

# Hyperkinetic disorder: assessment and treatment

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## Terminology

Hyperkinetic disorder is the generic ICD–10 (WHO, 1992) term used to describe one of the most common childhood psychiatric disorders. It is a severe form of a syndrome which is referred to in DSM–IV (APA, 1994) and the American literature as attention deficit hyperactivity disorder (ADHD). Hyperactivity or hyperkinesis can be defined as “an enduring disposition to behave in a restless, inattentive, distractible and disorganised fashion” (Taylor, 1994). It is thus more than motor overactivity. Diagnostically there are three main groups of symptomatology: overactivity, inattentiveness and impulsiveness.

Overactivity is either a general increase in the tempo and therefore amount of purposeful activity; an increase in the number of purposeless minor movements which are irrelevant to the task at hand (fidgeting); or an increase in the number of purposeless whole body movements (restlessness). It includes excessive talkativeness and noisiness.

Inattentiveness refers to difficulties in focusing and sustaining attention. This results in careless mistakes, failure to sustain or follow through on set tasks, particularly if these contain cognitive demands. Typically tasks are left unfinished. In addition, the affected individual may be demonstrably distractible and often poorly organised.

Impulsiveness is common but not necessary for the clinical diagnosis (although it is included in the research criteria). It is characterised by interrupting others, blurting out answers, failure to wait for ones turn and excessive talk beyond normal social constraints. It commonly has a quality of impatient social disinhibition. In some individuals it is mainly evident in reckless behaviour; things are done

suddenly without heed for danger or adverse consequences.

To make the clinical diagnosis, there must be abnormalities in both attention and overactivity, which (a) are excessive compared with the norm for a child of that age or developmental ability; (b) have been present from an early age (< 6 years), and (c) are pervasive, i.e. present in more than one type of social situation. They are most obvious in situations which demand a measure of self-control

### Box 1. ICD–10 Research Criteria

#### *Inattention (6)*

- Poor attention to tasks
- Poor attention to detail
- Apparently not listening
- Poor self-organisation
- Avoids tasks requiring sustained mental effort
- Easily distracted
- Does not finish tasks
- Loses homework, pencils etc.
- Seems forgetful but memory OK on testing

#### *Overactivity (3)*

- Fidgets, squirms
- Leaves seat in class, meals etc.
- Runs, climbs rather than walks
- Noisy, can not play or work quietly
- Persistent overactivity not moderated by social demands

#### *Impulsivity (1)*

- Blurts out answers too soon
- Fails to wait turn
- Interrupts and intrudes on others' activities
- Talks excessively without response to social constraints

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and/or persistence with cognitive tasks. It is a difficult diagnosis to make with confidence in pre-school children.

In order to satisfy ICD-10 research diagnostic criteria, hyperactive individuals must have abnormalities on three axes: with at least six inattention symptoms, three of the hyperactivity symptoms and one of the impulsivity symptoms (see Box 1). The age before which signs must be evident is a little higher (< 7 years) than that used for the clinical diagnosis.

In ADHD (DSM-IV), essentially the same axes are used for clinical and research purposes: inattention and hyperactivity-impulsivity. Abnormalities need only be present on one axis and not both inattention and overactivity as in ICD-10 clinical criteria, or in all three as in the ICD-10 research criteria. ADHD therefore defines a milder and broader category and is effectively a syndrome rather than a disorder.

## Prevalence

Different prevalence rates are quoted (Box 2). The reason for variation is largely technical; definitions, diagnostic conventions, and the extent of professional assessment can differ between studies. Hyperkinetic disorder (ICD-10) is a subtype of ADHD with more severe features and sequelae. Based on his own epidemiological survey, Taylor suggests an overall prevalence of 0.5–1.0% of all prepubertal children, which in an average district of 250 000 total population means 200 children with hyperkinetic disorder and about 2000 children with the milder syndrome of ADHD (Taylor *et al*, 1991; Taylor & Hemsley, 1995).

## Aetiology

Historically, research populations have been defined using broad or differing criteria so it is not surprising that the literature contains contradictions. Although the condition is one of the most widely researched in child psychiatry with a reference list of well over 1000 peer-reviewed papers, there is very little known which is replicated and definite when it comes to severe cases.

It is generally considered, on the basis of twin and family studies, that there is some genetic predisposition. This interacts with environmental factors which have been identified with varying degrees of confidence. Urban living and family discord were identified in early studies using broad definitions but the role of family factors for pure, severe hyperkinetic disorder is questionable. The

### Box 2. Prevalence of childhood hyperkinesia among a childhood population according to different diagnostic criteria

ADDH (DSM-III)	6–7%
ADHD (DSM-III-R, DSM-IV)	3–5%
Hyperkinetic syndrome (ICD-10)	0.5–1%

contributions of diet (Egger *et al*, 1985; Carter *et al*, 1993), lead (Silva *et al*, 1988), or complications of pregnancy and delivery (Delamater & Lahey, 1983; Taylor, 1991) are small and confined to a minority of tightly defined cases. Brain damage is nearly always absent or irrelevant. Brain perfusion studies show under-perfusion of frontal lobes and basal ganglia but this does not necessarily locate pathology (Lou *et al*, 1984, 1989). Neurochemical studies are inconsistent.

## Assessment

### Before clinical contact

Assessment may be initiated even before clinic attendance by using the Conners Teachers' and Parents' Questionnaires (Conners, 1969, 1973). These are screening questionnaires addressing a number of childrens' behaviours. Responses to certain questions load on a factor suggesting hyperactivity. If parents' responses to these are scored 0, 1 and 2 according to the frequency of the problem, then a score can be obtained for this 'hyperactivity' factor. The factor is not pure and scores on it can be obtained by children who have oppositional defiant disorder. It is of course biased by parental attitude and can not be a substitute for professional assessment. Cases of hyperkinetic disorder seen in our clinic nearly always score above 22 on the parents' scale, which we feel in practice is a better threshold to use, although some American studies have used cut-offs as low as 15. Scores do not yield a diagnosis but can also be useful in tracking the effects of treatment on hyperactivity.

### In the clinic

#### History

A standard history itemising current problems and then taking the history from birth onwards with specific enquiry into the presence and severity of



difficulties with activity, attention and impulsiveness should ascertain:

- (a) core symptomatology with quantification and specific examples
- (b) comorbid conditions
- (c) parenting style and attachment patterns
- (d) social relationships
- (e) educational achievement
- (f) any other potential stressors for the child which may be creating anxiety or leading to inattentiveness

One of the important factors to remember is establishing priorities by enquiring about the child's behaviour in a variety of settings, i.e. at school, at home, with peers, to ascertain the situational and behavioural correlates.

There is an advantage in having both parents' observations, particularly if there is conflict in the family. It is important to have a perspective from the child, particularly with respect to emotional symptomatology, self-esteem, and antisocial behaviour, all of which may be minimised in a joint interview. Therefore an interview with the child alone is recommended. Parental attitudes and behaviour may only be fully revealed if the child is given the opportunity to describe his experiences of them. Bear in mind that a statement by the child that everyone is unfair or unreasonably critical is typical of hyperactive children who experience the impact of their disorganised or impulsive behaviour on others without having the cognitive maturity to perceive their own contribution to the situation. A common difficulty includes failure to differentiate between behaviour during imposed, cognitively demanding tasks and those selected by the child. Plenty of hyperactive children appear able to concentrate on a television programme or computer game that they have chosen for half an hour or more.

### Further information

Written school reports comprise a minimum in terms of information from school. It is better if they are requested by a letter specifically asking about the topics listed below. The Connors' Teachers Questionnaire can be completed by the teacher who knows the child best. Some teachers find such questionnaires restrictive and it is sensible to ask them to annotate items or expand their responses. A telephone interview with the teacher is even better. Topics to be covered include:

- (a) current academic achievements with specific questions about achievements in reading, writing and mathematics
- (b) classroom behaviour in lessons which demand settled attention and task completion on the

- child's initiative, i.e. writing assignments, classroom mathematics or quiet reading
- (c) general behaviour in the classroom and response to rules and discipline
- (d) general organisational skills: correct books for lessons, homework completed, PE kit remembered
- (e) relationships with peers in play and co-operative classroom work
- (f) apparent level of self-esteem
- (g) direct questions about level of activity, attention span and impulsiveness
- (h) any other past and current concerns about the child.

Direct observation at a school can also be of considerable value but in practice is time-consuming to carry out.

Because affected children can often manage to contain themselves in one-to-one teaching but are inattentive and restless in group situations or when required to work on their own, the attribution of 'attention-seeking behaviour' is often used by teachers. Be wary of such inferences; a description of the actual behaviour is required.

### Examination

An affected child may manage to be attentive and self-contained during a brief individual interview. Roughly speaking it is worth trying to observe the child while interviewing parents as well as seeing the child individually so that a total of at least an hour's worth of sustained observation can be established. Much can be learned from such observation. A limited range of small toys which require manipulation is required. Constructional toys or the more fiddly Playmobil cameos come into their own here. Look for completion and persistence as well as coordination. Screen for comorbid developmental language problems by listening to speech and assessing compliance with instructions. A husky voice can indicate vocal abuse from excessive talkativeness.

Simple tests of motor coordination complement observations of fine motor skills during play with small toys: normal and heel-toe walking, Fog's test (walking on medial sides of everted feet with knees held together to examine extent of athetoid posturing of hands), finger-nose opposition, rapid sequential finger-thumb opposition, rapid tapping, drawing and writing.

Hearing should be checked clinically because of the contribution of hearing impairment to the educational problems commonly present. Softly voiced numbers at a distance of one metre is a quick screen. Progression to digit span enables evaluation of auditory memory, quite often impaired. Wechsler norms are useful here (Table 1).



A neurological screening examination is not likely to yield much of significance but can reassure parents, particularly if they raise the topic of brain damage. Soft neurological signs and minor congenital anomalies are almost certainly of no aetiological significance. Brain imaging and EEG are not required for routine clinical cases.

Because stimulants can slow growth it is important to take baseline height and weight measurements. Stimulants can also produce an elevation of blood pressure and a tachycardia. Tricyclics can have adverse effects on children's, as well as adult's, hearts. It is therefore sensible to carry out a clinical examination of the cardiovascular system, including recumbent blood pressure using a paediatric cuff where necessary. The main investigations and observations mentioned above are summarised in Box 3.

### Psychometric testing

Few clinics will have the facility to assess all hyperactive children psychometrically. Psychiatrists can carry out simple tests of reading (such as the Schonell Graded Word Reading Test) themselves but these are usually old and crude. Full assessment of reading requires a psychologist. Any task which involves the child cognitively provides an opportunity to observe inattention or restlessness and standardised psychometric testing provides an excellent opportunity for this.

Most children with hyperkinetic disorder will be of average or low average intelligence but an appreciable number will have mild or moderate general learning disability (mental retardation in ICD-10 terms). Some of the latter will have unusual distributions of skills and uneven subtest score profiles. Particularly because of the last point, assessment of intelligence is also the province of the expert psychologist. Psychometric testing should be carried out if there are any concerns about the child's academic progress.

Generally speaking, instruments which attempt to measure attention, such as continuous performance tests, are currently for research purposes only. A speech and language therapist should assess children thought to have language problems. Some

#### Box 3. Minimum physical examination required

Observation of language  
Check hearing and auditory memory  
Observation and assessment of co-ordination  
Height and weight  
(Neurological screening examination)  
The cardiovascular system, including blood pressure

private assessment centres administer a large battery of psychometric and developmental tests as a routine. There is much to deplore in such a practice. Usually the scores are standardised on small, non-UK samples, often obtained many years ago. Some will be low because of a reduced level of general intelligence. The order effect of administering up to 20 tests is not taken into account.

## Comorbidity

A number of conditions are found at higher than anticipated rates among hyperactive children.

### Conduct disorder

This is the condition most commonly associated with hyperkinetic disorder and it is recognised by a subcategory in ICD-10 (Hyperkinetic Conduct Disorder). A useful way of thinking about the association is that the child's hyperactivity increases the vulnerability to conduct disorder either because of the type of parental behaviour that it elicits (an increase in the amount of criticism and negative commands), or because the hyperactive child has been born into a family with a high rate of pre-existing and independent family adversities of the type associated with conduct disorder. There is evidence (Prendergast *et al*, 1988) that British clinicians prefer to diagnose conduct disorder rather than hyperkinetic disorder when both are present.

### Emotional disorder

There is a relative risk of 1.3 for children with clinical hyperactivity to develop symptoms of anxiety and depression (Taylor, 1991). The hyperkinetic children who also have an emotional disorder (usually with predominant anxiety) generally have very high levels of hyperactivity and associated neurodevelopmental delays.

Table 1. Wechsler norms for digit span

Age	Digit span	
	Forward	Backward
6	5	3
10	6	4
14	7	5



### Specific learning difficulties

Children with hyperkinetic disorder show an increased rate of specific learning problems. Approximately one third have specific problems in spelling, reading and mathematics, unaccounted for by low intelligence (Szatmari *et al*, 1989). In addition to this there may be poor handwriting, general problems with organisation, developmental delays in language and motor dyspraxia.

### General learning disability and pervasive developmental disorders

The rate of inattentive restlessness is raised in association with both categories. The lack of behavioural inhibition and impaired inattention seen in hyperkinetic disorder are not simply developmental immaturities: they are qualitatively different from normality at any age.

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## Differential diagnosis

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### Age-appropriate (or mental-age-appropriate) boisterousness, disobedience or cheekiness

In practice this is the commonest differential to be made. The issue is whether such behaviours are excessive for the child's age or developmental level. Teachers are often in an excellent position to make this comparison. Explosive temper or excitability are often referred to by parents or peers as being 'a bit hyper'. Careful assessment of the child and family is needed and clarification of the child's behaviour is made by consulting with teachers and any other professionals the child and family may be involved with. Observation of the child in a variety of settings as discussed above, and the use of structured rating scales in addition to these measures, will help to make clear any diagnostic dilemmas in most cases.

### Conduct disorder

This may be a differential diagnosis (as well as a comorbid condition) since restlessness and inattention are common among conduct disordered children. A good developmental history will clarify which came first and a full assessment will sort out whether the inattentive restlessness is sufficiently severe to merit separate diagnosis. The diagnosis of conduct disorder requires repetitive, persistent and serious antisocial, aggressive or defiant behaviour. In practice the distinction between hyperkinetic and conduct disorders can be difficult to make, particularly because of comorbidity.

### Disinhibited attachment disorder

Children who have not had the opportunity to form selective, secure emotional attachments through a lack of sensitive or consistent parental care may present as distractible or restless with attention problems, social disinhibition and educational under-achievements. The personal history and general pattern of their social relationships point more clearly to the underlying problem.

### General anxiety disorder

Inattentiveness and restlessness can mislead the unwary. Social disinhibition and impulsiveness are less likely to be present than in hyperkinetic disorder. Parental questionnaires may not reveal this.

### Hypomania, agitated depression and schizophrenia

These can all present with inattentive restlessness but have a later age of onset than hyperkinetic disorder.

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## Treatment

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Treatment should always be multimodal and involve to a greater or lesser extent the elements listed below, according to the needs of the individual child (Box 4).

### Education and information

It often helps to describe hyperkinetic disorder to parents as essentially a handicap, a problem for the child to live with rather than merely an intrusive behaviour problem. It can be emphasised that it is a long-lasting biologically based disability which has effects on school achievement, family, behaviour and self-esteem. There are several parents' groups throughout the UK with a certain amount of rivalry between them. Details of two which aim for national coverage and are sympathetic to mainline medical approaches are given at the end of the paper. A useful book is *The Hyperactive Child: A Guide for Parents* (Taylor, 1995).

### Family support and interventions

Advice to parents is centred on their management of the child. They need to be in control so that they can build structure and predictability into their



**Box 4. Treatment approaches**

Education and information for child and parents  
 Family support and interventions  
 Behavioural management approaches  
 School interventions and management programmes  
 Individual cognitive approaches  
 Medication

child's environment with clear guidelines and consistent handling. They must stay calm in the face of excitable or chaotic childhood behaviour. Advising on a simple time-out regime provides them with a tool for dealing with unacceptable behaviour but they should be advised that it is change in behaviour over time which is the aim, not an immediate result and not an apologetic, contrite child each time it is used. Almost certainly they will need to reduce the amount they nag and criticise. Excessive negative commands, criticism and failure to follow through with discipline increase the likelihood of oppositional-defiant behaviour. A small number of clear household rules spares everyone the strain of repeated requests, demands or negotiations.

Parents should increase the number of positive instructions and stated expectations so that the child has a clear idea of what he is supposed to do (rather than simply what he should not have done). In order to build self-esteem, parents must focus on their child's achievements, openly emphasising his abilities, and follow through with prompt praise when something is achieved. Punishments which are physically harsh or humiliate will damage self-esteem and exacerbate antisocial behaviour.

To build attention, parents can encourage the child to attempt short tasks with a clear end-point. Jigsaw puzzles, drawing, or building a particular model with Lego are examples. Once again, clear, immediate praise for concentrating and finishing is crucial.

In order to build self-control, parents may be instructed to offer deals along the lines of "If you can sit very quietly and not interrupt while I'm on the phone, then we'll go out to...". It is important that the parent puts her demand first, positively and in terms that the child can understand, rather than vague phrases such as "be good".

In order to support positive interactions with other children it may be sensible to invite them over for very short periods with a planned structure such

as a trip to a fast food restaurant. Peer interactions are difficult for children with a hyperkinetic disorder who are too impulsive, impatient and easily distracted for most of their friends to play with. Prolonged unstructured play with others nearly always ends in social rejection.

### ***Behavioural management approaches***

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More formal behavioural approaches are sometimes indicated, especially with children too young for medication. They follow the usual principles:

- (a) establish an operational definition (which the child understands) and prospective baseline of the behaviours giving rise to most concern
- (b) establish antecedents and consequences for these, following through with a functional hypothesis as to the determinants of the behaviour
- (c) amend provocative antecedents where possible
- (d) set specific targets for the behaviour in question and use operant methods which alter the frequency or shape the desired behaviours, using parents as the dispensers of reinforcers
- (e) review goals and methods as appropriate.

### ***School interventions and management programmes***

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Information may need to be given to teachers about the condition. It helps to emphasise the risk of low self-esteem and consequent avoidance of classwork because of fear of failure. Praise for academic accomplishments is usually a powerful tool but children with very low self-esteem are wary of it because they doubt their ability to rise to the occasion a second time.

Most children with hyperkinetic disorder require high levels of structure, supervision and control. Teachers usually do best if the child is seated near them, away from visual distractions, and work is presented to the child in manageable chunks and monitored at frequent intervals. If there is substantial underachievement, a medical contribution to a full assessment of special educational needs (statementing) may be required.

### ***Individual cognitive approaches***

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Children can be taught to recognise cognitively demanding problems and use self-directed verbal



commands such as the phrase 'stop, look, listen and think' which can then be progressively reduced to whispering and so to internal speech. This has been shown to reduce impulsiveness principally in children who are aware of their own problems and do not attribute them to others (Bugental *et al*, 1977). Some young, intelligent adolescents who have a realistic insight into their difficulties can sometimes benefit. These approaches are not very powerful.

## Diet

Exclusion of dietary constituents as a treatment is popular with the media and some parent support groups. There is no benefit from blanket exclusion of food colourants or preservatives and 'cutting out the E-numbers' is pointless. A more selective approach initially reduces the child's diet to three basic constituents, then, if benefit is shown, re-introduces foods one by one to identify those that exacerbate the condition. This is the oligo-antigenic or few-foods approach. It has been shown to work (Carter *et al*, 1993) but is quite arduous and can strain the family's resources. Its power is moderate. Parents nearly always know which foods exacerbate the child's problem before the initial steps are taken so it may be unnecessary to be as systematic as the experimental trials have been. There are risks of dietary insufficiency and the opinion of a paediatric dietician is advisable for any child on a seriously restricted diet.

## Medication

Medication is by far the most powerful treatment for hyperactivity and nearly all cases of hyperkinetic disorder will need it (Box 5). The most effective agents are psychostimulants, particularly methylphenidate (Ritalin). The beneficial effect on restlessness, inattentiveness and impulsiveness is not diagnosis-specific – stimulants will increase concentration and attention in normal children but not to the same extent (Rapoport *et al*, 1978). There have been numerous controlled trials which establish beyond doubt that stimulant medication for hyperactivity disorders has been shown to increase concentration and attention so that on-task behaviour, classroom productivity and socially acceptable behaviour all increase. Equally importantly, when taken by the child, stimulants will change parents' behaviour, reducing the amount of their criticisms and negative injunctions.

Stimulants provide temporary correction of abnormalities; they are not a course of treatment. It may therefore be sensible to prescribe only on school days if the problems are mainly evident at

school. Common side-effects of treatment with stimulants are:

- (a) reduced appetite or nausea in 50–70% of children. Occasionally you will see a slowing of growth in children on this medication. Monitoring of height and weight regularly is sensible. If growth slowing is an issue, medication can be reduced or omitted at weekends and during school holidays. These periods of non-medication allow growth to 'catch-up'. The final adult height of pre-pubertal children taking stimulants is not impaired
- (b) difficulty in sleeping in 30–50% of children. This can sometimes be overcome by giving doses no later than mid-afternoon
- (c) stomach pain and headaches, usually subsiding after a fortnight or so.

There are very few contraindications to the use of stimulants except in the case of psychosis. They are best avoided in children under age six and in those with epilepsy. There have been suggestions that they will worsen tic disorders, but they are probably safe to prescribe for children with straightforward tics (Sverd *et al*, 1992). Dependency or recreational abuse by adolescents is extremely rare but it is probably good practice to use a non-euphoriant stimulant such as pemoline in cases where misuse is possible. The most common problem with methylphenidate is that its effect is short-lived, often only a couple of hours. Furthermore the effect may be mainly evident during school hours. It is a good idea to start it at a weekend so that parents can be clear about benefits and duration of action in the home. Monitoring must clearly always involve the school.

Most children and adolescents with hyperkinetic disorder will be placed on methylphenidate as the drug of first choice and 70–90% of cases will respond. A lack of response to one stimulant does not preclude benefit from another (Little, 1993). Methylphenidate is now generally available in the UK, although until recently it was reserved for named patients. Like dexamphetamine it is a

### Box 5. Stimulants used in hyperkinetic disorder

Methylphenidate 5–40 mg daily (up to 60 mg in older adolescents)

Pemoline 20–60 mg daily (up to 120 mg in older adolescents)

Dexamphetamine 5–20 mg daily (up to 40 mg in older adolescents)



controlled drug so prescriptions need to be carefully written with the dose and total required in words and figures. Pemoline is not a controlled drug.

Progress can be monitored using the Conners Questionnaires. When a satisfactory dose has been established, three-monthly follow-ups with height and weight recording (and liver function tests in the case of pemoline) is necessary. Medication should be tailed off after one year since a few children will no longer need it. Those that do will probably take it for several years. From the age of 12 or so, an appreciable number settle and can discontinue it. Only a small number, in our experience, need to continue beyond the age of 15. Overall the pattern of prescription will need to be tailored to the individual child's and family's needs and may need to include holiday and weekend breaks to balance side-effects in some children, as mentioned earlier.

Other agents which are effective and suitable for routine use, particularly if severe anxiety is present, include imipramine (25–75 mg daily) and haloperidol in low doses (500 µg–3 mg daily). Clinics with substantial experience may also use clonidine, fluoxetine and folic acid, but there is no need for these as first or second-line treatments and their deployment is best reserved for specialist centres.

## Outcomes

Self-evidently, long-term follow-ups are based on samples with old (and broad) diagnostic criteria. It is sometimes said that stimulant prescriptions do not alter the final outcome but observation does not take into account the fact that older treatment regimes tended to be brief, and not closely monitored. The long-term impact of modern, multi-modal, well supervised interventions pursued for an adequate period of time is not yet known, although studies are in hand.

In the short term, treatment is usually effective but discontinuing medication leads to relapse. A small proportion of children can be discharged on no active treatment at the end of 12 months. Most, however, will need continuing treatment (including medication) at least until the early teens. At this point a further number can cease active treatment without relapse.

A proportion (perhaps one-third of ADHD cases; Barkley, 1990) will continue to have some signs of the disorder in early adult life. The diagnostic criteria remain the same although the consequences of the condition will also be evident. Thus, affected individuals show under-achievement, unstable personal relationships, poor work records and more

antisocial behaviour than controls. Little research activity has been carried out on adults with hyperactivity or attention management problems; clinical evidence suggests stimulants are sometimes effective although more prone to misuse.

It is obviously important in assessing the families of children and adolescents with hyperkinesia to look at the parents' own history and current symptomatology. Parents with this disorder may find it more difficult to initiate and maintain consistent behavioural programmes and may feel guilty about their child's problems. In addition to this they are more likely to suffer from problems with confidence in their abilities and self-esteem.

It is therefore very important both to evaluate the other members of an affected family for this condition and also to be aware of the potential long-term effects and outcomes. The numbers of children affected, the predominance of medication in their treatment, and the need for long-term follow-up imply that it would be worthwhile establishing a special hyperactivity clinic in each practice centre. Evaluating and treating cases on an *ad hoc* basis is likely to be too inefficient.

## Parent support organisations

ADD/ADHD Family Support Group UK, 93 Avon Road, Devizes, Wilts SN10 1PT. Tel: 01380 726710.  
LADDER, The National Learning and Attention Deficit Disorders Association, PO Box 700, Wolverhampton WV3 7YY. Tel: 01902 336272. Fax: 01902 336232.

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## Multiple choice questions

- For a valid diagnosis of hyperkinetic disorder (ICD–10):
  - The same criteria can now be used as for attention deficit hyperactivity disorder (DSM–IV)
  - The condition must have been evident before the child's sixth birthday
  - The clinical picture must be displayed in more than one type of social situation
  - Both impaired attention and motor over-activity must be present
  - General learning disability (mental retardation) must be excluded

- The following are found at higher rates in children with hyperkinetic disorder than the general population:
  - Generalised anxiety disorder
  - Conduct disorder
  - Specific reading disorder (dyslexia)
  - Specific developmental disorder of motor function (dyspraxia)
  - Oppositional defiant disorder
- Good practice in the initial routine assessment of hyperkinetic disorder includes:
  - MRI brain scan
  - Weighing
  - Patch tests for allergy
  - Blood pressure measurement
  - Requesting information from school
- In the treatment of hyperkinetic disorder, the following have been shown by controlled trial to be of proven benefit:
  - General avoidance of artificial food additives
  - Relaxation of structure and control to allow the child to discharge subjective tension
  - Imipramine
  - Cognitive training using covert self-instruction
  - The few-foods diet
- Common problems associated with prescribing methylphenidate for children include:
  - Abdominal pain
  - Dependency
  - Insomnia
  - Recreational misuse
  - Anorexia

### MCQ answers

1	2	3	4	5
a F	a T	a F	a F	a T
b T	b T	b T	b F	b F
c T	c T	c F	c T	c T
d T	d T	d T	d T	d F
e F	e T	e T	e T	e T