ery–Asberg rating scale for depression (MADRS)[4] and the clinical anxiety scale (CAS),[5] were completed for each patient. The scores of all three scales and the diagnosis according to the third edition of the *Diagnostic and statistical manual of mental disorders (DSM III)*[6] were used in the analysis.

Of the 110 subjects, 14 fulfilled the *DSM III* criteria for a depressive disorder (major depressive disorder or dysthymic disorder) and 28 subjects fulfilled the criteria for an anxiety disorder (general anxiety disorder or panic disorder); 10 subjects fulfilled the criteria for both an anxiety disorder and a depressive disorder. The sensitivity and specificity of the HAD subscales in distinguishing cases from non-cases were analysed (Table 2). The best compromise between sensitivity and specificity for both the depression and anxiety subscales is achieved by the threshold score of nine (that is, above eight), as shown by the lowest misclassification rate at these cut-off points. For the anxiety subscale, a threshold score of 10 (that is, above nine) provides a low overall misclassification rate but leads to an unacceptably low sensitivity of 61%.

The Spearman correlation coefficient between the anxiety score on the HAD scale and the CAS score was 0.75 and that between the depression subscore on the HAD scale and the MADRS score was 0.80; both these figures are highly significant ($P<0.001$), suggesting that the subscores on the HAD sale are reliable measures of the severity of these mood states.

Further analysis was undertaken to determine whether the anxiety and depression subscales provided independent measures of different mood disorders or whether, given the similarity of their items, both the subscales were measuring the same entity. Because the scores on the HAD subscales of anxiety and depression were positively correlated with those of the observer on MADRS and CAS, respectively, in assessing the correlation between HAD subscores on depression, HAD(D), and the MADRS score, it was necessary to 'partial out' the effect of the correlation between the HAD subscore on anxiety, HAD(A), and the MADRS score. A similar 'partialling out' was used in calculating the correlation between HAD(A) subscores and the CAS score. The partial correlation coefficients between the self rating scores on HAD subscales of anxiety and depression and the observer ratings were 0.69 and 0.75, respectively, and these are also highly significant ($P<0.001$). This supports the assertion that the items on anxiety and depression subscales provide independent measures of different mood disorders.

The HAD scale has already been shown to be an effective screening instrument in general practice,[7] but for such use other scales are available. The merit of the HAD scale lies in its scaled structure and deliberate exclusion of items common to emotional disorders and physical illnesses. The present study shows that despite criticisms[8] the subscales appear to provide a valid and independent measure of the severity of different mood disorders in the population attending primary care.The final proof of the usefulness of the HAD scale, however, awaits the demonstration of an association between high scores on the HAD depression subscale and a favourable response to antidepressant drug treatment. In operation the scale is efficient, needing only a few minutes for the patient to complete, which makes it an acceptable instrument for use in primary care research.

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Table 2. Sensitivity and specificity of the hospital anxiety depression scale using different threshold scores.[a]

	HAD scale score greater than				
	6	7	8	9	10
Depressive disorders (n = 14/96)					
Sensitivity	*93*	*86*	*71*	*43*	*29*
Specificity	*83*	*85*	*93*	*96*	*97*
Misclassification rate	*15*	*15*	*10*	*11*	*12*
Anxiety disorders (n = 28/82)					
Sensitivity	*93*	*86*	*82*	*61*	*50*
Specificity	*56*	*72*	*79*	*87*	*89*
Misclassification rate	*35*	*25*	*20*	*20*	*21*

n = number of patients in group with/without disorder according to *DSM III* criteria. [a]Sensitivity = true positives on HAD/total positives on *DSM III*; specificity = true negatives on HAD/total negatives on *DSM III*.

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Role of neuromuscular excitability in metabolic problems

Sir,

Organic metabolism oscillates between catabolism and anabolism. Catabolism involves potassium and protein consumption, activation of the sympathetic nervous system, secretion of adrenalin and cortisone, hyperglycaemia, acidosis, and cellular retention of sodium and water.[1] Anabolism involves restoration of protein and potassium stocks, activation of the parasympathetic nervous system, insulin secretion, hypoglycaemia, alkalosis, and excretion of sodium and water.

However, a given metabolism may show stronger or weaker reactions within this complex system of regulation and compensation. Hyperglycaemia can be observed without acidosis and vice versa. A complete series of biological tests (blood, tissue, urine and faeces examination) would be necessary to evaluate general metabolic imbalance. Another method of testing general metabolic deviation is the measurement of neuromuscular excitability: the sum of catabolic effects produces hypo-excitability, the sum of anabolic effects hyper-excitability. These concepts, discovered at the turn of the century, were refined by Laborit in the 1950s[2] but the method was discredited because it was unreliable.

Recent progress in electronics has made it possible to manufacture accurate, portable 'rheotomes' (Medical Ingenierie, France) that are convenient to use at the patient's bedside or in the doctor's surgery

and that can establish intensity–duration curves from 0.1 to 30 ms, for a muscle and corresponding nerve. The procedure takes no more than three or four minutes, and can be repeated as required. Such measures of neuromuscular excitability are a valuable tool for the practitioner.

I obtained intensity–duration curves for a muscle and nerve in 1000 consecutive patients consulting one general practitioner for non-acute conditions from 1 October 1989 to 1 April 1990. A retrospective analysis of patient records (627 women and 373 men; mean age 48 years) was carried out, including clinical follow up and repeat testing. Among these a group of 102 ambulatory hypertensive patients were identified. Of these 35% showed hypo-excitability, indicating that prescription of a beta-blocker or diuretic drug was required and 25% showed hyper-excitability and would benefit, in the first instance, from an angiotensin converting enzyme inhibitor or calcium antagonist. The 40% of hypertensive patients whose neuromuscular excitability was not clearly perturbed, would better tolerate one of the older centrally acting antihypertensive drugs.

These results demonstrate that measuring neuromuscular excitability can help general practitioners to monitor the global metabolic repercussions of an illness and its treatment.

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Cholesterol level testing

Sir,

In 1992 we audited a cholesterol testing programme. The practice's records were examined from before and after the introduction of a protocol (in 1988 and second half of 1990) and the results pooled. Of the 198 patients tested the mean age was 49 years and 65% were men. Almost all of the tests were carried out by a practice nurse. The results, according to the categories used by Cooper and Cocksedge,[1] were normal (less than 5.2 mmol l^{-1}) in 34% of cases, borderline (5.3 to 6.4 mmol l^{-1}) in 36%, raised (6.5 to 7.9 mmol l^{-1}) in 24% and very high (8.0 mmol l^{-1} or more) in 5%. Significantly fewer patients had raised cholesterol levels than found by Cooper and Cocksedge.[1]

Forty five per cent of patients tested had no cardiovascular risk factors. Retesting was often misdirected: 26% of patients with cholesterol concentrations below 6.5 mmol l^{-1} were retested, contrary to the practice protocol, while 27% of patients with concentrations between 6.5 and 7.8 mmol l^{-1} and 45% of those with concentrations above 7.8 mmol l^{-1} were not retested, necessary according to the protocol to monitor the effect of dietary change. Elderly patients (65 years and over) and those without established risk factors were often tested — 22% and 29% of those tested, respectively. The mean cholesterol concentrations of all 198 patients was 5.8 mmol l^{-1}, similar to that found in large population surveys in the United Kingdom.[2,3] The value of this retrospective study was reduced by the incompleteness of patients' notes — in 107 cases the notes did not record whether the patient was a volunteer or had been invited, making adherence to the protocol impossible to assess. We detected no impact of the protocol on practice.

It is difficult to know how to test and treat only patients who stand to benefit most from cholesterol level reduction. The Dundee risk-disk[4] with the Coronary Prevention Group guidelines[5] may help general practitioners to use limited resources effectively by indicating which patients need special care and which only need general advice. The risk-disk produces a score based on smoking status, blood pressure measurement and estimated or measured cholesterol concentration.[4] The patient's score is then compared with the general population to indicate his or her risk relative to others. Patients without a personal or family history of coronary heart disease only have a cholesterol test if other risk factors indicate that they are likely to benefit substantially from cholesterol reduction.

The level of cholesterol-attributable risk for which testing and special care are offered can be set according to the resources available. All patients have their cardiovascular risk quantified while only those who require it are tested. The multifactorial assessment of individuals' risk, together with the population-based measures that Cooper and Cocksedge advocate,[1] such as dietary change, is the most effective way to combat cardiovascular disease.

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Recording ethnic origin

Sir,

I recommend recording patients' ethnic origin by asking them for their country of family ethnic origin. This can help identify those at increased risk of carrying or likely to suffer diseases known to be more prevalent in certain racial groups. It can also give an indication of cultural background which may reflect the health needs and expectations of a cultural group.

The classification recommended by the Commission for Racial Equality gives racial groups which range from white to groups which imply nationality, such as Pakistani or Indian.[1] The advantage of recording by country of family ethnic origin is that it gives an immediate clue to current health requirements. For example, recording Somalia at the present time suggests that I am dealing with a refugee, and I can be prepared for the patient's health needs. Recording 'black African' would provide negligible information for the assessment of health needs and no indication of language requirements.

This approach has been implemented in my practice for two years and I have found no resistance from patients. It has not proved difficult for third generation families to give country of family ethnic origin and for mixed families to give two countries. The two countries are recorded with the mother's country first, for example, Jamaica Nigeria. The answers patients give do not imply nationality and this is appreciated by many patients. Practice computers should hold a list of countries and regions to avoid free text entries and the Read codes[2] should include a gazetteer of countries, written as proper nouns for the coding of ethnic origin.

The health service is fortunate in that a birth in the United Kingdom can usually