Assessing physical activity in general practice: a disconnect between clinical practice and public health?

Tania Winzenberg, Pam Reid and Kelly Shaw

ABSTRACT

Background
GPs comply poorly to public health recommendations to routinely assess their patients' physical activity. The reasons for this disconnect between recommended practice and GPs' actual practice are unclear.

Aim
To investigate GPs' perceptions of assessing physical activity, and to explore how GPs assess their patients' physical activity.

Design of the study
Qualitative study.

Setting
General practice.

Method
Semi-structured interviews were performed with 15 randomly selected southern Tasmanian GPs, with stratification to include GPs with a range of demographic characteristics. Each interview was recorded, transcribed in full, and analysed using an iterative thematic approach to identify major themes.

Results
GPs recognised the importance of assessing physical activity, but rather than assessing every patient, they target at-risk patients and those with conditions likely to benefit from increased physical activity. Depth of assessment and GPs' definition of sufficient physical activity varied according to the clinical and social context of each patient. Major barriers were the time needed to perform an adequate assessment and lack of time to deal with physical inactivity in patients once it was identified.

Conclusion
GPs' assessment of physical activity is a complex and highly individualised process that cannot be divorced from the issue of managing physical inactivity once it is identified. Expectations that GPs will assess physical activity levels in all their patients are unlikely to be met. This must be taken into account when developing strategies to improve physical activity assessment in general practice, and should be considered in policy decisions about approaches to take to improve physical activity levels at a population level.

Keywords
assessment; general practice; physical activity; primary health care.

INTRODUCTION

Physical inactivity is a key risk factor for poor health, with an estimated 58% of adults globally having insufficient physical activity.[1] Many international public health authorities recommend that healthcare providers routinely assess and manage their patients' physical inactivity, as one way to address this.[2–5] One peak GP body, the Royal Australian College of General Practitioners, recommends that physical activity is assessed at least yearly in all adults and at each visit in children and adolescents,[6] and this is a longstanding recommendation.[7]

GPs' compliance with this appears to be poor. In one survey examining GPs' assessment of physical activity, most reported assessment of physical activity in patients with symptoms of conditions that could benefit from exercise (93% of GPs), in new patients (47% of GPs), and less often in patients who had previously been seen (38% of GPs).[8] Only 20% of GPs reported often or almost always recording a patient's level of physical activity. Provision of patient advice by GPs to increase physical activity has similarly been reported as being targeted to high-risk groups,[9–12] rather than given to all patients. The reasons for this disconnect between recommended practice and GPs' actual

***T Winzenberg**, MMedSc(Clin Epi), PhD, FRACGP, research fellow – general practice; **P Reid**, BEd, DipT, research assistant; **K Shaw**, PhD, MPH, FRACGP, FAFPHM, honorary associate, Menzies Research Institute, Hobart, Australia.*

Address for correspondence
Tania Winzenberg, Menzies Research Institute, Private Bag 23, Hobart, TAS, 7001, Australia.
E-mail: tania.winzenberg@utas.edu.au

Submitted: 1 April 2009; **Editor's response:** 24 April 2009; **final acceptance:** 12 May 2009.

This is a full-length article of an abridged version published in print and originally published online first on 24 Sep 2009. Cite this version as: *Br J Gen Pract* 2009 DOI: 10.3399/bjgp09X472818 (abridged text, in print: *Br J Gen Pract* 2009; **59:** 850–855).

clinical practice are not clear, but it persists despite the adverse health effects of physical inactivity being widely known and despite health promotion being a core part of GPs' training in countries including the UK,[13] the US,[14] and Australia.[15] This evidence gap must be addressed to determine whether current public health recommendations regarding physician assessment of physical activity are appropriate and feasible.

The aim of this study was, therefore, to investigate GPs' perceptions of assessing physical activity, and to explore how GPs assess physical activity in their patients.

How this fits in

GPs assess physical activity in their patients less frequently than is recommended by public health bodies, but the reasons for this are unclear. The aim of this study was to investigate GPs' perceptions of assessing physical activity, and to explore how GPs assess physical activity in their patients. GPs' assessment of physical activity is a complex and highly individualised process that cannot be divorced from the issue of managing physical inactivity once it is identified. Expectations that GPs will assess physical activity levels in all their patients are unlikely to be met, and this must be taken into account when developing strategies to improve physical activity assessment in general practice.

METHOD

Fifty-six southern Tasmanian GPs were invited to participate; they were randomly selected from a current listing of all 313 GPs in that region,[16] using computer-generated random numbers with stratification to include GPs of both sexes, from a range of ages and from both urban and rural practices, with the aim of maximum variability purposeful sampling on these variables. Semi-structured interviews were performed with 15 GPs.

Semi-structured interviews are a flexible and dynamic form of qualitative interviewing where the interviewer has a list of issues/themes to be explored during the interview, but these are delivered in no particular order and points raised by the interviewee are followed up as they occur.[17] Semi-structured interviews were chosen for this study because they are well suited for an exploratory study focused on elucidating participants' experiences and points of view.

The interviews were guided by a schedule (Appendix 1) of 14 questions, each with suggested prompts to use as appropriate to expand on interviewees' exploration of their experiences and perceptions. This covered:

- assessment of the patient groups in which GPs assess physical activity;
- description of the methods GPs use to assess physical activity; and
- exploration of GPs' perceptions of barriers to assessing physical activity.

Demographic data (age, sex, practice location, number of session worked/week) were also collected at interview.

Recruitment was by letter of invitation followed by telephone contact. GPs were offered the choice of face-to-face interview at a location of their choice, or telephone interview. All participants gave either verbal or written informed consent. Interviews were performed by one author between May and December 2007. Each interview was recorded and transcribed in full.

Two researchers analysed the interview transcripts using an iterative thematic approach.[17] Each researcher read and coded the interviews as they were transcribed, producing two independent lists of codes. One researcher compared both lists of codes then re-read the transcripts to identify major themes. No new themes emerged after the 15th interview, and a decision was made to cease interviewing.

RESULTS

Fifteen out of 56 invited GPs (27%) participated. Of these, six were aged ≤45 years, seven were male, eight were in urban practice, and nine worked more than eight sessions/week, that is, at least 0.8 full-time equivalents. Key interviews themes are described below.

Which patients do GPs assess?

Table 1 describes, with illustrative quotes, the factors affecting the likelihood of a physical activity assessment being done and/or the depth of the assessment. Assessment of physical activity was more likely if physical activity was relevant to the patient's presenting complaint or to a chronic disease being managed in the consultation, such as overweight/obesity, cardiovascular disease, and risk factors. GPs generally did not assess every patient, and the assessment process varied from patient to patient.

Questions used in assessment were tailored to the individual:

> *'It's such an individual thing. If you go through some checklist you would undoubtedly find that each time you did it, probably half the questions weren't relevant to that particular patient ... what's relevant to one patient isn't to the other.'* (GP7)

The depth of assessment also varied. Less time

Table 1. Factors affecting the likelihood of physical activity assessment being performed and/or depth of assessment.

	Illustrative quotes
Factors increasing the likelihood and/or depth of assessment	
Clinical context If physical activity is immediately relevant to patient's presentation (contributing either to the cause or to treatment)	*'If somebody's got diabetes … then you know it's* [physical activity is] *part of the treatment ... to do with control of blood sugar.'* (GP9)
Presence of target chronic diseases Overweight/obesity Metabolic syndrome Cardiovascular disease and/or presence of cardiovascular risk factors Lung problems Diabetes mellitus or pre-diabetic Depression, mood disorders	*'If they are obese or diabetic or have any heart problems ... I feel that it's important to investigate what sort of physical activity they engage in so that if it's something that's neglected in their lifestyle that's obviously something that one has to encourage them to do.'* (GP15)
Osteoporosis Arthritis Other musculoskeletal problems including injuries Multiple sclerosis	*'If people have medical problems that ... are specifically related or ... very closely linked to a lack of appropriate physical exercise then that would be ... the sort of patient that you'd spend a lot more time questioning ... and going through their ... physical exercise.'* (GP2)
Occurrence of a health scare	*'Those middle-aged guys who suddenly have a little health scare, they are actually ripe for change ... so I ... certainly do assessments on those guys in particular.'* (GP7)
Use of enhanced primary care items[a]	*'Our practice has got really into the management plans and care plans and health assessments ...* [physical activity] *does get assessed in the course of an annual health check for the oldies.'* (GP7)
Being raised by patient as an issue	
Patient appearing unfit	*'If I see people look like they've been sitting on the couch for too long I try and get them going.'* (GP12)
Factors decreasing the likelihood and/or depth of assessment	
Patient perceived as not ready to change physical activity levels	*'I guess it comes back to the motivation of people and when they feed back that their motivation is low then ... it goes down to the bottom of the list.'* (GP5)
Younger age	*'I probably don't bring up exercise with younger people unless there's an issue that I link it with.'* (GP9)
Older age	*'I probably don't do it enough in the elderly.'* (GP8)
Being of normal body weight	*'If they're not obese, then I don't tend to worry so much about physical activity.'* (GP7)

[a]*These are specific government reimbursed general practice activities for health assessments in preventive care and for chronic disease management.*

was spent if it was clear patients were not receptive to change. More time was taken and more detail elicited in the presence of relevant clinical conditions, as described above.

How do GPs assess physical activity?

GPs most often used verbal history taking for their assessment. They reported needing and/or seeking a trigger to discuss physical activity; for example, identifying a relevant medical condition or risk factor, or using the measurement of a patient's height and weight as a trigger. They were aware of the subjective nature of this approach:

> *'It's not all that easy verbally to assess how much people are exercising ... often they think they're active when they're not really exerting themselves very much.* [For example] *... walking can be anything from strolling, or if they own a dog then the dog might sort of walk very slowly or pee at every ... corner, so they're not really getting aerobic exercise while they're walking.'* (GP4)

GPs' assessments included the domains of physical activity, for example, type, frequency, intensity, and duration of activity, although not all GPs reported systematically covering all four domains. However, GPs typically also sought information beyond these domains, including social factors, patient preferences for exercise, medical conditions affecting the ability to exercise, and potential motivating factors to use to encourage patients to increase their physical activity. Table 2 provides a more detailed description of the aspects assessed, with relevant quotes from GPs.

Other tools GPs used for assessing physical activity were formal exercise prescription tools,[18,19] physical examination, pedometers and/or diaries, involving other health professionals, and direct

Table 2. Aspects of physical activity assessment.

Aspect assessed	Illustrative quote(s)
The physical activity patients do at work	*'I usually just ask them ... what sort of work do they do, so you get an idea of whether they are getting much physical activity through their workplace ...'* (GP2)
What physical limitations each patient has	*'One has to be practical if a patient has problems with back and leg pain you can't keep saying "Oh just go for walks".'* (GP1) *'You talk about what they like to do ... it's very important that they do what they can sustain — what's enjoyable for them. Or possible for them, physically possible.'* (GP14).
Each patient's preferred types of physical activity	*'I talk about finding exercise that they're comfortable with, what would they like to do, if they've done exercise in the past, what they liked.'* (GP5) *'If someone cannot swim or never swam in their life before, it's pointless to say "go for swims".'* (GP1) *'You've got to find an exercise that you at least can tolerate if you can't enjoy.'* (GP7) *'I ask them if they've got any other physical interest and if they do I encourage that.'* (GP12)
The patient's lifestyle or routine, to determine how physical activity might fit with their lifestyle	*'A lot of them probably won't continue artificial things like go for a walk for half an hour every day because it just doesn't suit modern lifestyles. So you try and incorporate it into something that they have to do.'* (GP3)
Readiness of patient to change or discuss physical activity	*'I firstly try and find out what they do and if they're interested in doing more.'* (GP7)
Each patient's social supports	*'In younger people ... what their friends do.'* (GP9) *'What their partner's lifestyle might be ... because that often impacts on their own.'* (GP2) *'I find out what their attitude is about family members and important others ... if you can include the person's important people that's a really strong motivator.'* (GP12)
Social factors; for example, work and relationships	*'Often I get a bit of a picture of ... what their life is like, so what sort of a job they've got and whether they're enjoying their work situation and how their home life is. Sometimes people have a poor ... work situation or poor home situation. They can often deal with that by just watching TV and deal with it in a negative way, rather than in a constructive way, which is to get out and go for a walk or go down to the beach ... or whatever.'* (GP2)
Medical and family history to: tailor a physical activity programme; assess priority of addressing physical activity; and identify potential motivating factors	*'What's a good exercise for them given their pre-existing health conditions.'* (GP8) *'Whether they have any family history of certain diseases ... so are they in a higher-risk category and therefore it makes it even more important they have a good lifestyle.'* (GP10)
The presence of other potential motivating factors	*'I also often ask them if they've got a dog that needs walking.'* (GP9) *'One of the most helpful things is ... taking the time to find out what factors are gonna* [sic] *motivate them to change. Some people will be motivated by trying to lose weight. Some people will be motivated by trying to get a flatter stomach. Some people will just be motivated because they want to do the Point to Pinnacle race ... it's just finding the unique selling point for exacting change.'* (GP13)
Exploring barriers to change	*'I think the best thing is to find out why they are not doing it* [physical activity] *... and find out if there is a way they can actually start to fit something in.'* (GP14)
How long the patient has been performing their current level of physical activity[a]	
Past patterns of physical activity and exercise performed[a]	
Specific components of physical activity; for example, aerobic, strength, flexibility and weight-bearing components[a]	

[a]*Quotes illustrating this are given in the text.*

observation. These tools were used infrequently and by only a small number of GPs.

How much physical activity is enough?

The level of physical activity GPs considered adequate for the average person was generally consistent with recommended guidelines. However, GPs noted the importance of tailoring their assessment of the adequacy of a patient's physical activity and their recommendations to each patient's circumstances. This varied with factors like the patient's current physical activity levels and medical history. The following quotes illustrate a variety of factors GPs considered when making this judgement:

> *'You've got to be practical ... in terms of recommending something that is realistic for how old they are and how generally fit and healthy they are. So ... a 70-year-old lady who's overweight it's obviously pretty impractical to suggest that she starts playing footy. You might have a young bloke that is playing a bit of footy, but still quite overweight where you might suggest an extra walk or two a week.'* (GP2)

'I talk about the aerobic component and a minimum of 30 minutes a day for people who are otherwise healthy, increasing to 60 minutes a day or more for people who want to lose weight or for people with diabetes or ... for depression. And the strength component particularly for people with osteoporosis and diabetes ... It depends on what they present with.' (GP5)

'If they are walking 8000 steps per day and they're still overweight ... I'll say look let's try to increase it to 10 or 12 000 steps per day ... If they're doing ... 2000 or 5000 steps per day then I will say we could get up to 8, 10 ... you do adjust it according to the patient's current physical activity.' (GP1)

'Someone in their twenties, if they say "... I walk to the store a few times a week", that's probably not enough for someone of that age, but ... for an elderly person, if they say "I do the gardening and I walk to the store a few times a week" then that's probably reasonable.' (GP2)

Why do GPs assess physical activity?

Physical activity was, without exception, recognised as important for good health and the prevention and management of chronic disease. GPs were aware of the spectrum of chronic diseases that are preventable and/or better managed by increasing physical activity, including obesity, diabetes mellitus, hypertension, cardiovascular disease, and depression. Assessing physical activity was therefore also recognised as important, although usually no more so than other lifestyle factors such as smoking and diet:

'Physical activity along with obesity, it's ... the smoking ... of this decade.' (GP8)

GPs' perception of the importance of assessing different lifestyle behaviours varied with the patients' individual circumstances:

'I think it's probably on a par with [other lifestyle factors] *in some situations and probably ... a bit less important in other situations. If you've got someone ... with angina your first priority is to control it and make sure they're not going to drop dead, and cut their smoking out ... you can talk about it* [physical activity] *as part of that but I think given my choices I'd rather they stopped smoking than started running straight away.'* (GP7)

Several GPs placed a higher priority on assessing smoking behaviour than physical activity:

'Stopping smoking ... is the most important preventive thing and getting out and exercising would be the second most important.' (GP6)

Why don't GPs assess physical activity?

Lack of time was by far the barrier raised most frequently by GPs and was the key reason for targeting assessment rather than assessing every patient:

'The problem ... is finding the time to assess ... every individual patient. It is not easy.' (GP10)

Within a consultation, there were often competing priorities:

'Physical activity often gets short shrift behind ... dealing with their obesity or finding out that they're having falls and having to work out what's going on there ...' (GP7)

GPs felt that thorough assessment took substantial time, and that once physical inactivity was identified, they were under pressure to find time to deal with it:

'You can either do it very quickly and you get a very superficial view or it does take a long time.' (GP8)

'If I ... start that conversation about physical activity when we're actually doing something completely different ... I'll never get out of the conversation, I'll be stuck here for ages.' (GP8)

GPs were very aware of the need to manage their time overall as well as to manage the time available for each individual patient:

'It's [physical activity is] *high priority but at the end of the day we need to be mindful of our time too as GPs.'* (GP1)

'I wouldn't bring it up ... if I was running late.' (GP9)

'If one had more time, then yes one can assess all of this quite adequately ... But when you are the only doctor in town, and I am ... my day is pretty full.' (GP10)

'We have got very limited time allowance for the patient.' (GP11)

While GPs used follow-up consultations as a way to manage the time constraints they faced, this was not always easy:

Table 3. Barriers to GPs performing physical activity assessments.

Barrier	Illustrative quotes
Time	See text
Patient interest/motivation	*'It's one of those things that I think ... a lot of people aren't particularly willing to get into a discussion about.'* (GP8)
GP perception that physical activity is difficult to assess	*'I find physical activity is a bit harder to assess ... it doesn't kind of fit easily into one of those tick a box things.'* (GP8) *'The smoking and the alcohol is quick* [to assess]. *It's easy. It's quicker. Physical activity is not.'* (GP10)
Subjective nature of assessment (see accuracy)	*'You can sort of get a description of it* [physical activity] *but ... quantifying it — I don't think so.'* (GP3) *'There is no standard parameter where we can put some patients on and compare them to a standard level.'* (GP11) *'People's perceptions of what ... quality exercise is and the reality is sometimes quite varied.'* (GP13)
Lack of GP satisfaction	*'I guess you don't get so much of a gain from it* [assessing physical activity] *as a doctor ... you don't get the personal satisfaction of fixing something. It's kind of this on going kind of lingering thing that you can never get quite right.'* (GP8)
Lack of GP interest	*'Some GPs are just not interested in talking about that* [physical activity].*'* (GP1)
Difficulty depends on level of rapport	*'I gauge how the rapport is. If the rapport's good ... I will bring it* [physical activity] *up again.'* (GP1) '[Patients] *become more confident in revealing things to you when you get to know them.'* (GP10)
More difficult in some subgroups of patients	
Disability in a patient	*'I've got a gentleman who's ... got a leg prosthesis ... you might feel a bit reluctant to bring that* [physical activity] *up.'* (GP9)
Awareness of not causing body image problems in teenage girls	*'I'm always a little bit wary especially in ... young teenage girls if you start talking too much about diet and exercise 'cos* [sic] *you don't want to sow the wrong seed there.'* (GP9)

'There is a time pressure ... you might say, "Oh we really need to talk about this ... but ... I'm already 10 minutes over time with you and half an hour over time overall ... can I get you to come back in?" But ... they may or may not come back in. And ... I actually don't like getting people back in, because I'm so busy and people have to book in a couple of weeks ahead ... I feel ... a bit guilty about getting people back in for just one small thing.' (GP7)

Table 3 describes and illustrates other barriers perceived by GPs, including patient and GP interest, the subjective nature of physical activity assessment, and issues specific to some patient subgroups.

DISCUSSION

Summary of main findings

This study highlights important differences between public health and GPs' approaches to physical inactivity, an understanding of which will contribute to the better integration of general practice-based and population-based physical activity promotion. Although both public health practitioners and GPs undertake preventive activities, their scope of influence varies from the individual (GP) to the population (public health). In the case of physical inactivity, the efforts of public health authorities to improve physical activity levels in the population as a whole via general practice have had limited success. Seemingly straightforward and sensible public health recommendations have not been adopted by GPs because, from the GP's perspective, physical activity assessment is a complex and highly individualised process. GPs individualise each step of the assessment process — they typically target assessment to patients at high risk of disease and they tailor the depth of the assessment and their actual assessment process to the individual. Even their opinion about whether a patient achieves sufficient physical activity is individualised, taking into account each patient's circumstance rather than strictly applying population guidelines. Moreover, GPs collect substantial information to allow them to proceed to tailoring an approach to increasing physical activity for each patient. This demonstrates a clash of paradigms, between the individualised clinical approach taken by GPs and population health, and intervention research approaches where

recommendations are made for a whole population and results are described for groups.

A major barrier to GPs screening all their patients for levels of physical activity is time. There are simple validated screening tests, taking only a few minutes to administer, for use in general practice.[20–22] However, time constraints make even these challenging, and this is reflected in their limited use by GPs. GPs also, without exception, perceived assessment to include eliciting all the information they need to manage physical inactivity, which is also time consuming. Furthermore, for GPs, screening for and management of physical inactivity merge together. The obligation GPs feel to deal with the problem once it is identified, which takes substantial time, deters screening.

Strengths and the limitations of the study

This study used qualitative methods to gain insights into GPs' experiences and perceptions and was appropriate to the research question. Strengths include the use of purposeful sampling, use of full transcription, investigator triangulation, and the iterative analysis approach. The study was undertaken in one Australian state, but as the delivery of general practice services occurs under the same federal government structural arrangements throughout Australia, the findings are unlikely to vary in other states. The response rate was low but the study sought a broad, rather than a representative, sample. It succeeded in its a priori goal of interviewing GPs with a range of demographic characteristics. Furthermore, the findings were consistent with previous research so the authors are confident that the results are relevant to GPs in general.

Comparison with existing literature

The study findings are consistent with and substantially explain the results of previous GP surveys.[8–12] GPs' targeting of advice is better understood in the light of the study findings regarding the time pressure GPs feel, their perception of the complexity of assessment, and their capacity to address physical inactivity. It is probable that these same factors apply to assessment and changing of other complex behaviours. For example, nutrition counselling rates in primary care are similarly low,[23–25] time is a major barrier,[26,27] and primary healthcare providers target intervention to at-risk groups.[23,24,26]

Implications for future research and clinical practice

Understanding the important differences between the clinical approach of GPs and a population approach means that researchers, public health practitioners, and policy makers will be better placed to consider how to work with general practice and use GPs to complement other population-based strategies for physical activity promotion. This includes recognising that expectations that GPs will screen every patient are unlikely to be met. A much more feasible goal is to encourage GPs to screen high-risk patients. This leads to the question, how can the assessment and improvement of general practice patients' physical activity best be facilitated? The present findings suggest that interventions to accomplish this will need to reduce rather than increase the burden on GPs and reduce GPs' perception that they have to deal with patients who are physically inactive themselves. Interventions must also integrate with GPs' clinical practice. This is likely to require that public health practitioners consider alternative physical activity assessment processes, to reach people who are unlikely to be targeted in general practice. Referral pathways within and outside of general practices to improve the capacity of GPs to address physical inactivity, once identified, are also of critical importance. This could include using practice nurses for physical activity counselling and/or referral to external counselling, as has already been shown to be successful,[28,29] in particular when the central role of the GP is retained.[29]

In conclusion, the results of this study show that GPs' assessment of physical activity is a complex and highly individualised process that cannot be divorced from the issue of managing physical inactivity once it is identified. This divergence from a population-focused public health approach must be taken into account when developing strategies to improve physical activity assessment in general practice, and should be considered in policy making regarding decisions on what approaches to take to improve physical activity at a population level.

Funding body

The study was funded by a Royal Australian College of General Practitioners 'Cardiovascular Research Grants in General Practice' grant

Ethic approval

The study received ethics approval from the Human Research Ethics Committee (Tasmania) Network (H9220)

Competing interests

The authors have stated that there are none

Acknowledgments

We thank the GPs who gave up their valuable time to participate in this study.

Discuss this article

Contribute and read comments about this article on the Discussion Forum: http://www.rcgp.org.uk/bjgp-discuss

REFERENCES

1. World Health Organization. *The world health report 2002. Reducing risks, promoting healthy life.* Geneva: World Health Organization, 2002.

2. Fletcher GF, Blair SN, Blumenthal J, *et al.* Statement on exercise. Benefits and recommendations for physical activity programs for all Americans. A statement for health professionals by the Committee on Exercise and Cardiac Rehabilitation of the Council on Clinical Cardiology, American Heart association. *Circulation* 1992; **86(1):** 340–344.
3. Summary of the second report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel II). *JAMA* 1993; **269(23):** 3015–3023.
4. Anonymous. Physical activity and cardiovascular health. NIH Consensus Development Panel on Physical Activity and Cardiovascular Health. *JAMA* 1996; **276(3):** 241–246.
5. Royal College of Physicians. *Medical aspects of exercise: benefits and risks.* London: Royal College of Physicians, 1992.
6. Anonymous. *Guidelines for preventive activities in general practice.* South Melbourne: Royal Australian College of General Practitioners, 2005.
7. Royal Australian College of General Practitioners, Preventative and Community Medicine Committee. *Guidelines for preventive activities in general practice.* 5th edn. Melbourne: Royal Australian College of General Practitioners, 2001.
8. Bull FC, Schipper EC, Jamrozik K, Blanksby BA. Beliefs and behaviour of general practitioners regarding promotion of physical activity. *Aust J Public Health* 1995; **19(3):** 300–304.
9. Eakin E, Brown W, Schofield G, *et al.* General practitioner advice on physical activity –– who gets it? *Am J Health Promot* 2007; **21(4):** 225–228.
10. Glasgow RE, Eakin EG, Fisher EB, *et al.* Physician advice and support for physical activity: results from a national survey. *Am J Prev Med* 2001; **21(3):** 189–196.
11. Wee CC, McCarthy EP, Davis RB, Phillips RS. Physician counseling about exercise. *JAMA* 1999; **282(16):** 1583–1588.
12. Rosen MA, Logsdon DN, Demak MM. Prevention and health promotion in primary care: baseline results on physicians from the INSURE Project on Lifecycle Preventive Health Services. *Prev Med* 1984; **13(5):** 535–548.
13. Royal College of General Practitioners Curriculum Statement 5. Healthy People: promoting health and preventing disease. London: Royal College of General Practitioners, 2007. http://www.rcgp-curriculum.org.uk/PDF/curr_5_Healthy_people.pdf (accessed 10 Aug 2009).
14. American Academy of Family Physicians. *Recommended core educational guidelines for family practice residents — health promotion and disease prevention.* AAFP, 2008. http://www.aafp.org/online/etc/medialib/aafp_org/documents/about/rap/curriculum/health_promotion_and.Par.0001.File.tmp/Reprint267.pdf (accessed 10 Aug 2009).
15. Royal Australian College of General Practitioners. *Curriculum for Australian general practice 2007.* http://www.racgp.org.au/curriculum (accessed 8 June 2009).
16. General Practice South. *2007 Directory of general practitioners and specialists in private practice.* Hobart: General Practice South, 2007.
17. Hansen EC. *Successful qualitative health research: a practical introduction.* St Leonards NSW: Allen and Unwin, 2006.
18. Kinect Australia for the Lifescripts consortium. *Lifescripts practice manual: supporting lifestyle risk factor management in general practice.* Canberra: Commonwealth of Australia, 2005.
19. Kinect Australia for the Lifescripts consortium. *Lifescripts physical activity assessment tool.* Canberra: Commonwealth of Australia, 2005.
20. Smith BJ, Marshall AL, Huang N. Screening for physical activity in family practice: evaluation of two brief assessment tools. *Am J Prev Med* 2005; **29(4):** 256–264.
21. Marshall AL, Smith BJ, Bauman AE, Kaur S. Reliability and validity of a brief physical activity assessment for use by family doctors. *Br J Sports Med* 2005; **39(5):** 294–297; discussion 7.
22. Rose SB, Elley CR, Lawton BA, Dowell AC. A single question reliably identifies physically inactive women in primary care. *N Z Med J* 2008; **121(1268):** U2897.
23. McAlpine DD, Wilson AR. Trends in obesity-related counseling in primary care: 1995–2004. *Med Care* 2007; **45(4):** 322–329.
24. Eaton CB, Goodwin MA, Stange KC. Direct observation of nutrition counseling in community family practice. *Am J Prev Med* 2002; **23(3):** 174–179.
25. Moore H, Adamson AJ. Nutrition interventions by primary care staff: a survey of involvement, knowledge and attitude. *Public Health Nutr* 2002; **5(4):** 531–536.
26. Nicholas LG, Pond CD, Roberts DC. Dietitian general practitioner interface: a pilot study on what influences the provision of effective nutrition management. *Am J Clin Nutr* 2003; **77(4 Suppl):** 1039S–1042S.
27. Kushner RF. Barriers to providing nutrition counseling by physicians: a survey of primary care practitioners. *Prev Med* 1995; **24(6):** 546–552.
28. Dubbert PM, Cooper KM, Kirchner KA, *et al.* Effects of nurse counseling on walking for exercise in elderly primary care patients. *J Gerontol A Biol Sci Med Sci* 2002; **57(11):** M733–740.
29. Elley CR, Kerse N, Arroll B, Robinson E. Effectiveness of counselling patients on physical activity in general practice: cluster randomised controlled trial. *BMJ* 2003; **326(7393):** 793.

Appendix 1. Interview schedule.

Notes: Key questions are indicated in bold, possible prompts are given in parentheses. The order/wording of questions and the interviewer's choice of which prompts to use is expected to vary from interview to interview depending on how information flows from the individual study participant.

Preamble: 'I would like to talk to you about your opinions on and experiences of assessing physical activity in general practice.'

In general, what priority would you give to assessing patients' level of physical activity?
(On a scale of 1 to 10 from least to most important, can you rate the importance you place on assessing physical activity levels? How important is it relative to assessing for example, smoking status, diet, alcohol?)

How important do you think physical activity is in maintaining people's health/preventing disease?
(If appropriate — what diseases do you think physical activity may have a role in preventing?)

Has physical activity a role in managing chronic diseases?
(If yes, what role does physical activity have? If no, explore why not.)

Is assessing patients' physical activity levels something that you regularly do?
(Why/why not? Ask interviewee to expand and explain.)

How do you decide whether or not to assess a particular patient's physical activity levels?
(Explore patient characteristics; ask for an example where the interviewee recently did assess [or wanted to assess] a patient's physical activity levels, judgments about risk of disease. What disease? Is there any group of patients in whom you are more likely to assess physical activity? How do you raise the issue of physical activity with your patients?)

How would you determine a patient's physical activity levels?
(Prompts: can you give me examples of the questions you would ask? When assessing someone's physical activity, what sort of things do you aim to establish?)

Have you encountered any problems or barriers when you try to assess your patients' physical activity?
(If so, please describe them; what have you tried to overcome these problems; what worked and what didn't?)

Do you currently make physical activity recommendations to your patients?/Would you give patients advice to increase their physical activity?
(If appropriate, how often, under what circumstances, can you describe if/how you check whether they are following your advice? What recommendations do you make? If no, why not? Does the patient's current physical activity level influence the recommendations you make?)

Are there other health professionals (other GPs, nurses, other?) in your practice involved in physical activity assessment?
If yes, who are they? Please tell me about their role. If no, do you think there are possible ways for other staff in your practice to become involved?

Do you have any systems in place for physical activity assessment?
(If, yes, please describe. Examples: Medical Director, Lifescripts, notes on file, other tools.)

What do you understand the current recommendations for levels of physical activity to be for the general community?

Where would you go to find information about physical activity if you needed it?
(are you aware of Lifescripts, red book insert, SNAP, National Physical Activity guidelines, tools on Medical Director, other: have you used any of same?)

Do you have any comments regarding any of the resources or tools you use?
(Prompts if needed: are they useful or not, easy to use? Suggestions to make them easier to use; anyone else in practice using them besides GPs. Make specific enquiry re Lifescripts if appropriate)

Basic demographic data: age, sex, practice location (urban versus rural), number of sessions usually worked per week.
In what age range do you fall: <35; 35–<45; 45–<55; >55 years old?
Male/female by observation
Is your usual general practice located in an urban or a rural area?
How many sessions do you usually work in general practice each week?

Is there anything further you would like to tell me about any of the things we've talked about today?