Why do women doctors in the UK take hormone replacement therapy?

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Abstract

Study objectives—To ascertain the determinants and experiences of hormone replacement therapy (HRT) use by menopausal women doctors.

Design—Postal questionnaire.

Setting—UK.

Patients—A randomised stratified sample of women doctors who obtained full registration between 1952 and 1976, taken from the current Principal List of the UK Medical Register.

Main outcome measures—Current and previous use of HRT; reasons for and against HRT use; menopausal status; hormonal contraceptive use; lifestyle patterns; family and personal history of disease.

Main results—While 73.2% of 471 users had started HRT for symptom relief, 60.9% cited prevention of osteoporosis and 32.7% prevention of cardiovascular disease. Altogether 18.7% had started for preventive purposes alone. Significant predisposing factors to starting HRT were the presence and severity of menopausal symptoms, surgical menopause, past use of hormonal contraception, and a family history of osteoporosis. HRT users were also more likely to use skimmed rather than full fat milk, to try to increase their intake of fruit, vegetables, and fibre, and to undertake vigorous physical activity at least once a week. They were less likely to have had breast cancer. Long duration users were more likely than short duration users to be past users of hormonal contraception and to be using HRT for prevention of osteoporosis as well as symptom relief; they were less likely to have experienced side effects.

Conclusions—The high usage of HRT by women doctors reflects the fact that many started HRT on their own initiative and with long term prevention in mind. The results may become generalisable to the wider population as information on the potential benefits of HRT is disseminated and understood. However, HRT users may differ slightly from non-users in health-related behaviour and a substantial minority may never take up HRT, at least until the benefit-risk ratio is more clearly established.

As part of a detailed survey, information was obtained on the determinants of HRT use among women doctors as well as their preferences and experiences. Since they are not only a well informed group, but in a strong position to influence the behaviour of other women, knowledge about these factors may be helpful in predicting the uptake of HRT in the wider population.

It is generally considered that the benefits of long term HRT in reducing the risk of osteoporotic fracture² and coronary heart disease³ in postmenopausal women outweigh potential adverse effects, such as an increased breast cancer risk,⁴ and contribute to an increase in life expectancy.⁵ Since it has been suggested, that women who take HRT adopt healthier lifestyles (with the possible exception of cigarette smoking) than those who do not, thus exaggerating the benefit seen in observational studies,^{6,7} evidence for such associations was sought in this group of women doctors surveyed.

Methods

The sampling and survey method has previously been described in detail.¹ A stratified randomised sample of 1514 women doctors who obtained full registration with the General Medical Council between 1952 and 1976 inclusive and whose names appeared on the Principal List of the Medical Register received a postal questionnaire in June 1993. Following reminders, 1211 responses were received and coded and the data entered into a computerised data base. Statistical analyses were carried out using *Epi-Info*,⁸ with multiple logistic regression to standardise for age using *SPSS*.⁹

Respondents were characterised by year of full registration, place of qualification, and home address from the Medical Register. The questionnaire covered the type of work, date of birth, weight and height, date of menarche and menopause, menopausal status, type of menopause, symptoms, HRT use, reasons for starting, stopping or never taking HRT, duration and type of treatment, side effects, reproductive history including use of hormonal contraceptives, smoking history, exercise and dietary patterns (table 1), family and personal history and attitudes to HRT use among the premenopausal group. Results from the latter group will be reported separately.

Results

MENOPAUSAL STATUS

Periods had ceased completely in 771 women, while 45 were perimenopausal, 93 had started

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Women doctors have relatively high utilisation rates of hormone replacement therapy (HRT) and appear to continue use for several years.¹

Table 1 Lifestyle questions

- * Do you undertake vigorous activity sufficient to become breathless or perspire at least once a week?
- * Which type of bread do you eat mainly?
White/Brown/Wholemeal
- * What spread do you use mainly?
Butter/Soft margarine/Low fat spread
- * What milk do you drink mainly?
Full fat/Semi-skimmed/Skimmed
- * Do you eat fried food on average—twice a week or less? more than twice a week?
- * Do you avoid or restrict your intake of certain types of food?
– If yes, please specify
- * Do you try to increase your intake of certain types of food?
– If yes, please specify

HRT before the menopause, and 302 were still menstruating regularly. Altogether 186 women had had a hysterectomy.

PREVALENCE OF HRT USE

Overall, 480 of the 1211 respondents (39.6%) had ever used HRT, of whom 344 (28.4% of the whole group) were still using it. If women still menstruating regularly are excluded, 472 out of 909 (51.9%) had ever used HRT.

CHARACTERISTICS OF WOMEN BY AGE

The distribution of some key variables by broad age band (excluding the premenopausal group) is shown in table 2. Ever use of hormonal contraception was particularly strongly correlated with age.

REASONS FOR HRT USE

Of the 471 women responding to this question, 73.2% cited symptom relief, 60.9% prevention of osteoporosis, and 32.7% prevention of cardiovascular disease. Cardiovascular prevention was cited more commonly by the younger women (table 2). Fifty eight women had no menopausal symptoms, among whom 82.8% took HRT for prevention of osteoporosis, 41.4% for prevention of cardiovascular disease, and 37.9% for other reasons. In all, 126 of the 471 women (26.8%) had started HRT for reasons other than symptom relief, of whom 88 gave only prevention of osteoporosis and/or cardiovascular disease as their reason (55 osteoporosis alone, 4 cardiovascular disease alone, and 29 both). In 76.2% it was the woman's own idea to start HRT, 11.4% began on the advice of a gynaecologist and 7.8% on the GP's advice. Younger women were particularly likely to start HRT on their own initiative (table 2).

TYPE OF HRT USE

Altogether 86.8% of the 471 women had taken oral HRT, 33.3% patches, and 5.7% implants. Altogether 32.7% had used oestrogen only preparations and 71.5% combined formulations. A large number of preparations had been used including ad hoc combinations of oral therapy and patches with several different progestogens. Conjugated equine oestrogens had been used longest by 47.1% of HRT ever-users and transdermal preparations by 14.5%. Of the 105 women who had used both tablets and patches, 41 preferred tablets and 33 patches. The main

KEY POINTS

- The high personal use of HRT by UK women doctors reflects a belief in prevention, particularly of osteoporosis, and suggests that usage will probably increase in the general female population.
- Increasing use of oral contraceptives by successive cohorts of women may predispose to a future increased uptake of HRT.
- HRT users tend to adopt healthier behaviour patterns than non-users, which may reduce the amount of benefit apparently attributable to long term HRT in epidemiological studies.
- Until concerns over withdrawal bleeding and potential cancer risk are satisfactorily allayed many women will not use HRT.
- Randomised controlled trials are required to allow unbiased evaluation of the benefit and risk of HRT.

reasons cited for preferring tablets were that the patches caused skin irritation (17 women) or came off (9). Patches were preferred because they produced no, or fewer, side effects (14 women) or were thought better for liver function (5). Tablets were considered easier to use or remember by 8 women and patches by 9. Of the 16 women who had tried implants and at least one other route of administration, 7 preferred implants, 5 tablets, and 4 patches.

SIDE EFFECTS

Side effects had been experienced by 48.1% of the sample. The most common, regardless of type of preparation, were weight gain, breast tenderness/swelling, bloating/oedema, headache/migraine, problems associated with bleeding, and depression/irritability. In all, 329 side effects were mentioned by 220 women, but these resulted in discontinuation of HRT in only 81 cases.

REASONS FOR STOPPING HRT

Nearly a quarter of past users (32) had stopped because of problems associated with bleeding or simply because they did not wish to continue bleeding. Other reasons included weight gain (17), fluid retention and bloating (11), headache, migraine, and neurological problems (13), depression and irritability (9), breast disease or mastalgia (11) and breast cancer (7). Nineteen women stopped because their symptoms abated, 14 because they felt they had been taking treatment long enough, and 10 because it was not helping.

REASONS FOR NOT USING HRT

A total of 426 of the 437 menopausal women who had never used HRT responded to this question. In 30.5% it was because they had not had menopausal symptoms and in 48.8% because their symptoms were tolerable. Altogether 22.3% were concerned about side effects (mainly breast cancer, a fear of cancer in general, and problems associated with bleeding)

Table 2 Characteristics of women by age (excluding the premenopausal women) (n = 895*)

Variable	Age		
	<55 y (n = 263)	55–59 y (n = 246)	60+ y (n = 386)
Place of qualification			
UK	204 (78.8)†	210 (86.4)	323 (83.9)
Indian subcontinent	40 (15.4)	22 (9.1)	21 (5.5)
Elsewhere	15 (5.8)	11 (4.5)	41 (10.6)
Main work			
Hospital	90 (34.2)	68 (27.6)	66 (17.1)
General practice	85 (32.3)	71 (28.9)	70 (18.1)
Community health	56 (21.3)	48 (19.5)	47 (12.2)
Public health med	7 (2.7)	10 (4.1)	3 (0.8)
Other	13 (4.9)	22 (8.9)	32 (8.3)
Retired	12 (4.6)	27 (11.0)	169 (43.5)
Body mass index			
15–19	25 (9.8)	15 (6.3)	29 (7.8)
20–24	157 (61.8)	138 (57.7)	198 (52.9)
25–29	56 (22.0)	70 (29.3)	124 (33.2)
30+	16 (6.3)	16 (6.7)	23 (6.1)
Cause of menopause			
Natural	201 (76.4)‡	178 (76.1)	300 (78.9)
Surgical	56 (21.3)	49 (20.9)	78 (20.5)
Other	6 (2.3)	7 (3.0)	2 (0.5)
Menopausal symptoms			
Yes	212 (80.6)	209 (85.0)	262 (67.9)
No	51 (19.4)	37 (15.0)	124 (32.1)
Vasomotor symptoms			
None	66 (25.1)	49 (19.9)	138 (35.8)
Mild	106 (40.3)	81 (32.9)	139 (36.0)
Moderate	62 (23.6)	82 (33.3)	78 (20.2)
Severe	29 (11.0)	34 (13.8)	31 (8.0)
Genitourinary symptoms			
None	171 (65.0)	158 (64.2)	287 (74.4)
Mild	55 (20.9)	61 (24.8)	61 (15.8)
Moderate	33 (12.5)	23 (9.3)	31 (8.0)
Severe	4 (1.5)	4 (1.6)	7 (1.8)
Ever use of non-hormonal preparations for the menopause			
Yes	33 (13.9)	23 (10.1)	43 (12.0)
No	205 (86.1)	205 (89.9)	316 (88.0)
Previous pregnancy			
Yes	224 (86.5)	219 (89.0)	290 (75.5)
No	35 (13.5)	27 (11.0)	94 (24.5)
Parity			
None	46 (17.8)	33 (13.4)	109 (28.4)
1 or 2	136 (52.5)	94 (38.2)	113 (29.4)
3+	77 (29.7)	119 (48.4)	162 (42.2)
Ever use of hormonal contraception			
Yes	189 (72.7)	131 (53.5)	139 (36.1)
No	71 (27.3)	114 (46.5)	246 (63.9)
Smoking			
Never	189 (72.4)	161 (65.7)	207 (53.7)
Past	52 (19.9)	72 (29.4)	150 (39.0)
Current	20 (7.7)	12 (4.9)	28 (7.3)
Exercise			
Yes	123 (47.5)	119 (48.8)	181 (47.5)
No	136 (52.5)	125 (51.2)	200 (52.4)
Milk			
Full fat	39 (15.5)	45 (19.0)	110 (29.3)
Semi-skimmed	150 (59.8)	129 (54.4)	179 (47.7)
Skimmed	62 (24.7)	63 (26.6)	86 (22.9)
Bread			
White	40 (15.5)	34 (14.3)	58 (15.3)
Brown	60 (23.3)	57 (23.9)	81 (21.3)
Wholemeal	158 (61.2)	147 (61.8)	241 (63.4)
Spread			
Butter	93 (37.5)	88 (40.0)	152 (43.1)
Margarine	48 (19.4)	48 (21.8)	69 (19.5)
Low fat spread	107 (43.1)	84 (38.2)	132 (37.4)
Increase certain foods			
Yes	167 (65.0)	141 (57.6)	218 (56.9)
No	90 (35.0)	104 (42.4)	165 (43.1)
Avoid/restrict certain foods			
Yes	202 (78.0)	198 (80.8)	289 (75.3)
No	57 (22.0)	47 (19.2)	95 (24.7)
Fried food			
<twice a week	247 (95.0)	240 (97.6)	364 (94.3)
>twice a week	13 (5.0)	6 (2.4)	22 (5.7)
Ever use of HRT			
Yes	165 (62.7)	151 (61.4)	147 (38.1)
No	98 (37.3)	95 (38.6)	239 (61.9)
Women who have used HRT:	(n = 165)	(n = 151)	(n = 147)
Whose idea			
Self	118 (81.9)	105 (78.4)	95 (67.9)
Other	26 (18.1)	29 (21.6)	45 (32.1)
Reasons for use:			
Symptom relief			
Yes	118 (77.6)	107 (76.4)	95 (65.1)
No	34 (22.4)	33 (23.6)	51 (34.9)
To prevent osteoporosis			
Yes	96 (63.2)	91 (65.0)	80 (54.8)
No	56 (36.8)	49 (35.0)	66 (45.2)
To prevent cardiovascular disease			
Yes	58 (38.2)	51 (36.4)	33 (22.6)
No	94 (61.8)	89 (63.6)	113 (77.4)

* Altogether 14 women within unknown ages were excluded.
† Percentages are based on respondents to each question.
‡ Including perimenopausal women.

and 16.7% said there were contraindications (of which breast cancer accounted for nearly half). Only 2.6% said their GP was reluctant. “Other reasons” were cited by 21.5%, including general reluctance to take medication and a feeling that it was unnatural. Several women also mentioned inconclusive evidence of benefit.

ASSOCIATIONS WITH HRT USE

To investigate associations with HRT use in perimenopausal and postmenopausal women, a subgroup of 875 subjects was defined. This group excluded women who were menstruating regularly and those who had started HRT premenopausally who were less than 51 years old at the time of the survey (the mean age of natural menopause in this study).

Age adjusted odds ratios for the association of some key variables with ever use of HRT are shown in table 3. HRT use was strongly associated with age, and independently with type of menopause, the presence and severity of menopausal symptoms, ever use of hormonal contraception, and a family history of osteoporosis. HRT users were also more likely to have used non-hormonal preparations for the menopause or its sequelae. Lifestyle factors showing a significant association with HRT use were vigorous physical activity once or more per week, the use of reduced rather than full fat milk, and an attempt to increase the intake of certain types of food (mainly fruit, vegetables, and fibre). GPs were more likely to have used HRT than doctors working in a hospital or the community health service.

A family history of breast cancer or vascular disease was not associated with HRT use; however, ever users with a family history of breast cancer were significantly less likely to be current than past HRT users. The 50 women with a personal history of breast cancer were less likely to have started HRT and the 16 ever users were less likely to have continued it than women without such a history.

ASSOCIATIONS WITH DURATION OF USE

Associations were sought with length of HRT use by defining a group of women who were eligible to have taken HRT for at least seven years. This group consisted of all the ever users who were at least seven years postmenopausal or who had started HRT premenopausally at least seven years before the survey. Key variables were compared in relation to short duration (less than two years versus two years or more) and long duration (less than five years versus five years or more) use and age adjusted odds ratios for the latter comparisons are shown in table 4. Long term use was significantly more common both in women who had taken HRT for symptom relief and in those who cited prevention of osteoporosis. Ever use of hormonal contraception was strongly related to long term use. Life style factors showed no particular association with duration of use, apart from a slight excess of women attempting dietary modification among long term users. Short term use was significantly more common in those who had experienced side effects.

Table 3 Associations with ever use of HRT (perimenopausal and postmenopausal group) (n=875)

Variable	No	% HRT use	Odds ratio	(95% CI)	P†	Trend test p (1df)	Variable	No	% HRT use	Odds ratio	(95% CI)	P†	Trend test p (1df)
Age (y)							contd						
55–57	104/152	68.4	1				Ever use of hormonal contraception						
40–45	10/21	47.6	0.42	(0.17, 1.06)	0.065		No	172/432	39.8	1			
46–48	15/36	41.7	0.33	(0.16, 0.69)	0.004		Yes	262/438	59.8	1.95	(1.46, 2.61)	<0.001	
49–51	36/62	58.1	0.64	(0.35, 1.18)			Duration of combined pill use						
52–54	72/113	63.7	0.81	(0.48, 1.36)			<5 y	175/286	61.2	1			
58–60	80/161	49.7	0.46	(0.29, 0.72)	0.001		>5 y	77/128	60.2	0.98	(0.62, 1.53)		
61–63	67/151	44.4	0.37	(0.23, 0.59)	<0.001		Duration of progestogen only pill						
64–66	38/119	31.9	0.22	(0.13, 0.36)	<0.001		<5 y	14/32	43.8	1			
67–69	11/34	32.4	0.22	(0.10, 0.49)	<0.001		>5 y	4/13	30.8	0.38	(0.08, 1.70)		
70 +	5/26	19.2	0.11	(0.04, 0.31)	<0.001		Smoking						
Age adjusted odds ratios for ever use of HRT							Never	266/543	49.0	1			
Place of qualification							Ever	169/328	51.5	1.33	(0.99, 1.79)	0.056	
UK	371/725	51.2	1				Exercise						
Indian subcontinent	41/80	51.3	0.85	(0.52, 1.37)			No	214/457	46.8	1			
Elsewhere	24/64	37.5	0.71	(0.41, 1.23)			Yes	220/407	54.1	1.38	(1.04, 1.83)	0.024	
Main work							Bread						NS
Hospital	111/221	50.2	1				White	61/131	46.6	1			
General practice	128/208	61.5	1.65	(1.12, 2.45)	0.014		Brown	110/198	55.6	1.37	(0.86, 2.17)		
Community health	76/151	50.3	0.98	(0.64, 1.50)			Wholemeal	257/526	48.9	1.10	(0.74, 1.65)		
Public health med	13/21	61.9	1.36	(0.53, 3.48)			Spread						
Other	37/66	56.1	1.55	(0.86, 2.77)			Butter	161/332	48.5	1			
Retired	73/208	35.1	0.84	(0.55, 1.29)			Soft margarine	76/164	46.3	0.90	(0.61, 1.34)		
Body mass index						NS	Low fat spread	164/308	53.2	1.20	(0.87, 1.66)		
20–24	244/473	51.6	1				Milk						0.024
15–19	30/65	46.2	0.81	(0.47, 1.40)			Full fat	80/192	41.7	1			
25–29	127/251	50.6	1.01	(0.73, 1.39)			Semi-skimmed	224/444	50.5	1.24	(0.87, 1.78)		
30 +	23/55	41.8	0.63	(0.35, 1.14)			Skimmed	117/207	56.5	1.61	(1.06, 2.43)	0.025	
Cause of menopause							Fried Food						
Natural	272/613	44.4	1				>twice a week	18/42	42.9	1			
Surgical	123/186	66.1	2.54	(1.77, 3.64)	<0.001		≤twice a week	419/830	50.5	1.34	(0.70, 2.56)		
Other	5/15	33.3	0.50	(0.16, 1.59)		0.005	Avoid/restrict certain foods						
If surgical . . .							No	90/198	44.5	1			
Hysterectomy only	59/103	57.3	1				Yes	345/670	51.5	1.25	(0.90, 1.75)		
One ovary removed	23/33	69.7	1.77	(0.71, 4.43)			Increase certain foods						
Two ovaries removed	41/50	82.0	3.55	(1.42, 8.87)	0.007		No	163/353	46.2	1			
Menopausal symptoms							Yes	273/512	53.3	1.34	(1.01, 1.78)	0.041	
No	54/211	25.6	1				Family history						
Yes	384/664	57.8	3.56	(2.48, 5.10)	<0.001		Coronary heart disease						
Vasomotor symptoms						<0.001	No	253/498	50.8	1			
None	86/252	34.1	1				Yes	182/370	49.2	0.95	(0.72, 1.25)		
Mild	138/316	43.7	1.36	(0.95, 1.96)	0.091		Stroke						
Moderate	133/217	61.3	2.64	(1.78, 3.92)	<0.001		No	306/618	49.5	1			
Severe	81/90	90.0	15.74	(7.43, 33.34)	<0.001		Yes	129/250	51.6	1.09	(0.80, 1.48)		
Genitourinary symptoms						<0.001	Other vascular disease						
None	243/603	40.3	1				No	356/723	49.2	1			
Mild	117/173	67.6	2.86	(1.98, 4.15)	<0.001		Yes	79/145	54.5	1.38	(0.95, 2.00)	0.095	
Moderate	65/84	77.4	5.20	(2.98, 9.06)	<0.001		Osteoporosis						
Severe	13/15	86.7	10.80	(2.36, 49.53)	0.002		No	319/684	46.6	1			
Use of non-hormonal preparations for the menopause							Yes	116/184	63.0	1.89	(1.36, 2.68)	<0.001	
No	323/714	45.2	1				Breast cancer						
Yes	58/95	61.1	2.04	(1.29, 3.23)	0.002		No	391/779	50.2	1			
Previous pregnancy							Yes	44/89	49.4	1.01	(0.64, 1.59)		
No	69/153	45.1	1				Personal history						
Yes	366/716	51.1	1.01	(0.70, 1.46)			None of the below	386/760	50.8	1			
Parity						NS	CHD	11/19	57.9	1.52	(0.57, 4.02)		
None	85/182	46.7	1				Stroke	0/2	—	—	—		
1 or 2	171/331	51.7	0.97	(0.66, 1.43)			Other vascular	12/24	50.0	1.36	(0.57, 3.21)		
3 +	179/356	50.3	0.92	(0.63, 1.35)			Osteoporosis	13/20	65.0	2.53	(0.96, 6.69)	0.062	
							Breast cancer	16/50*	32.0	0.43	(0.23, 0.82)	0.010	

† p values >0.1 are omitted.
* Includes 5 women with osteoporosis or CHD as well—none of whom used HRT.
NS=not significant (p>0.05)

Table 4 Associations of key variables with ≥ 5 years vs <5 years use of HRT (postmenopausal group who are eligible for 7 years use) (n=196)

Variable	No ≥5y	% long term	Odds ratio	(95% CI)	p
Menopausal symptoms					
No	8/26	30.8	1		
Yes	90/170	52.9	2.9	(1.13, 7.56)	0.0274
Reasons for using HRT					
Symptom relief					
No	18/54	33.3	1		
Yes	77/136	56.6	2.56	(1.31, 5.04)	0.0062
Prevention of osteoporosis					
No	30/79	38.0	1		
Yes	65/111	58.6	2.60	(1.39, 4.89)	0.0029
HRT side effects					
No	64/110	58.2	1		
Yes	32/82	41.5	0.54	(0.30, 0.97)	0.0387
Ever use of hormonal contraception					
No	31/89	34.8	1		
Yes	65/105	61.9	3.33	(2.72, 3.96)	<0.001

Discussion

While most women doctors take HRT for symptom relief, a substantial number also do so to prevent cardiovascular disease and more particularly osteoporosis. In our survey, a significant proportion were taking HRT only for long term prevention. The high prevalence and duration of HRT use by women doctors compared with other women may thus reflect not only that many started on their own initiative, but also greater awareness of the potential benefits of HRT in disease prevention. Women doctors may be pacesetters in this respect, as for another aspect of health related behaviour, cigarette smoking, where change preceded that in the general population¹¹ (6.7% of the respondents in this survey were current smokers).

The precise extent to which the trends shown for women doctors can be extrapolated to the

wider female population remains uncertain. Use of HRT is likely to increase as a wider range of preparations and regimens are developed and more information becomes available on its preventive effects. Women doctors' own high usage may reinforce this, given the importance of general practitioners' views on women's choices in this area.¹¹ The positive association with prior oral contraceptive use shown in this and other^{7,12-15} studies also supports the trend to greater use, as successive cohorts of women with increasing oral contraceptive exposure¹⁶ reach the menopause.

However, women's judgments on whether to use HRT and for how long are finely balanced and may be critically influenced by current assessments of the evidence of benefit and risk. The precise health impact of long term HRT is difficult to quantify because of the difficulty in eliminating the effects of bias and confounding from the associations seen in observational studies. In particular, it has been suggested that women who take HRT may be a self selected, healthier group than those who do not, on the basis of sociodemographic and behavioural characteristics,^{6,7} and thus at intrinsically lower risk, particularly of coronary heart disease. Despite attempts to control for a variety of behavioural factors in epidemiological studies,^{12,13} one review¹⁷ concluded that a risk reduction of 20% was a more plausible estimate than the more usually accepted 50%.³

In the present survey, correlations were sought between HRT use and a number of lifestyle factors. The results showed positive associations with increased physical activity and dietary modification in the direction of low fat milk consumption and increased intake of fruit, vegetables, and fibre. While these self reported behaviour patterns have not been validated, they nevertheless reflect a perceived attempt to adopt a lifestyle that is healthier. Investigating this further we fitted a term in the linear model which grouped women who reported all three of these factors. The odds ratios for ever use of HRT was 2.1 (95% CL 1.15, 3.68) relative to those who claimed none of these factors. When we attempted to eliminate the effect of these lifestyle factors on the odds of HRT use, by including all variables in the model as potential confounders, the most resilient was physical activity. The remaining two had little residual effect if the other variables were indeed true confounders. Thus, even within a relatively homogeneous population, there is some evidence for subtle variations in behaviour which may be difficult to allow for in non-randomised studies. These data support the hypothesis that those women taking HRT may be less disease prone for reasons unconnected with HRT use itself.

Factors deterring the women in this survey from long term HRT use included continued bleeding and breast cancer risk. While the former may be alleviated by the amenorrhoeic regimens now becoming available, breast cancer remains a cause for concern. Studies carried out before our survey, involving mainly oestrogen use alone, were consistent with a small increase in risk following prolonged treat-

ment.¹⁸ More recent data from the nurses' health study are less reassuring, suggesting an appreciable increase in risk at five years in current users of both oestrogen only and combined regimens.¹⁹ While these data are at variance with other recent studies, the relationship between HRT and breast cancer, particularly in women who may be at intrinsically increased risk, will continue to need clarification.^{4,20}

Women are less concerned about potential reduction of coronary heart disease than of increased susceptibility to breast cancer.²¹ While knowledge of the role of HRT in prevention of osteoporosis is increasing,²² the uncertainty as to the precise benefits of coronary heart disease reduction will make this less persuasive to many women than potential breast cancer risk and a substantial minority may never take up HRT, at least until the benefit-risk ratio is more clearly established.

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