Conductive education at the Petö Institute, Budapest

R O Robinson, G T McCarthy, T M Little

Abstract

Conductive education, which was developed at the Petö Institute in Budapest, has been publicised incorrectly as a method of treatment for children with cerebral palsy. From the results of information given and our own observations during a week's visit to the institute we conclude that a minority of carefully selected children with cerebral palsy and spina bifida, who have a relatively good prognosis, are educated at the institute; the education is carried out with appropriate medical, surgical, and orthotic intervention; and the children probably function better as a result of the intensive programme than do similar children in Britain in areas where therapy is scarce. They seem to achieve, however, what we would expect similar children in Britain to do when facilities are adequate. Though our findings do not therefore justify using public funds to refer children to the institute, some (self selected) families benefit from a visit, particularly from the positive attitudes of the staff. The role of the conductor and the integration of programmes into a classroom setting have much to recommend them, and conductive education, if successfully transferred to Britain, might be beneficial to a wider range of children than in Hungary.

Introduction

In the past two years the system of conductive education in Hungary has been rediscovered as a method of helping children with motor disability. The television programme *Standing Up For Joe* generated enormous interest, resulting in the formation of a parent pressure group, Rapid Action for Conductive Education (RACE). The Department of Education and Science has donated £300 000 to a research project at Birmingham University to evaluate the method. The project aims at training British "conductors" alongside a group of British children who will spend time in Budapest and Birmingham. It is hoped thereby to bring conductive education with fully trained conductors to Britain. Against this background we were invited to attend an international meeting on conductive education at the Petö András State Institute for Conductive Education of the Motor Disabled and Conductors College in Budapest for five days in June 1988. We describe our observations of the institute and the children we saw there, our interpretation of the information we were given, the results achieved, and our opinions about the availability of conductive education to children in Britain.

The essence of conductive education is that it is education; its most striking feature is that all the child's needs are met at any one time by one person—the conductor. Conductors are specially trained to educate children with motor disorder in all aspects of their needs. The children are given the opportunity to learn for themselves, through activity, how to overcome their disability. It is assumed that they will not overcome their disorder. The specific solutions to overcoming difficulties are not given, as they might be if this were a method of treatment; the children are encouraged to discover the solutions for themselves.[1]

The method was developed by Professor Petö, who lived and worked with a group of children with cerebral palsy. His aim was to develop "orthofunction" —that is, functioning adequately in society without aids. András Petö was a physician with training in rehabilitation and psychiatry; perhaps an indication of his insight is that he developed a method of education. He laid emphasis on training conductors by having them work alongside fully trained conductors in the classroom. As this training abolishes at a stroke discussion about multidisciplinary teams, their coordination, leadership, interprofessional relationships and responsibilities it is worth considering the conductors, not least because the success of the method depends crucially on them. Conductors (about 40-50 a year) are trained only at the institute. Applications are purposely invited mainly from school leavers rather than from people who have already received training in any form of therapy. Apart from intelligence and character the main requirement is to like and be liked by children. Most are women. Training takes place over four years, two of which are spent in teacher training in conjunction with a teacher training college. A third of the remainder is spent in theoretical work on basic medical sciences, principles of physiotherapy and speech therapy, and some foreign languages, and the remaining two thirds are spent working with the children in class groups with a trained conductor.

The relationship between the child and his or her conductor must be mutually enjoyable. The content of the programme is designed to maintain the interest of the child. Throughout the groups we watched enjoyment and motivation seemed to be high in nearly all the children and conductors. Programmes are worked out individually as a series of tasks in defined areas such as manipulation, drawing, writing, coordination of fine movements, etc. Sometimes the task is a means; sometimes an end. Achievement of tasks, in itself rewarding, is reinforced by the positive interaction within the child's peer group. The success achieved by the child and seen to be achieved by the group matures the social awareness of the child as well as his or her ability to contribute to the success of others.

It is potentially misleading to attempt an account of the service out of context of the community it serves. Some seven million of the 10·5 million people in Hungary live in the countryside, villages, and towns with populations of fewer than 200 000; some centralisation of services is therefore inevitable. Elementary schooling in Hungary is from 6 to 14 years. Most children naturally go to normal schools; 8% do not, entering schools for the blind, deaf, and mentally or physically handicapped. To go to a normal elementary

Chailey Heritage Hospital,
Nr Lewes, East Sussex
BN8 4EF
R O Robinson, FRCP, *consultant paediatric neurologist*
G T McCarthy, FRCP, *consultant neuropaediatrician*
T M Little, FRCP, *consultant paediatrician*

Correspondence to:
Dr Robinson.

Br Med J 1989;299:1145-9

school a child must be able to walk. There is no provision for wheelchairs in normal schools; integration of the physically handicapped is not attempted. There is no secondary education at the institute.

The institute caters mainly for two types of physical handicap: cerebral palsy—which has received most media attention—and spina bifida. Hungary has a prematurity rate (proportion of all births of below 37 weeks gestational age) of 10%. Ultrasonography for use in pregnancy or in the neonatal period is rarely, if ever, available. Screening for maternal serum α fetoprotein concentration is available in Hungary, although without ultrasonography to localise the placenta we were not clear how this information was used in practice. Treatment is offered on a selective basis for children born with open spina bifida. Each child in Hungary is examined six times in the first year of life. By decree all children with suspected cerebral palsy are to be referred to the institute for further assessment. Ascertainment is unlikely to be complete; of the 496 children aged under 5 years seen in 1982-7 at the institute, 159 were self referred, not being previously among those notified. These figures and others we were given were not broken down by country of origin; most, probably over 95%, were Hungarian drawn as implied from all over the country.

Cerebral palsy

ASSESSMENT AND SELECTION

Assessment is carried out by an experienced conductor, who has medical and other reports available. The time this takes varies, although some children from abroad are offered a half hour's assessment without further commitment. Although the conductors use what seems like a checklist, the essence of the process is one of conductive observation—that is, working with the child not only to assess the level of development but also the extent and quality of responsiveness. Although essentially subjective, we judge from the obvious high quality and experience of the conductors we saw working with the children that the assessment is accurate in terms of assessing the suitability of the child for treatment by the institute—in other words whether the child does or does not have a fairly good prognosis (see below).

Children are not accepted at the institute if they have one of the following problems: mental handicap sufficient to impair responsiveness to conductors' requests; impairment of vision or hearing; poorly controlled fits; progressive disorders; biochemical disorders; and major orthopaedic problems, including limb reduction. Undoubtedly, some parents choose not to take up the option. We have no data on how large this group is nor on subsequent achievement.

The effect of the selection process may be judged as follows. About 1000 children were assessed in 1982-7, including children of all age groups from Hungary and abroad. Of these, 496 children aged below 5 years we have already referred to. Table I shows the disposition of method of working with these children. The children who were not treated were excluded because of orthopaedic and other problems. Table II shows the percentages of children with types of cerebral palsy treated in the institute as a proportion of those registered nationally. From our own observations of the children our practice would be to label most of those with ataxia as having moderate choreoathetosis, and we would call a proportion of the double hemiplegia group spastic diplegia.

In 1987, 201 children were accepted for inpatient treatment at the institute; table III shows their distribution by diagnostic categories of cerebral palsy. Eighty eight entered the kindergarten groups (for age 3-5 years). Interestingly, all the children with spasticity were either born early (at 6-8 months' gestation) or had low birth weight (<2500 g), but we were unable to determine the proportion with evidence of intrauterine growth retardation. Neither of these variables applied to any of the children with athetosis or "ataxia."

TABLE I—*Method of working with 496 children aged below 5 years with cerebral palsy 1982-7*

	No of children
Outpatient	160
"Countryside network"	116
Parent group	157
Admitted	13
Not treated	50

TABLE II—*Types of cerebral palsy among children educated at institute*

	Proportion of cases registered nationally
Diplegia	8·7
Double hemiplegia	11·8
Hemiplegia	1·5
Athetosis	10·3
Ataxia	3·7

TABLE III—*Number of children educated by type of cerebral palsy, 1987*

	No
Diplegia	50
Double hemiplegia	95
Hemiplegia	16
Athetosis	32
Ataxia	8
Total	201

TABLE IV—*Intelligence quotient in 237 children* educated at institute*

Intelligence quotient	No of children
<50	20
50-70	68
>70	149

*Includes 40 with spina bifida.

FOUNDATION FOR CONDUCTIVE EDUCATION

Whether the same selection criteria are applied to children from abroad is doubtful. We briefly saw a group of non-Hungarian children, some of whom were older than the other children in that part of the institute, and many of whom seemed to be more severely handicapped. Of 27 children admitted from the pressure group in Birmingham, however, 19 had been worked with in Birmingham and 10 had just completed a six month course at the institute.

Further indirect evidence of the effect of the selection procedure may be obtained from the results of psychometric testing, which children at the institute now undergo. The Stanford Binet test is used, modified for and standardised on children from Budapest. In 1987, 237 children being treated at the institute were assessed; 155 had spastic forms of cerebral palsy, 42 had athetosis, and 40 had spina bifida. Table IV shows their distribution by intelligence quotient.

TREATMENT GROUPS

We were able to see the school for parents as well as the kindergarten and elementary school groups. In general, the children were alert and eager, their conductors lively and enthusiastic. Work flowed naturally from one activity to another. The children's attention was held—they seemed to be unaffected by our presence. The children live and work in the same room. There is little evidence of personal space. The children go home on alternate weekends and during the holidays. Their day starts at 6.30 am, the younger children having an afternoon rest.

School for parents

Work with the youngest children (aged below 3 years) is carried out by the parents. Conductors teach parents how to position the children and perform everyday activities like dressing and feeding and also how to stimulate the development of movement and connect it with intellectual development. The parents, usually the mother, who live(s) near or in the institute with the child for two to six week periods, return(s) home with a programme for a similar period, and then reattend(s) the institute for further courses of similar time intervals. The home programme, presented as a daily routine with tasks set for the family, is understood as an operational plan with aims and a prognosis. It is built round the structure of mealtimes; little time is unused, and rumination is replaced by activity, which is thought to improve the relationship between dysfunctional children and their families.

Kindergarten

In the kindergarten section there were three groups of children (aged 3-6 years) with eight conductors and one leader for each group: two conductors were trained, the rest were students. This means that each child had several adults to relate to. We were told that the children usually settle down quickly in their groups, any behavioural problems being rare. Problems are more likely to occur after the children have left the institute and have lost the security of their "group family." Much of the group activity we saw with the children with cerebral palsy was carried out with bare feet and legs. Some of the children wore crude splints made by the handyman, which were gutter backed and some of which had wooden soles with padding.

Spina bifida

Although some children with spina bifida have been admitted to the institute since the 1950s, it seems that only recently has a programme incorporating their particular medical requirements been designed specifically for them. There is now a school for parents specifically for children with spina bifida, one aim of which is to prevent the development of contractures and decubitus ulcers. Like the children with cerebral palsy, those with spina bifida move into the residential unit at the age of 3.

The incidence of spina bifida is still high relative to other developed countries. About a third of all physically handicapped children in Hungary have spina bifida (and these are only the survivors of the neonatal period). Some idea of the degree of selection may be obtained from the numbers of children with spina bifida currently being treated at the institute compared with the numbers born each year in Hungary (table V). The effect of selection may be gained from the numbers of children with different levels of the lesion: thoraco-lumbar (two), lumbar (one), lumbosacral (19), as well as by the mean intelligence quotient (105·7), with only two having a quotient <70 (table IV).

TABLE V—*Numbers of children with spina bifida in Hungary and currently educated at institute, 1979-84**

	1979	1980	1981	1982	1983	1984
Total	128	110	152	107	112	91
Treated at institute	1	4	7	4	5	1

*Excluding children not surviving or children discharged from institute

BLADDER CONTROL

We observed a group of children with spina bifida carrying out their bladder conditioning programme. We were told that this takes place for 20 minutes in every hour initially, becoming less frequent as the children become better conditioned. The children never wear nappies in the institute. We saw one or two with wet pants as a consequence.

The aim is to establish a conditioned reflex, and it seems that this programme is used indiscriminately, without knowing what the urodynamic profile is for the individual child. Sessions are carried out every hour, also at 11 pm and 3 am. The children were sitting in a row on their potties wearing nothing below the waist. They carried out a vigorous programme of swinging backwards and forwards in a sitting position, deep breathing, tapping their abdominal wall, pushing their abdomens in and out actively, and had some help from the conductor with sacral tapping if the bladder did not empty. The programme was carried out to an active chanting and clapping regimen, the conductor urging the children on. The children stood up to look into their potties using the "saucepan" handle to give them support and balance. Urine volume, if any, is measured at each session and totalled for the 24 hours. The aim is to increase the dry periods so that by the time the children leave they can sit on a toilet, emptying their bladder without difficulty. No mention was made of bowel training, but we assume that this degree of concentration on the bladder must also cause emptying of the bowel fairly regularly.

OLDER CHILDREN

We also observed a group of children aged 5-9 years with spina bifida, who were carrying out a movement programme together. They walked through a complex of rooms over various obstacles to collect a number of shapes to make a complete picture. Various methods of walking were used; some children were wearing calipers, including long calipers. Many of the children had pronounced lordosis as well as inadequate support from their orthoses, with consequent hyperextension of their knees. We thought that some of the unusual postures may have developed from the overenthusiastic use of what are called "fixation exercises," in which children fix their paralysed legs in extension and develop active muscle strength in those muscles that worked by taking their weight on the hands forwards on to the floor and climbing up the ladderback chairs using their arms. This clearly strengthens the child's arms and back but tends to accentuate the effect of weak hip extensors. As with the cerebral palsy groups movement was used as part of the learning process.

Countryside network

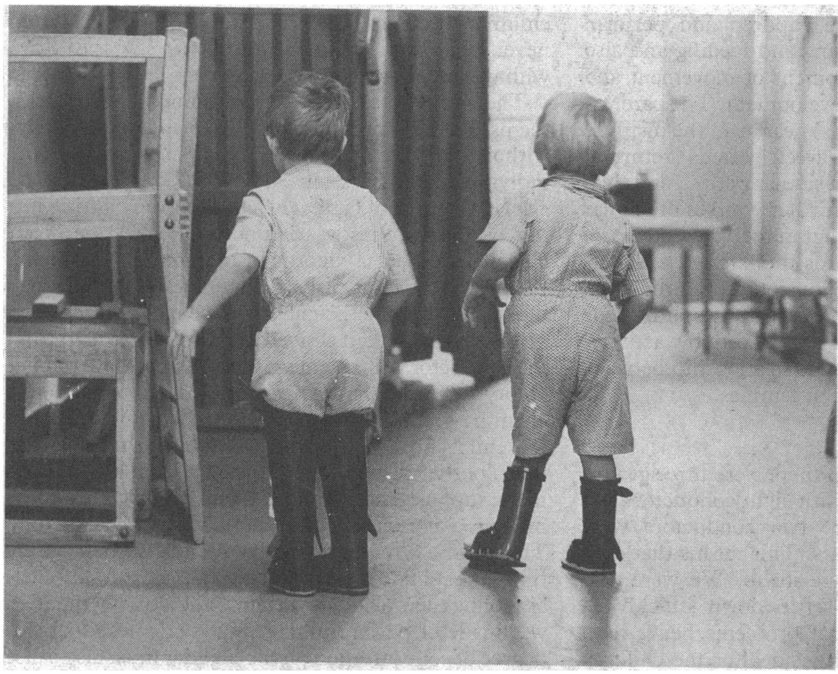
We were given few details of how the countryside network operates. It is probably run by trained conductors based outside the institute, sometimes supplemented by conductors visiting from the institute, who work in kindergartens, special schools, or in adult institutes.

Participation of other disciplines

We met several conductors who had gone on to take further specialised training—for example, in speech therapy or psychology—who seemed to act as advisors to groups of conductors. We understood that each child in the institute saw an orthopaedic surgeon once a year. Vision and hearing were checked regularly. Referral to specialists was initiated by the conductors. We were not given details about their training for indications for referral.

Adult groups

The institute also treats adults with acquired neuromotor disorders. We saw a group of people with Parkinson's disease and a group with a mixture of other



FOUNDATION FOR CONDUCTIVE EDUCATION

disorders, chiefly multiple sclerosis, who seemed to be enthusiastic and enjoying the work.

Overall results

Some 9000 children have been or are currently being worked with by the institute as either inpatients or outpatients. Some 3000 have been discharged from follow up; 5000 have been discharged from the programme but are still being reviewed, leaving 430 currently receiving active treatment at the institute—that is, an average of about 33 in each year cohort.

The overall figure for discharged children is that 73% have become integrated—that is, they have attended and coped with normal schools (possibly being excused physical education and some craftwork) without walking aids or other aids. This figure varies by age at discharge; 80-85% of the 3–5 year age group have become integrated and 50-65% of the 14 and over age group. Children naturally leave as soon as they are judged to be ready for normal school; thus 30-50 leave each year from the 6 months-2 year age group to go to normal nursery schools. Table VI shows the numbers of children in the 3-14 year age group discharged each year to normal schools from 1985 to 1988.

TABLE VI—*Number of children aged 3-14 years at institute and number discharged to normal schools, 1985-8*

Year	Children at institute	Children discharged to normal schools
1985-6	167	22
1986-7	210	17
1987-8	237	32*

*Includes 15 finishing at primary schools and going on to normal secondary schools.

To prepare a child for leaving the conductor arranges visits to the new school and accompanies the child on several occasions. The conductor is also responsible for following up the child's physical progress after leaving the institute.

We have few data on results in the children with spina bifida. Five of the 22 children with spina bifida currently residing at the institute are about to be discharged to normal schools. We were given several figures on the acquisition of urinary continence but not at what time interval this was achieved.

Of course, integration implies very high levels of functioning, and "failure" to integrate should not be taken to mean that considerable and worthwhile improvement has not occurred.

Discussion

We found it most helpful to have been given a clear picture of the selective policy at the institute for it is against this that results must be judged. It seems likely that the policy is operating against a background of an incompletely developed obstetric and neonatal service, in which survive fairly large numbers of preterm, otherwise non-handicapped, children with spastic types of cerebral palsy.

In addition, our own observations at the institute strongly suggest that most children had fairly modest spasticity or, in the case of children with what we would term dystonic choreo-athetosis, minor degrees of dystonia and fairly modest degrees of unwanted movements. Each group, however, had one or two more severely affected athetoid children who had constant one to one assistance. No children with fixed or rigid types of dystonia were seen, nor as far as we could tell were there any children with mixed types of cerebral palsy (neither did they emerge from the statistics we were given). The effects of the selection procedure are expected to result in the modest degrees of disorder we observed. Our overall impression is of children mainly of good cognitive potential with fairly modest motor disorder, who achieve near normal functioning.

It would be presumptuous to attempt more than a superficial assessment of the effect of therapy at the institute compared with our own practice and that elsewhere in the United Kingdom. In general, most children achieve what we would expect from the better provisioned facilities in this country, and they may do better than such children from areas where such provision is scarce. The more severely athetoid children acquire impressive motor organisation with continuous attention, perhaps achieving more than we have seen elsewhere.

From this, two questions arise; firstly, Should we send children to Budapest for treatment? We think not. Children whom we would like to see do better in England would not be selected for treatment at the institute. The question should not be taken to subsume the question, "Should children go to Budapest for treatment?" We do not feel justified in recommending expenditure of health, social services', or educational funds for this purpose. We do not, however, wish to minimise what might be called the "pilgrimage effect"; this has several components. It should be borne in mind that parents who go to Budapest have in common high motivation, a feeling of dissatisfaction with the services received in the United Kingdom, and a very strong desire to see good results from their considerable efforts and sacrifices. They also undoubtedly gain strength from sharing with others in this self selected group the experience of going to the source of their inspiration. In addition, of course, this is reinforced in some cases by real improvement as the result of an intense therapy programme. Finally, and perhaps most importantly, they gain additional inner resources to care for and be involved in the continuing management of their children from the cheerful, encouraging, and positive attitudes of the doctors and, particularly, the conductors at the institute.[2] This is sometimes at variance with the messages they perceive they have received, particularly from the medical profession, and should cause us to examine closely our own methods of counselling and management.

We have some reservations about the management of spina bifida, if not about the method applied then about the content of the curriculum. Initially, children with spina bifida spend a third of their time sitting on a potty. Even given that they can learn things other than urinary continence during this time, this does seem an inappropriate investment (*a*) without knowledge of the bladder pressure or volume characteristics, and (*b*) when intermittent catheterisation for many will achieve the same end in a much shorter period. We predict that the exaggerated lumbar lordoses observed will cause secondary problems in future.

The second question is, Should conductive education be available in Britain? Part of the pilgrimage effect may derive from the distance concerned as well as the effort in getting there. A more practical question, however, concerns two aspects which we believe are applicable across cultures and with differing methods of providing health and education—that is, the method as a model for offering integrated care and the emphasis on improving function through the activity of the child.

INTEGRATED CARE

To one person, the conductor, devolves the responsibility for education, physiotherapy, and speech and occupational therapy for the children and much, we suspect, in the way of social work and counselling for the parents. In Hungary conductors also attempt to act as substitute parents, about which we have reservations. But there can never be any doubt in the minds of the parents as to who is responsible for their child. This may be contrasted with the situation often found in Britain. Although the Court report has done much to integrate child care services, medical care is still delivered via a tripartite (and in the case of tertiary care quadripartite) structures. The therapy services are similarly fragmented, different forms of therapy being delivered at separate times, often in separate places, and with or without parental involvement, to preschool children. Some degree of integration may or may not be achieved at professional level, possibly at meetings of the district handicapped team, again with or without (usually without) the parents present. Other methods of multidisciplinary management exist. We do not think that adequate integration (which really means reinforcement of a range of functions to meet agreed goals by a wide variety of means) can be met unless the teacher and therapists concerned with the child are, at a minimum, all working together at the same time and in the same place. In practice, as children spend most of the working day in school this means the classroom.

It has been argued that the four year training of conductors cannot hope to provide them with the combined theoretical background and skills of qualified physiotherapists and speech and occupational therapists. This is perhaps less relevant because children at the institute represent a very narrow diagnostic group. Therapists in our services will always be asked to help a far greater variety of types and grades of severity of physical handicap. Though these points are undoubtedly true, they may be offset by (*a*) supervision from specialised professionals and (*b*) the advantages of integration of disciplines in one programme carried out by one person.

FUNCTIONAL IMPROVEMENT

For many years many forms of physiotherapy, most notably perhaps in Britain the Bobath method, have entailed active participation of the child. The idea that physiotherapy simply entails passive stretching should be long gone. We wish to emphasise, however, that by including so many different forms of activity to reinforce the aims of the physiotherapists, the Petö method has much to offer. Indeed, the actual content of the programme may have little new to offer to the experienced therapist; what is particular to the method, however, is the imaginative and varied way the activities are offered to the children. We are very conscious that this is difficult to describe and that we are bound to have fallen short in some respects. There is, unfortunately, no substitute for seeing the programme in action.

We are perhaps fortunate in Britain in not necessarily having to be so constrained by the concept of "orthofunction"—adequate functioning in normal school without aids. There is no intrinsic reason why, with our more integrated school system, this criterion for selection should not be considerably relaxed in due course. Indeed, with our present system of education it would surely be advantageous to give teachers of physically handicapped children some training in basic physiotherapy and speech therapy so that they may supplement the work of the therapists. We also have a higher quality of orthoses as well as of communication and other aids.

The Petö Institute runs six week courses for interested teachers and therapists, and we recommend these to staff who work in special education. It is possible that eventually conductive education might find greater application outside its native Hungary.

1 Cottam PJ, Sutton A. *Conductive education. A system for overcoming motor disorder.* London: Croom Helm, 1986.

2 Read J. *Come wind come weather. A study of the difficulties faced by British families taking children to the Petö Institute in Budapest.* Warwick: Department of Applied Social Studies, University of Warwick, 1988. (Available from the Foundation for Conductive Education, PO Box 363, Birmingham B15 2TT.)

(Accepted 23 August 1989)

ANY QUESTIONS

Clinodactyly is a deformity associated with Down's and Larsen's syndromes. What is the mechanism of the deformity?

Clinodactyly is congenital curvature or deviation of a digit beyond 8°. In the hands it most commonly effects the fifth finger, which shows incurvature (radial deviation). In the feet the affected toe varies, incurvature of the fourth and fifth toes being common, as also is clinodactyly of the second toe with overlapping of the third. Clinodactyly is caused by hypoplasia of the middle phalanx, which may be short, wedge shaped, or even absent. It should not be confused with camptodactyly, which is flexion deformity of a digit caused by soft tissue abnormalities.

Fifth finger clinodactyly is certainly common in people with Down's syndrome and is also seen in Klinefelter's syndrome and in several other multiple X syndrome disorders as well as in trisomies 4p, 9p, and 20p and several partial chromosome deletion syndromes. In addition, it occurs in several non-chromosomal syndromes such as Seckel's syndrome, de Lange's syndrome, and occasionally Prader-Willi and Williams syndromes. It is also a fairly common isolated defect when it can be inherited in an autosomal dominant manner. It is not, however, a common feature of Larsen's syndrome, in which hypoplasia of metacarpal bones rather than phalanges occurs.—M D'A CRAWFURD, *consultant clinical geneticist, Harrow, Middlesex.*

Jones KL. *Smith's recognisable patterns of human malformation.* 4th ed. Philadelphia: W B Saunders, 1988:666-8.

Salmon MA. *Developmental defects and syndromes.* Aylesbury: HM and M Publishers, 1978:347-9.

Maroteaux P. *Bone diseases of children.* Philadelphia: Lippincott, 1979:171-2.