICAL ACTIVITY

42. Please indicate how frequently you perform each of the following as part of your regular practice:

	Very frequently	Frequently	Occasionally	Very rarely	Never
Ask patients about their physical activity levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assess patient fitness as part of a physical exam or through a fitness test	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refer patients to other professionals for fitness assessment or appraisal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide patients with verbal directions for a physical activity program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Provide patients with written directions for a physical activity program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Maximal oxygen uptake (VO2 max)

- The maximum capacity of an individual's body to transport and use oxygen during incremental exercise
- Reflects cardiorespiratory fitness of the individual
- VO2 max – plateau in O2 consumption for given increase in workrate/load (speed/wattage)
- VO2 peak – peak O2 consumption value obtained during incremental exercise
- Measured as millilitres per minute per kg body weight per min (ml/kg/min) or litres per minute (l/min)



Fitness age?



- Telling a smoker their lung age is a powerful motivator to quite smoking (Parkes et al BMJ 2008;15:336(7644))
- What about telling an inactive/chronic disease patient their fitness age to increase physical activity?

Fitness age?

<http://www.ntnu.edu/cerg/vo2max>

VO2max
KALKULATOR

☒ Male

☐ Female

How often do you exercise?

Almost every day

How long is your workout each time?

30 minutes or more

How hard do you train?

Little hard breathing and sweating

How old are you?

34

What does your waistline measure in cm?

73

What is your resting pulse? (number of beats per minute)

57

Calculate

Your VO2MAX is calculated to be

59

and your estimated "fitness age" is

younger than 20

CLINICAL SCIENCES

Estimating $\dot{V}O_{2peak}$ from a Nonexercise Prediction Model: The HUNT Study, Norway

BJARNE MARTENS NES^{1,2}, IMRE JANSZKY², LARS JOHAN VATTEN^{1,3}, TOM IVAR LUND NILSEN⁴, STIAN THORESEN ASPENES^{1,2}, and ULRIK WISLØFF^{1,2,5}

¹K. G. Jebsen Center of Exercise in Medicine, Department of Circulation and Medical Imaging, Faculty of Medicine, Norwegian University of Science and Technology, Trondheim, NORWAY; ²Department of Circulation and Medical Imaging, Faculty of Medicine, Norwegian University of Science and Technology, Trondheim, NORWAY; ³Department of Public Health and General Practice, Faculty of Medicine, Norwegian University of Science and Technology, Trondheim, NORWAY; ⁴Institute of Human Movement Science, Faculty of Social Sciences and Technology Management, Norwegian University of Science and Technology, Trondheim, NORWAY; and ⁵Centre for Sports and Physical Activity Research, Norwegian University of Science and Technology, Trondheim, NORWAY

TABLE 2. Results of regression analysis for the total population sample.

Equation components	Men						Women				
	R	R ²	R ² Change	Sig.	SEE	%SEE	Equation components	R	R ²	R ² Change	Sig.
Age	0.57	0.32	—	—	7.53	17.0	Age	0.56	0.32	—	—
Age, PA index	0.67	0.45	0.13	<0.001	6.79	15.3	Age, PA index	0.64	0.40	0.09	<0.001
Age, PA index, WC	0.77	0.59	0.14	<0.001	5.85	13.2	Age, PA index, WC	0.73	0.54	0.13	<0.001
Age, PA index, WC, RHR	0.78	0.61	0.02	<0.001	5.70	12.8	Age, PA index, RHR	0.75	0.56	0.02	<0.001

collinearity diagnostics did not exceed tolerance of <3 and variance inflation factor of >3.

Abbreviations: R, multiple correlation coefficient; R², squared multiple correlation coefficient; Sig., level of significance.

61% and 56% of variance in VO2max explained = fairly accurate(?)

Measuring 'fitness' in primary care?

Maximal oxygen uptake norms for women (ml/kg/min)

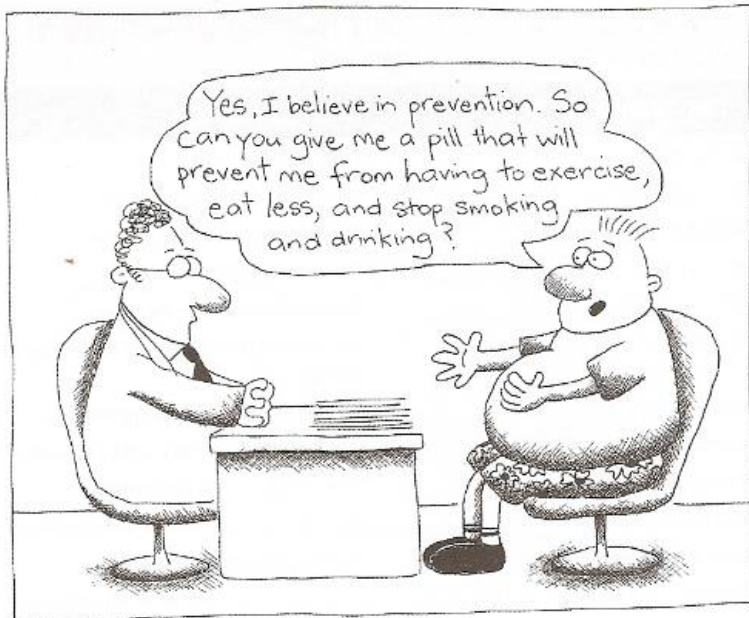
	18-25 years old	26-35 years old	36-45 years old	46-55 years old	56-65 years old	65+ years old
excellent	> 56	> 52	> 45	> 40	> 37	> 32
good	47-56	45-52	38-45	34-40	32-37	28-32
above average	42-46	39-44	34-37	31-33	28-31	25-27
average	38-41	35-38	31-33	28-30	25-27	22-24
below average	33-37	31-34	27-30	25-27	22-24	19-22
poor	28-32	26-30	22-26	20-24	18-21	17-18
very poor	< 28	< 26	< 22	< 20	< 18	< 17

Maximal oxygen uptake norms for men (ml/kg/min)

	18-25 years old	26-35 years old	36-45 years old	46-55 years old	56-65 years old	65+ years old
excellent	> 60	> 56	> 51	> 45	> 41	> 37
good	52-60	49-56	43-51	39-45	36-41	33-37
above average	47-51	43-48	39-42	35-38	32-35	29-32
average	42-46	40-42	35-38	32-35	30-31	26-28
below average	37-41	35-39	31-34	29-31	26-29	22-25
poor	30-36	30-34	26-30	25-28	22-25	20-21
very poor	< 30	< 30	< 26	< 25	< 22	< 20

VO2max (ml/kg/min)	Athlete	Gender	Sport/Event
96.0	Espen Harald Bjerke	Male	Cross Country Skiing
96.0	Bjorn Daehlie	Male	Cross Country Skiing
92.5	Greg LeMond	Male	Cycling
92.0	Matt Carpenter	Male	Marathon Runner
92.0	Tore Ruud Hofstad	Male	Cross Country Skiing
91.0	Harri Kirvesniemi	Male	Cross Country Skiing
88.0	Miguel Indurain	Male	Cycling
87.4	Marius Bakken	Male	5K Runner
85.0	Dave Bedford	Male	10K Runner
85.0	John Ngugi	Male	Cross Country Runner
73.5	Greta Waitz	Female	Marathon runner
71.2	Ingrid Kristiansen	Female	Marathon Runner
67.2	Rosa Mota	Female	Marathon Runner

PinA – What PC is up against?



The Telegraph


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HOME » HEALTH » HEALTH NEWS

Exercise 'fails to lift clinical depression'

Exercise should not be "prescribed" to people with clinical depression, according to a study which found it did nothing to improve their moods.



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Wednesday, Sep 18

MailOnline



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Excess exercise 'hurts the heart' and cause dangerous long-term harm, say scientists

By JENNY HOPE

PUBLISHED: 05:39, 4 June 2012 | UPDATED: 05:39, 4 June 2012

 Share  Tweet  +1  Share

 114 View comments

PinA – What PC is up against?



determination and support. Health care professionals can provide advice, encouragement and materials but ultimately may have limited scope to influence poor dietary habits and inadequate exercise which result in part from the busy and stressful pace of life and in part from personal choice.

“So what now?”



For ME (Research):

1. Evidence:

- Where does increased PA lead to better outcome under randomised trial settings (even if it leads to improved CV risk)?
- What PA is best and for what conditions and settings?
- How can we scale up PA interventions in primary care?

2. Practicality

- Is primary care willing/able/best placed to do facilitate increased PA?
- If so – training and education:
 - When?
 - What?
 - How?
 - Who?

“So what now?”



For YOU (Practitioners):

- Know the current guidelines
- Tell your patients about them – poster, written info
- The “6As”: assess, advise, agree, assist, arrange and assess again
- Apply evidence-based medicine approach
- Know your local resources
- Walking = it’s free and there are tips(?):
<http://www.getwalking.org>, www.everybodywalk.org
- Write a prescription!

Prescribing PA - others are already doing it...

Doctors taught to prescribe exercise

Evonne Barry | Herald Sun | September 09, 2011 12:00AM



Tweet



Recommend



Share



Email



6 COMMENTS

A⁺

A⁻



DOCTORS are being trained to prescribe exercise as they would drugs under an overhaul of medical degrees.

Melbourne University has made "exercise education" a key addition to its new curriculum for medical students, becoming one of the first institutions in the world to do so.

Students could be given pedometers next year to gauge their own activity levels under the push to emphasise exercise in patient care.

Scientific evidence about the benefits of keeping fit has already taken its place in classroom theory, as part of the new Doctor of Medicine degree introduced this year.

RECOMMENDED COVERAGE


Super-size clothes for men at Myer


Weight Watchers really does work

ACCESS ALL AREAS.

What is a PA/exercise prescription?



			
SPAULDING REHABILITATION HOSPITAL 125 NASHUA STREET BOSTON, MASSACHUSETTS 02114 617-573-7000			
PATIENT'S FULL NAME		PHONE NUMBER	AGE
Sue Johnson			57
ADDRESS		SEX	F
		DATE	04 / 15 / 09
<p>Rx Moderately intense physical activity 30 minutes daily at least five times per week or vigorous activity 20 minutes - three times per week or combination resistance training twice per week</p>			
<input type="checkbox"/> Refills 1 2 3 4 Forever <input type="checkbox"/> No Refills Void After _____			
DEA: _____			
Dr: Edward Phillips			
Interchange mandated unless the practitioner writes the words "No Substitution" in this space			
VALID FOR CONTROLLED SUBSTANCES			

			
SPAULDING REHABILITATION HOSPITAL 125 NASHUA STREET BOSTON, MASSACHUSETTS 02114 617-573-7000			
PATIENT'S FULL NAME		PHONE NUMBER	AGE
ADDRESS		SEX	
		DATE	/ /
<p>Rx Moderate intensity physical activity, 30 minutes per day, at least 5 days per week but preferably all days of the week, or vigorous intensity exercise 20 minutes three days per week or combination. May accumulate in bouts of at least 10 minutes. Avoid two consecutive days of inactivity. Resistance exercise 2 days per week; one-three sets of eight-12 repetitions to point of fatigue with last repetition. Flexibility/Range of Motion exercises.</p>			
<input type="checkbox"/> Refills 1 2 3 4 Forever <input type="checkbox"/> No Refills Void After _____			
DEA: _____			
Dr: Edward Phillips			
Interchange mandated unless the practitioner writes the words "No Substitution" in this space			
VALID FOR CONTROLLED SUBSTANCES			

What is a PA/exercise prescription?

MR DMA44 MEDICATIONS - Microsoft Internet Explorer provided by Partners HealthCare System

Address: http://intra.partners.org/scripts/phsweb.mwl?APP=LMR&SESSION=51140226

LC813 >40/40 455
BIMA

Select Desktop Pt Chart: Medications Oncology Custom Reports Admin Sign Results ? Resource Popup

Rx Print/Fax
no Rx

Exercise x 365 day(s)
Form: Size:

Refills: 11
PRN: ☐
Start Date: 06/05/2006
End Date: 06/05/2007

☒ Patient Educated
☐ Expire

Special Instructions:
Week 1: Push off in rocking chair for 5 minutes daily.
Week 2: Add arm raises during every TV commercial for 5 shows.

Comments (This will not print on prescription):
Week 3: Add 5 minutes of leg raises during every commercial for 5 shows.
Week 4: Add 5 minutes of slow walking outside house daily.

Add to ☐ My ☐ Practice Favorites as: Exercise 365 day(s)

☒ Rx Print/Fax ☐ no Rx

Ok Ok-Add New OK & Sign Cancel Back To Lookup

“So what now?”



For YOU (Practitioners):

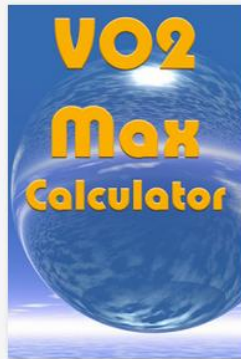
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- Know your local resources
- Walking = it's free and there are tips(?):
<http://www.getwalking.org>, www.everybodywalk.org
- Write a prescription!
- Measure something? = New technologies?

New technology...

Fitness

Sort by: Relevance Latest Rating

Show: Any device Any price



mobsea VO2 Max

Calculate Your VO2 Max

Units: Metric US

Gender: Male Female

Age:

Weight: kilograms

Time to Walk 1 Mile (in seconds):

Heart Rate (at end of 1 mile): (between 122-170 bpm)

... Result >>>

VO2 Max Calculator

mobsea VO2 Max

Calculate Your VO2 Max

VO2 Max : 39.47

VO2 Max Calculator

VO2 Max (Volume Oxygen Max) is a measure of how much oxygen a person can use during difficult exercise. VO2 Max is a commonly used indicator of an individual's cardiovascular respiratory fitness level.

Formula

$$132.853 - (0.0769 \times \text{Weight}) - (0.3877 \times \text{Age}) - (3.2649 \times \frac{\text{Time}}{\text{Mile}}) - (0.1565 \times \text{Heart Rate}(122-170))$$

Health Calculators



Glynn et al. *Trials* 2013, **14**:157
<http://www.trialsjournal.com/content/14/1/157>




STUDY PROTOCOL

Open Access

SMART MOVE - a smartphone-based intervention to promote physical activity in primary care: study protocol for a randomized controlled trial

Liam G Glynn^{1,2*}, Patrick S Hayes¹, Monica Casey¹, Fergus Glynn², Alberto Alvarez-Iglesias³, John Newell³, Gearóid ÓLaighin⁴, David Heaney⁵ and Andrew W Murphy¹




Heart Rate Monitor

Mobile Essentials - 18 November 2013
Health & Fitness

Install Add to Wishlist

★★★★☆ (369) +435 Recommend this on Google

HELP



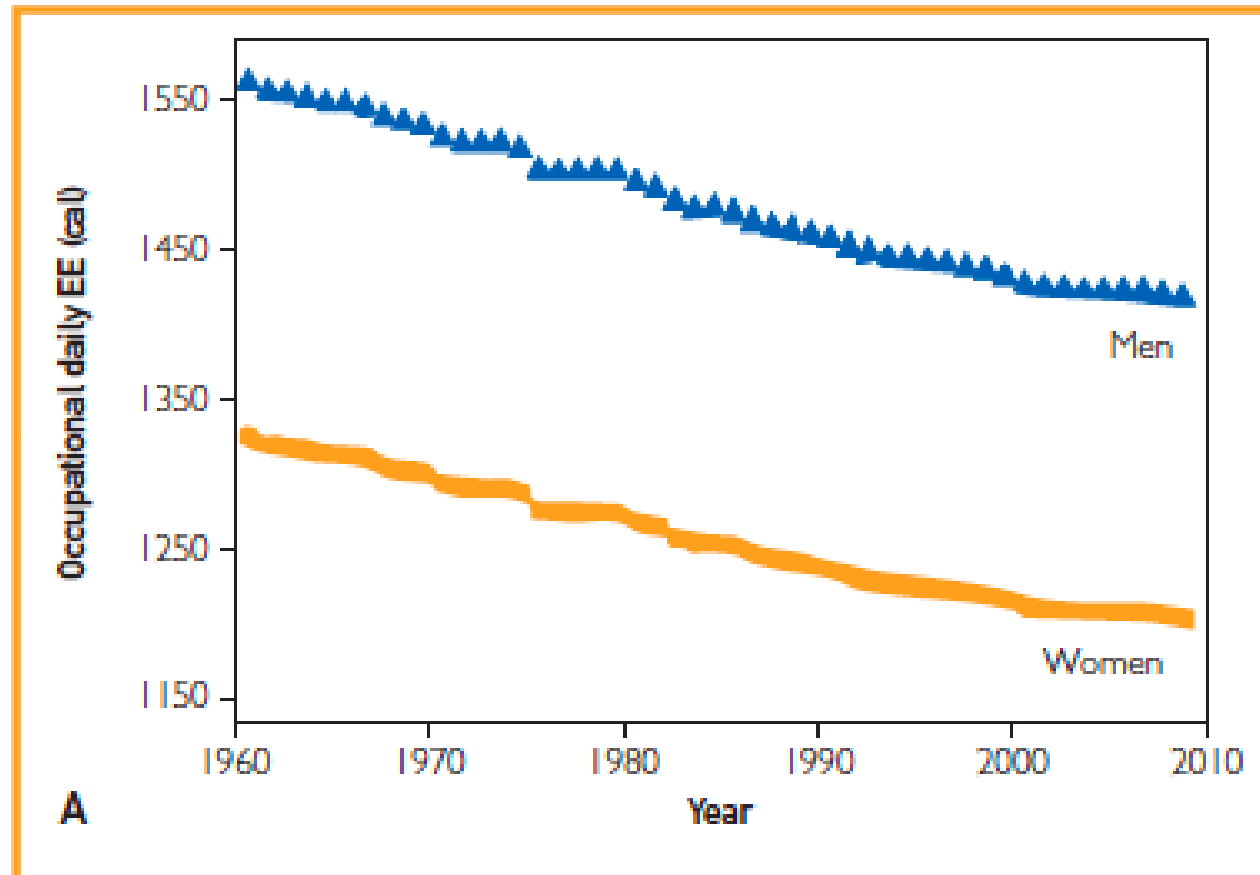
Heart Rate app measures your heart rate by analyzing blood flow on the tip of your finger.

“So what now?”

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- Know your local resources
- Walking = it’s free and there are tips(?):
<http://www.getwalking.org>, www.everybodywalk.org
- Write a prescription!
- Measure something! = new technologies?
- Practice what you preach!

Practice what you preach?



Practice what you preach?



"You probably think I've got a nerve putting you on a physical activity regime"

2.3 METs

70kg

$70 \times 2.3 \times 8 = 1288$ kcal/day

1288×5 days = 6444 kcal/week

6444×47 weeks = **302868 kcal/year**

171408 additional kcal per year =

1 MET (1kcal/kg/hr)

70kg

$70 \times 1 \times 8 = 560$ kcal/day

560×5 days = 2800 kcal/week

560×47 weeks = **131460 kcal/year**



Practice what you preach?



630



947



69 (yes 69 is correct!)

Practice what you preach?



Article



The relationship between physicians' and nurses' personal physical activity habits and their health-promotion practice: A systematic review

Health Education Journal

0(0) 1–18

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DOI: 10.1177/0017896911430763

hej.sagepub.com



Sun Fie^a, Ian J Norman^b and Alison E While^b

^aSecond Military Medical University, School of Nursing, China

^bKing's College London, Florence Nightingale School of Nursing & Midwifery, UK

Results: Thirteen studies met the inclusion criteria and were cross-sectional surveys employing a variety of self-report questionnaires. The majority of studies found that a higher personal physical activity level was associated with higher physical activity-promoting practices, and that health professionals with positive attitudes towards physical activity were more likely to promote physical activity to their clients.

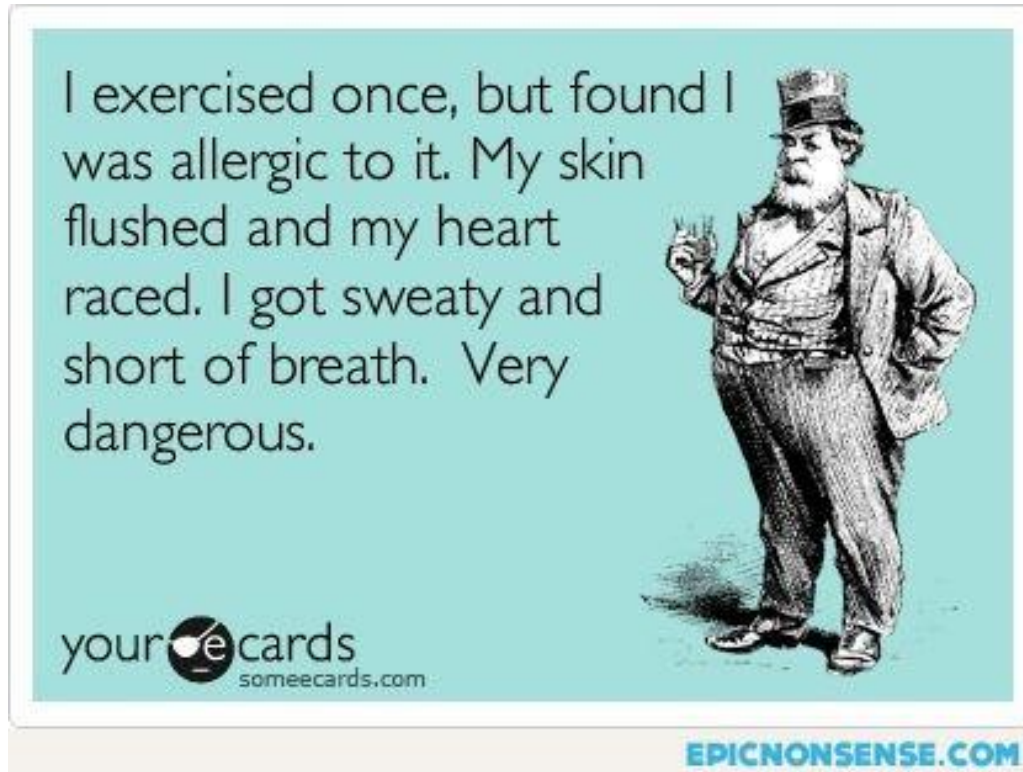
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- Walking = it's free and there are tips(?):
<http://www.getwalking.org>, www.everybodywalk.org
- Write a prescription!
- Measure something! = new technologies?
- Practice what you preach!
- Lobby for ‘Exercise is Medicine’...or don't!

Thank you for listening



david.nunan@phc.ox.ac.uk