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**NEWSLETTER**

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# Association of Paediatric Chartered Physiotherapists

Newsletter No. 49

November, 1988

## "HANDS"

### CONTENTS

Hand Injuries in Children - N. B. Hart, FRCS .....	3
Assessment of Hand Function	
- Alette Rousseau BSc OT (Wits) .....	8
Case Study - From a Parent - Mrs. A. M. Whybrew .....	14
Basic Guidelines for Physiotherapy Assessment of	
Upper Limb Function - GOS .....	18
Visit to the Peto Institute - Mrs. Jackie Reynolds .....	26
Post Registration Education Report - Mrs. Mary Clegg .....	28

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Appreciations .....	33
Summary of National Committee Meeting, July 1988 .....	34
Abstracts .....	34
Book Reviews .....	37
Study Days/Courses .....	38
Letters to the Editor .....	41
Regional Reports .....	41
Annual Conference - 1989 .....	44

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## EDITORIAL

There can be no doubt that Jeanne Lamond has sustained and enhanced the reputation of this Newsletter over a number of years. Looking through the correspondence the new Editor now has, it is clear that Jeanne has been much more than just an Editor. She has been an advisor, counsellor, and a great source of information. She has acted as both a driving force on one side, and a restraining force on the other to produce what has become a well balanced publication. Please take time to read Elma Bells' appreciation of her work. Now, with Jeanne's retirement, change is imposed, and there is sure to be a slight impasse as your new editor takes up the reins. It is a difficult act to follow. What is asked for is patience, tolerance, and understanding of the task ahead. As is often said, this is the Newsletter of the Association, not of one individual, and it is intended that, with your support, it will continue as such.

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### 1989 SUBSCRIPTIONS

Membership subscriptions for 1989 are due on the 1st January, 1989

## ANNUAL SUBSCRIPTIONS - £12.50

It is recognised that this is a sudden increase in the A.P.C.P. membership Fee but it is both financially necessary to cover costs, and to bring the Association in line with other Special Interest Groups.

Send your subscriptions directly to the Membership Secretary,  
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It should be noted that subscribers sending the annual fee after April cannot be guaranteed back numbers of the Newsletter for that year.

**BE SURE TO JOIN THE ASSOCIATION EARLY & WHY NOT BEFORE JANUARY?**

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Copy for the February 1989 Edition of this Newsletter should be in the hands of the Editor no later than the **JANUARY 1st, 1989.**

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The Editorial Board does not necessarily agree with opinions expressed in articles and correspondence, and reserves the right to edit material submitted.

# HAND INJURIES IN CHILDREN

N. B. Hart, F.R.C.S., Senior Registrar, Plastic Surgery Unit,  
The Ulster Hospital, Belfast

## Introduction

Hand injuries in children are common. This is because of their natural curiosity, their limited appreciation of danger, or the failure of adults to safeguard them.

Children differ from adults in the following ways:—

1. They have smaller hands, making surgery on them more exacting.
2. Their behaviour is different from adults. They are often difficult to assess after injury, and co-operation with medical personnel is variable.
3. They have parents, who need careful counselling to ensure their co-operation.
4. Rehabilitation after injury is often quicker than in adults.
5. Tissue regeneration is often better, but growth may be affected.

## ASSESSMENT AFTER INJURY

After obtaining a full history of the accident, the hand injury must be assessed. This is often difficult with a frightened youngster who has been suddenly brought into an unfamiliar environment. Taking a little time to explain the procedure to the child and parents usually pays dividends.

Other injuries should be looked for - they may require more urgent treatment.

The child should be spoken to gently, and the hand inspected. Finger movements should be asked for, and are surprisingly often obtained. Older children may appreciate light touch sensations. Pricking with a needle is pointless, makes the child cry whether it is felt or not, and erodes the trust between medical staff and the child.

Full assessment is often only possible on the operating table, which is where the child should be if there is any doubt about the extent of the injury.

## TYPES OF INJURY

These may be classified as follows:—

- (a) Amputations
- (b) Lacerations
- (c) Crush Injuries
- (d) Fractures
- (e) Burns
- (f) Non-accidental injuries
- (g) Others

## (a) AMPUTATIONS

A part of the hand, or rarely all of it, may be amputated.

The child is resuscitated and the stump carefully dressed and elevated to stop bleeding. Consideration may be given to other (possible more serious) injuries.

In a child, an attempt should be made to re-plant any amputated part if possible. The amputated part ("amputate") is placed in a clean plastic bag on, (not in) ice, and goes with the patient to a microvascular unit without delay. Replantation requires a team of highly trained surgeons using an operation microscope in an operation lasting several hours. Successful replantation depends on the time since amputation and the condition of the stump and amputate. A clean-cut amputation has a better chance of success than one in which the part has been torn (avulsed) off.

Functional hand recovery is variable, sensory and motor nerve and tendon function and joint mobility often being impaired.

If a part cannot be replanted, further surgery may be required, e.g. pollicisation of a finger to replace a lost thumb, or even transferring a toe to the hand. Alternatively, a prosthesis may be used.

### Fingertip amputations

These are common, and may be multiple. If partial, the tip may survive if held in place by adhesive tape or sutures.

Completely amputated tips, if crushed, are usually unsuitable for replantation, so the digit is terminalised using skin flaps or grafts. In a finger, it is reasonable to sacrifice a little length to achieve a well padded tip; in the thumb, as much length is conserved as possible.

## (b) LACERATIONS

These may be clean or dirty, tidy or ragged, and with or without skin, soft tissue or bone loss. They are usually more extensive than they look. Any laceration which is more than skin deep should be thoroughly cleaned and explored under anaesthesia, as immediate repair of damaged structures give better results than late repair. The following tissues may be involved:—

### (i) Skin and Soft Tissue

The wound may be closed with sutures. Absorbable ones are preferred as attempted removal in a struggling child may disrupt structures. A contaminated wound may be left open to drain. If skin is missing, a skin graft may be used to cover the wound. If important structures are exposed, a skin flap with its own blood supply is used for cover, either from local hand tissue or elsewhere, e.g. the groin.

### (ii) Tendon and Muscle

Tendon repairs are often difficult to repair due to their small size, and the necessity to repair them accurately so that they slide easily through their little tunnels in the fingers.

### (iii) Nerves and blood vessels

Repair of these structures requires the use of magnifying spectacles or an operating microscope. Digital nerves and vessels are very small. The median and ulnar nerves are prone to damage at the wrist. The median nerve supplies motor power to the thenar muscles, and the radial 2 lumbricals and the sensation to the radial 3½ digits. The ulnar nerve supplies motor power to the other intrinsic and hypothenar muscles and sensation to the ulnar 1½ digits. (i.e. The little and ulnar half of the ring fingers).

### (iv) Bones and Joints

See "Fractures". Exposed bones and joints need to be covered by soft tissue with a good blood supply.

### (c) CRUSH INJURIES

These may be open or closed, and are often associated with fractures (see below). Crushing causes rupture of the cells and exudation of protein-rich fluid. The resultant severe swelling may compromise skin circulation; therefore the wounds are often not sutured but left open to drain. If the fluid remains in the tissues, fibrous tissue is laid down, causing permanent stiffness. Early mobilisation is therefore the ideal, although this may be hampered by associated fractures. A Flowtron pressure pump is useful in reducing oedema and facilitating early mobilisation.

### (d) FRACTURES

Fractures may be simple or compound, depending on involvement of overlying skin. They may be managed by either closed or open reduction, or internal fixation (wires, plates or screws) or external fixation (using pins through the bones mounted on a frame externally). Sometimes, simple splintage is all that is required. Rigid fixation has the advantage that the hand can often be mobilised sooner. Splintage immobilises adjacent parts of the hand and care has to be taken to avoid subsequent stiffness in them.

Injuries of the epiphyseal plates, or growth centres, may lead to growth arrest or angulation. Fractures involving joints may lead to permanent stiffness, joint instability or arthritis later.

### (e) BURNS

Burns are common in children, and include scalds, flame burns and electrical burns. Some burns may heal spontaneously, but the hands must be kept mobile while they heal. Burned hands are often kept in polythene bags containing Flamazine cream; this allows movement.

Deeper burns need skin grafting, and are very prone to develop skin contracture afterwards; this requires splintage combined with mobilisation to minimise this. With very deep burns, including many electrical burns, flap cover is often required. If a distant flap (e.g. the groin) is chosen, care has to be given to the shoulder and elbow as well.

## **(f) NON ACCIDENTAL INJURIES**

Any of three above injuries may be due to child abuse or neglect, and failure to appreciate this may be fatal to the child concerned. If suspected, the child must be admitted immediately and the social worker informed.

## **(g) OTHER INJURIES**

Other injuries may affect the hand, such as cerebral, spinal or brachial plexus injuries. Acute surgery for brachial plexus lesions is being pioneered in some units.

## **PRE-OPERATIVE THERAPY**

Most children with acute hand injuries go immediately for surgery; however, with some burns and crush injuries, the hand therapist is involved pre-operatively with control of oedema, keeping the hand mobile and preventing the development of contractures.

## **POST-OPERATIVE THERAPY**

At the end of the operation, the surgeon should write clear instructions for the nurse and hand therapist. The hand is elevated and fingertip circulation observed. Adequate analgesia prevents restlessness and anxiety, and can be scheduled to coincide with hand therapy sessions. Above-elbow splints are preferable in very young children, who are experts in wriggling out of the shorter ones!

Some centres, including our own, commence early active mobilisation of flexor tendon repairs on the first post-operative day. This is described later in this article. The aim is to prevent peritendinous adhesions, reduce oedema, and maintain joint mobility.

Hand therapy sessions are usually continued on an out-patient basis after the child has been discharged from hospital.

## **REHABILITATION**

Splints are often retained for 3 - 4 weeks, after which the joints are stiff. Most children will mobilise themselves if given enough toys and encouragement from hand therapists and parents. A few require intensive therapy, especially after burns and crush injuries.

Longterm therapy may be required for children with severe stiffness, deformity or a prosthesis, or if the results from surgery are unsatisfactory. Further surgery may be required, or many-staged procedures.

# HAND THERAPY METHODS

## 1. Splintage

Splints are used for the immobilisation of fractures, to protect healing tendons or nerves, or to prevent skin contractures. They are often applied in the theatre at the end of the operation and retained thereafter, or they may be modified or replaced by splints made by the hand therapist, e.g. Hexcelite or Orthoplast. The position of the hand in the splint is important. The usual position is the "position of function" with the wrist slightly extended, the MCP points at 90 deg. and the fingers straight, to keep the ligaments tight and prevent contracture. For nerve or tendon injuries at the wrist, the wrist is usually flexed in the splint to relieve tension on the structures. Many splints are designed to allow movement in a safe direction only, so that the repair is not stressed. Dynamic ("lively") splints give a force against which the patient can mobilise. Splintage may be used intermittently, (e.g. at night) to prevent contracture after mobilisation during the day.

## 2. Passive mobilisation

This keeps the joints mobile while the structures are healing, and gives the hand therapist an opportunity to improve the condition of the skin by massage. Recently, battery-powered continuous passive motion (CPM) machines have been introduced for the hand, but their value remains to be seen.

## 3. Active mobilisation

This prevents adhesions developing between structures which move upon each other, particularly tendons, and helps to reduce oedema and maintain joint mobility.

The patients' motivation to move the hand is very important, and providing the patient with realistic "goals" helps. Involving the patients with the mobilisation programme is important. As mentioned earlier, flexor tendon repairs in the hand are actively mobilised from the first post-operative day in many cases in our unit. A dorsal plaster splint extending from elbow to fingertips holds the wrist in 30 - 40 deg. flexion, the MCP joints at 90 deg. flexion and the IP joints straight. Mobilisation is commenced with 2 active and 2 passive flexions of the digit per 4 hours. The splint is maintained for about three weeks, after which the wrist is mobilised.

## 4. Pressure

Pressure dressings or gloves are useful in controlling oedema in crush injuries. The Flowtron pressure pump has also been found to be very useful for these injuries. Pressure garment therapy to prevent hypertrophic scars is now well established for burns in hands. Silicone gel (Spenco) may be applied under the garment to distribute the pressure.



## 5. Other methods

Ultrasound, pulsed electromagnetic waves, and laser therapy are occasionally used in the later stages of rehabilitation. Their value is still being assessed. They are not a substitute for the methods discussed above.

## OCCUPATIONAL THERAPY

The Occupational Therapist works closely with the other members of the hand therapy team. Although most children adapt more quickly than adults to their injury, some require further assessment and therapy to help them cope independently with everyday life, e.g. the use of a knife and fork, toileting and writing. Adjustments may have to be made for the child at home. Sensory re-education may have to be encouraged in a child with a major nerve injury. In many centres, including our own, the occupational therapist is responsible for the measurement and fitting of pressure garments.

## CONCLUSIONS

Hand injuries in children are common. The surgery although intricate, is usually rewarded by a rapid return to good hand function. The hand therapist is an essential member of the surgical team in order to give the child the best possible result.

## ACKNOWLEDGEMENT

I am indebted to the hand therapists attached to the Plastic Surgery Unit at our hospitals in Belfast, for their invaluable advice in preparing this paper.

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## ASSESSMENT OF HAND FUNCTION

**Alette Rousseau**

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**Lecturer OT (University of Stellenbosch)**

The hand function of a small child can best be assessed by observing responses of a child engaged in play with various objects. In a study by Kopp, better coordinated infants of 8 months tended to spend more time exploring and use more variations of exploration of objects than less coordinated children. Their exploration consisted of mouthing, examining of objects, purposeful release and transfer. The less coordinated children tended to do more waving, banging, sliding the object along, looking without touching, looking while holding and looking around the room with the object in the hand (5). This underlines the importance of assessing the quality of hand function used for the purpose of the activity. The hand cannot be used in isolation since gross motor function (and particularly the postural reflex mechanism) has a direct effect on function of the hand. Apart from this, the assessment of handfunction needs to be considered developmentally and should include regard, approach, grasp, manipulation and release (2). Although all of

these aspects are presented separately for clarity, there is continual interaction between them as the child handles objects.

**REGARD** develops as attention (fixation) and pursuit which are then coordinated with the hands as the child begins to watch his own hands.

**Attention** is initially distracted by any stimulus; then the child becomes able to fixate an object with complete attention and eventually, by three months, able to alternate attention from one object to the next and back again.

**Pursuit** - The infant initially uses peripheral vision (smooth pursuit alternating with saccadic movement) and tends to lag behind the object; next the child uses central vision (9-12 inches from the eyes) but tends to lead the moving stimulus. By 3½ months central vision can be used through 180°, 6" from the object and staying right on target.

**Coordination of the eyes with the hands** starts as the infant's eye looks at the hand in the ATNR position and progresses to touching and watching the hands in midline. Then as the child reaches out he alternates glances between the hand and object and progresses to bringing the hand from outside the visual field directly to the object while looking at the object.

**Approach** needs to be looked at together with postural reactions and the trunk and shoulders (especially the scapulae). Differences in approach when reaching out towards different directions can also supply valuable information (1). Approach includes directness and position (3).

**Directness** - initially contacting and pushing an object (4 months) then underestimating and readjusting (5 months), then circular reaching by 6 months and eventually direct reaching by 8 months.

**Position** - Position of the elbow - elbows start off flexed (newborn), then extend to 100° when reaching (4 months), to 140° (5 months) and then to 180° (6 months). Position of the wrist - mostly flexed (newborn), more often straight (6 months), often extended (10 months).

Position of hands - hands flexed (newborn), hands partly open (4 months), hands open (5 months), complete hyperextension (6 months), metacarpophalangeal hyperextension (8 months) and appropriate extension (10 months).

Position of the thumb - initially curled under, then thumb pointed downward (4 - 7 months) and toward the midline ready for opposition during grasp by 10 months (2).

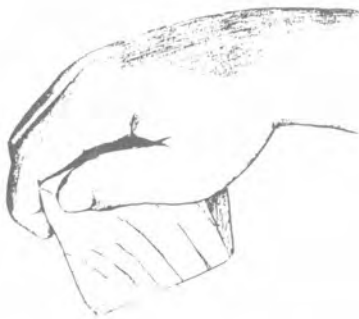
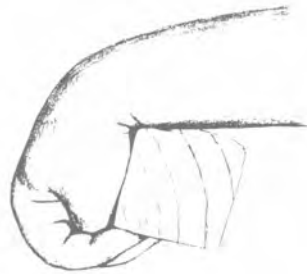
Position of various parts of the upper limb can add information about tone, selective movement patterns and mobility and stability of the various joints (1).

**GRASP** (according to Erhardt) - because precise handling of smaller objects develops later than that of larger objects, approximate age levels have been given for type of grasp and release of a cube and of a pellet. This does not mean that a child of 10 - 12 months will only use the pincer grasp to manipulate a pellet. The better coordinated child will however tend to use a more effective pattern of grasp to achieve specific results in play or function.

**Grasp of a cube** develops as follows (3):

**Primitive squeeze grasp (4 months)**

The object is squeezed against the other hand or another part of the body without thumb involvement.



**Palmar grasp (5 months)**

Fingers on top of the object pressing it against the palm with the thumb in adduction.

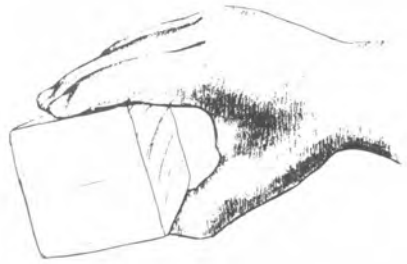


**Radial palmar grasp (6 months)**

Fingers further from object press it against the thumb and radial side of the palm.

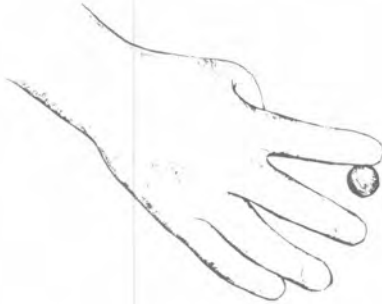
**Radial digital grasp (8 months)**

The object is held between the thumb and fingertips with space visible between them



**Grasp of a pellet** develops as follows (3).

**Raking and contacting an Object (6 months)**  
No grasp as yet



**Inferior scissors grasp (7 months)**

Object raked into palm. thumb in adduction and flexion.



**Scissors grasp (8 months)**  
Between the thumb and side of the curled index finger.

**Inferior pincer grasp (9 months)**

Between the ventral surfaces of the thumb and index fingers. The distal thumb joint in extension.



**Pincer grasp (10 months)**

Between the distal pads of the thumb and index finger. The distal thumb joint in slight flexion.



**Fine pincer grasp (12 months)**

Between the finger tips or finger nails.



Apart from the type of grasp the following factors need to be noted :

**Differentiation of body parts** - When trying to view an object in his hand, an infant swings the shoulder up or rolls his hand over towards supination. By 6 months elbow flexion or a combination of elbow flexion and supination will be used (2). Initially all finger joints flex simultaneously to grasp an object. By 12 or 13 months most flexion takes place at the metacarpophalangeal joints unless the task necessitates more flexion of the fingers (2).

**Grading and timing** - Initially the closure of the fingers is almost vicelike. Within the first year the child learns to adjust his grasp to hold the object with the correct pressure for the task (2). Grading, timing and therefore precision of movement is affected by inhibition. Movement begins without antagonist inhibition (1 - 2 months). Antagonist inhibition is still imperfect and insufficiently developed by 7 - 9 months. By 2½ to 3 years it is however well expressed and anticipatory in most children. Agonist inhibition is already present by 3 years. It however continues to improve into adulthood (4). Accuracy of grasp can also be seen in the synchrony of the fingers reaching an object and the spread of the fingers on the object.

**Stability and mobility** - Instability of the joints may for example be seen in a tendency to use the finger joints in hyperextension. Lack of mobility may be noted in wrist flexion or pronation of the forearm at a stage and for a task where a straight wrist and midposition or supination would be more functional. The child's ability to stabilise his upper limb without abnormal fixation is another important indication of his stability.

**Thumb action** - The thumb has exceptional mobility together with exceptional stability. It is supplied by the median, ulnar and radial nerves and is controlled by 4 extrinsic and 6 intrinsic muscles. The carpo-metacarpal joint is a saddle joint concavo-convex to both sides. It can therefore lock to be stable in full abduction or full adduction but is very mobile in the in between positions. Full abduction is used for precision grip and full adduction for power. Detailed observation of the thumb is essential when observing hand function.

## MANIPULATION

- By 4 months a toy in the hand is mainly held passively or may be mouthed.
- By 7 months the child holds objects while visually inspecting them. He may transfer them to his mouth or other hand. He will actively shake a rattle and he begins to bang toys on a table.
- By 10 months he inspects objects, pokes at them, drops and regains them and bangs them on a table. He is able to hold two objects simultaneously and can bang two cubes together. He can finger a cube in a cup but cannot yet remove it.
- By 12 months he can manipulate a pellet held in his hand (2).

**RELEASE** develops as follows : (3)

- 7 months - one hand pulls a toy from the other hand (2), one cube is dropped as he reaches for a second cube (2) and he involuntarily drops a pellet.
- 8 months - can transfer without force (2), releases clumsily above a surface or into a large container and can throw an object.
- 9 months - can release a cube in a controlled manner into a large container, clumsily releases a pellet into a large container and can transfer a pellet.
- 10 months - can clumsily release a cube into a small container (needs edge) and release a pellet in a controlled manner in a large container.
- 12 months - can release a cube precisely into a small container.
- 14 months - can clumsily release a pellet into a small container.
- 15 months - can precisely release a pellet into a small container and can build a tower of two cubes.
- 18 months - can place 3 cubes on top of one another.
- 24 months - can place 6 - 7 cubes on top of one another.
- 3 years - can build a tower of 9 cubes.

In summary, when assessing hand function attention needs to be given to regard, approach, grasp, manipulation and release of an object. Apart from milestones, quality of handfunction needs to be observed particularly in relation to the task attempted.

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## CASE STUDY — FROM A PARENT

**Mrs. A. M. Whybrew, Biggin Hill**

My daughter Hayley who is four years old has Aperts Syndrome. This is a rare congenital deformity affecting the head, hands and feet. At birth we were given a very bleak picture of her future as the hospital at which she was born had never encountered this handicap in a baby before. We were then thankfully referred to Great Ormond Street to whom this condition was much more common and from then we never looked back.

At five months she had extensive cranial surgery to correct craniosynostosis and a problem with her eye sockets was also corrected.

At eighteen months she had orthopaedic surgery to her feet to correct her big toes which turned outward, almost as a thumb does and this enabled her to wear normal shoes. She didn't walk until she was two and though she now walks well and can run and jump a little, her four other toes are fused which does impair her balance somewhat.

However, the majority of the surgery she has undergone has been on her hands. You can see (Fig. 1) that she had syndactyly of all four fingers, though fortunately her thumbs were free, albeit broad and in valgus position. The problem was symmetrical, although the photo only shows her left hand. Many Apert children do not even have their thumbs free, so we were very lucky.

Before surgery, the main problem she faced, (apart from the obvious) was extreme tenderness to the flesh at the end of her hand as the fusion of the nails tended to ingrow. However, being the determined little person she is, this did not hold her back too much either.

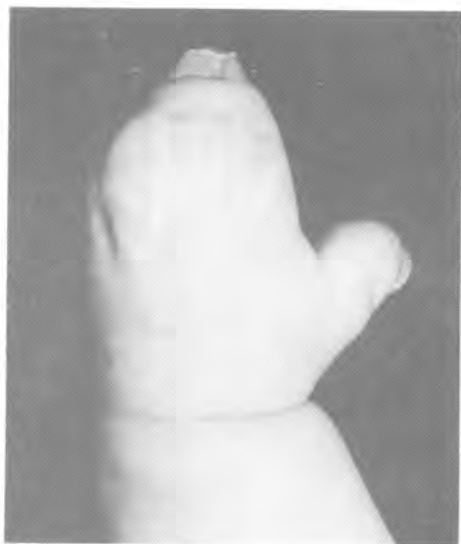


Fig. 1 Syndactyly (L) hand

Initially we were told that surgery would not start until she was two and would be by way of skin grafting, and the best we could hope for would be only three digits being released. The middle digit's bone would be discarded so as to avoid one large 'finger' in the middle of her hand. To say that we were despondent would be an understatement. However, I made enquiries to see if there was any alternative to this method. I was introduced to Mr. Oliver Fenton, a plastic surgeon who had been using a relatively new technique called 'tissue expansion' on other parts of the body and which had been particularly successful in the treatment of burns. With much co-operation and understanding from him, and persistence from us, he agreed to try this method on Hayley to separate her fingers. Originally the only hope he would give us for a more acceptable end result would be the lack of scarring from where grafts would otherwise have been taken. He would however endeavour to separate all four fingers, but left us in no doubt that it was not a certainty as this method was as yet untried.

The treatment involved inserting a silicone bag over the area (i.e. the two fingers) to be expanded and a tube with a filling port was pushed up into her arm. The entry for this was made through her wrist on the back of her hand. Then very slowly over a period of weeks, the bag was inflated regularly by an injection of saline into the filling port. You could see the bag inflate and the skin would initially turn white as it was stretched. After a short time though, the skin would turn pink again as the blood supply returned and the area became used to the extra elasticity required. (Fig. 2).



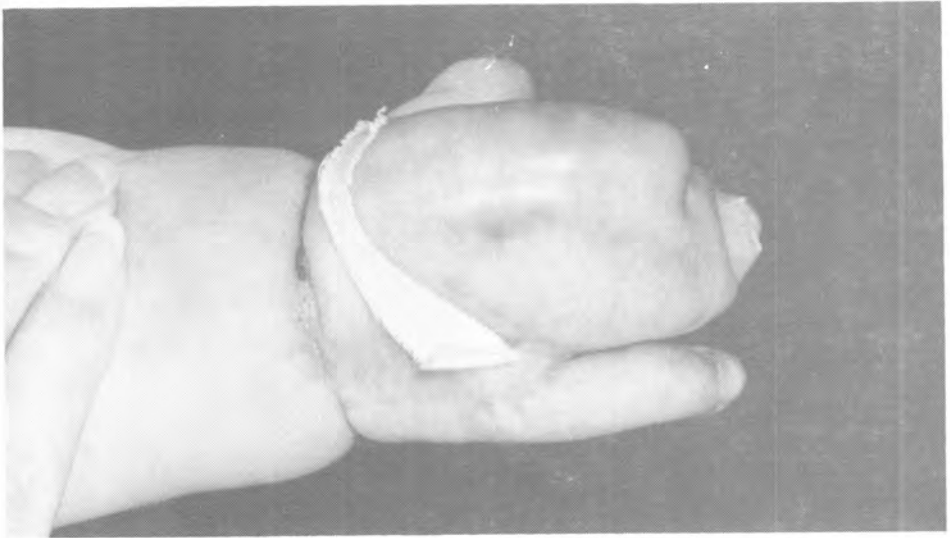


Fig. 2 Partially inflated expander (R. hand)

You can see the expander partially inflated. When it was felt that there was sufficient skin stretched to enable another finger to be separated, another operation would be performed in which the expander was deflated and removed, the division of the finger made and the stretched skin was used to close the division. In essence the idea seemed to be simplicity itself and certainly reduced the amount of scarring to the hand as the proper type of skin from the right area of the body was being employed. As each finger was released, the end result became cosmetically better and you can see all four fingers on both hands were eventually released. This would not have been possible had skin grafting been used.

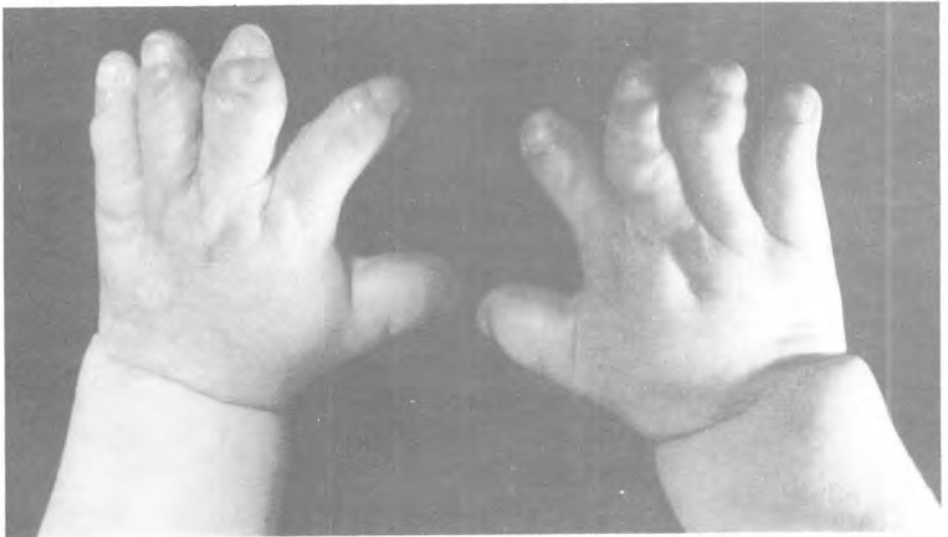


Fig. 3 Both hands with all fingers released.

There were problems however, particularly with the filling ports. Internal and external ports of varying sizes have been tried though only internal ones were used on Hayley. Any change of these was difficult and time consuming as they were imported from America. However, we were lucky again and did not have any real problems and eventually began to do the injections ourselves at home to reduce the seemingly endless trips to Great Ormond Street Hospital. There was also some infections in the healing of the fingers themselves, but this was experienced in both methods of surgery. On one occasion, the skin being expanded split, but we were able to salvage the situation with an emergency operation. The biggest disadvantage of this type of surgery was the increased number of operations required, but we feel this was far outweighed by the remarkable appearance of the finished hand; the fact that four fingers were released and a very small amount of grafting was required from the rest of her body. In fact she has had two groin slices, which are now hardly visible and one small slice off her right buttock.

She is now very adept at using her fingers even though the middle three do not have interphalangeal joints, and though they do not stand up to close scrutiny, they are quite fantastic bearing in mind their original appearance.

Hayley writes well for her age, using her thumb and middle finger, and enjoys drawing and cutting things out. She does have difficulty with certain tasks and activities which involve gripping things and certain areas such as doing up and undoing buttons which she cannot manage at all at present. But she is very determined and independent and given time shall probably overcome almost any problem she comes up against.

The surgery took nearly two years and started just before she was a year old, so she has had a year to become proficient in using her new fingers.

She attended a special school for handicapped children from the age of two, but within a year they could see her potential and we all felt it best if she went into normal education. She has been attending a local playschool for the past year and starts at the local Infants School at Easter 1989.

Hayley is a credit to the medical profession, especially the professionalism of all the staff at Great Ormond Street. Words will never be able to express our gratitude to everyone concerned or the pride which we as parents feel towards her. She wins hearts wherever she goes, and we have been blessed to have had her.

## **BASIC GUIDELINES FOR PHYSIOTHERAPY ASSESSMENT OF UPPER LIMB FUNCTION**

**Reproduced by kind permission of the Department of Physical Medicine,  
The Hospital for Sick Children, Great Ormond Street, London.**

This form is designed as a general assessment form for use in a wide variety of conditions. Therefore the assessing therapist should select the relevant sections.

Collect appropriate toys and specific equipment for testing prior to the child arriving. Older children may co-operate but the younger ones may need toys introduced at the correct time so that they can attempt the skill you wish to observe.

Choose your moment to have the child undressed as some children are apprehensive about this manoeuvre. It may have to be done in stages.

The following are important points to remember :

- 1) A clear understanding of developmental sequence of hand function is essential so that the skills requested of the child are developmentally appropriate.
- 2) Create a relaxed atmosphere.
- 3) Observe parent/child relationship.
- 4) Note whether function is possible.
  - a) How efficient?
  - b) Degree of independence
  - c) Any trick of abnormal patterns of movement or tremor
  - d) Involuntary movements?
  - e) If not possible, why not?

Keep in mind additional factors like perceptual, visual, auditory or behavioural difficulties.

When a sitting position is used, it must be remembered that children who use their hands for support will need suitable seating in order to free their hands.

Finally your findings should be stated clearly and interpreted analytically to help the child with function. This is then discussed with the referring doctor and decisions followed through.

Name of Patient .....

Address .....

..... Unit No. ....

Referred by .....

Diagnosis .....

**Relevant History :**

- Include
- (1) Reason for referral, e.g. to plan treatment; to assess progress; to contribute to diagnostic picture such as value of surgery or prosthesis.
  - (2) Previous assessment and treatment (by whom and when)
  - (3) Reports of tests e.g. X-ray.
  - (4) Brief summary of developmental milestones.
  - (5) Hand dominance and family history.

.....  
.....  
.....  
.....  
.....  
.....  
**Associated Handicaps**

Vision .....

Hearing .....

Language .....

Comprehension .....

Social and emotional .....

**Muscle Tone**

1) At rest .....

2) On activity .....

If abnormalities are detected, check muscle tone in the rest of the body.

**Grasp** taking hold of and picking up objects; closely associated with release.

- (a) palmar grasp - object resting in palm .....
- (b) finger-thumb - hold a coin .....
- (c) modifications to (b) - posting a letter, note extended fingers
- (d) index finger-thumb:  
Tips of fingers together (pincer grasp) e.g. picking up string pads of  
digits together .....
- thumb to side of index finger .....

**Release** voluntary or involuntary .....

**(5) Individual finger movements**

- (a) ability to press with thumb .....
- (b) point with index finger extended .....
- (c) flex fingers as in scratching .....
- (d) extend and spread fingers outwards e.g. opening a paper bag
- (e) ability to use fingers separately e.g. piano playing, typing

**Turning Movements**

A useful test as it is a complex action performed by the hand.

- (a) Coarse, e.g. open a large screwtop jar .....
  - (b) Medium e.g. winding a clock or small screw .....
  - (c) Fine e.g. winding a wristwatch .....
- Note movement only in fingers and thumb.

**Arm and Hand together**

- (1) Ability to bring both arm and hands together e.g. hug a teddy  
bear .....
- (2) Ability to use one hand to assist the other performing an action,  
e.g. holding paper and drawing .....
- (3) Ability to use hands simultaneously to perform similar actions  
e.g. beating a drum .....

- (4) Ability to do different actions with each hand simultaneously,  
e.g. turning on tap with one and stirring with the other .....
- (5) Ability to use one arm in a co-ordinated way, e.g. throwing and catching  
a small ball .....

### **Manipulations**

These tests should be done as quickly as possible by the child to determine the extent of weakness, abnormal tone and deformity interfering with hand function .....

To highlight other factors that may impair manipulation e.g. poor vision, intelligence, e.g.

- (a) hand clapping .....
- (b) tapping table with one hand, then other, then in alternate rhythm  
.....
- (c) putting pellets in cup .....
- (d) bead threading .....

(note inco-ordination, quality of repetitive hand action and bilateral use of hands).

### **Eye-hand co-ordination**

Using tests (c) and (d) for manipulation, but do slowly noting quality of co-ordination from poor to precise .....

### **Sensation**

Test if necessary and outline area of sensory loss on chart.

- (1) Touch .....
- (2) Stereognosis .....
- (3) Pin prick .....
- (4) Two point discrimination .....
- (5) Hot and Cold .....
- (6) Joint position sense .....

### **Perception**

Knows correct orientation of objects he is using, e.g. clothing, toys and knows position of parts of body.

## Reflexes and Reactions

(1) Observe (not test) posture of head, body and arms for evidence of abnormal reactions (e.g. associated movements or abnormally persisting reflex activity) e.g. Moro, grasp and tonic neck reflexes).

.....

.....

(2) Use of arm in protective reactions or equilibrium reactions

.....

.....

## Contractures and Deformities

.....

.....

If congenital, specify .....

If acquired, note positions adopted because of or causing deformity

.....

## Joint Palpation

Pain .....

Swelling .....

Ligament laxity .....

## Muscle Bulk

.....

## Movements of Upper Limb

To assess the active and passive range and the strength of the movement in the following functions.

- Note
- (a) use goniometer if specific measurement required.
  - (b) use muscle chart to grade strength if relevant (Oxford Scale).
  - (c) if active range of movement is limited, note why and measure passive as well.

## Function

### (1) Scapular movement and shoulder joint

- Reach -           upwards (flexion) .....
- sideways (ab/adduction) .....
- backwards (extension) .....
- Note degree of medial rotation.

### (2) Elbow joint

- (a) Lifting and carrying - flexion at elbow and can it be maintained?  
.....

- (b) Pushing - ability to move from flexion into extension  
.....

- (c) Pushing - ability to move from extension into flexion  
.....

### (3) Hand and Wrist

- (a) make a fist e.g. hitting .....

- (b) open hand in pronation as in pressing downwards on a table  
.....

- (c) open hand in supination as in balancing tray or accepting a gift  
.....

### (4) Fingers and Hand

Grip - sustained action of holding on

- (a) cylindrical - fingers curl around object in one direction, and thumb  
in other (reflexly present in neonate) .....

- (b) vertical - gripping vertical rail, e.g. on bus .....

- (c) pronated - crossbar on baby walker .....

- (d) supinated - open a drawer .....

- (e) neutral - movement restricted to radio-ulnar axis, e.g. holding  
a whip .....

- (f) hook - without full finger flexion, thumb not necessary, e.g.  
carrying suitcase .....



## Activities of Daily Living

The following questions should be asked for all activities:

- (1) Is the action performed? If not, why not .....
  - (2) Is the action effective? If not, why not .....
  - (3) What does this mean for social acceptability and independence?
- .....

### (A) Bathing and toileting

- (a) washing hands and face at basin.
- (b) bathing.
- (c) washing hair.
- (d) brushing, combing, arranging hair.
- (e) cleaning teeth.
- (f) attending toilet to micturate.
- (g) attending toilet to defaecate.

### (B) Dressing

- (a) pulling garments over head.
- (b) putting arms through sleeves.
- (c) pulling pants and trousers up over legs.
- (d) putting socks and shoes on feet.
- (e) fastening buttons.
- (f) tying laces.

### (C) Feeding

- (a) holding cup.
- (b) finger feeding.
- (c) using spoon.
- (d) using fork and spoon.
- (e) using knife and fork together.
- (f) using other aids for feeding . ,

**(D) Practical hand use**

- (a) opening and closing doors.
- (b) opening and closing drawers.
- (c) writing.
- (d) carrying bag or basket.
- (e) using a telephone.

**Main problems**

.....

.....

.....

**Aids**

What does the child have? .....

.....

What does the child need? (including splints, modifications to utensils or clothing, etc) .....

.....

**Aims of Treatment**

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.....

.....

**Comments**

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**VISIT TO THE PETO INSTITUTE, BUDAPEST  
FOR THE MOTOR DISORDERED CHILD  
MAY 24th 1988**

**Jackie Reynolds, Physiotherapist, James Paget Hospital, Gt. Yarmouth.**

With an introduction to the Institute from the Hungarian Company my husband was working with, I was able to visit the Peto Institute. It was difficult for them to arrange this, and it appears that physiotherapists are not eagerly received there as visitors. I therefore felt privileged to be allowed to go the Institute.

I was accompanied by an interpreter, who was a lecturer in a Teachers' Training College. She was extremely helpful and I much appreciated her assistance.

The Institute is a new purpose built building situated in the Buda Hills, adjacent to a hospital. The most remarkable feature of the building was the large flight of steps up to the entrance, something which would never be accepted in this country. As I arrived by car, I watched a small boy laboriously climbing the steps, coaxed along by his mother.

We are initially asked to wait in a large hall set up with video screens and equipment. I was to join a party of visitors from Denmark. However, they failed to arrive and I was given the opportunity to put questions through the interpreter to one of the doctors of the Institute.

These were some of the questions we discussed:

**“What criteria do you have for selection of children?”**

It is not the severity of the problem but the drive of the child to achieve. We see it in their eyes.

**“What age are the youngest children that you see, and how do the Hungarian children get referred to you?”**

Around 8 - 10 months though occasionally younger. In all the neonatal units there are specialised therapists who select the children who need help and the doctors refer those children to us for assessment. The children in Budapest attend each day for a two hour session with their mothers, then move on as they grow up, to a half day, then a full day, and perhaps then move on to the full residential programme at about four years. There are some groups held out of the capital.

**“What happens to the children who attend the Institute who do not gain ‘orthofunction’ - i.e. independent mobility and daily living?”**

They get six hours home tuition a week. There is no school placement for children who cannot walk. If a child is not making progress after a month at the Institute, they may not be able to remain there.

**“How do you retain contact and continue to educate the parents of the residential children?”**

The doctor chose not to really answer this question.

The parent can visit every other Sunday when the children do not have their programmes.

**“How do parents learn to progress with their handling when the child goes home for a holiday?”**

The parents are welcome at any time.

**“Do younger children get upset when frustrated and does this upset the whole group?”**

They do not get upset because they learn through play.

I was then invited to see an hour video of programmes with their group of spina bifida children. I was told that some of the group have learned bladder control for periods of up to three hours and have now moved on to mainstream schools. Some children have become fully continent.

There were twenty-two children in the group aged approximately between three and seven years. There were mostly partial lesions, some children with signs of hydrocephalus, large heads and sunset eyes, some with minimal signs of disability, a few who had no other signs at all and only one child with severe motor problems. Most had achieved a fair degree of independent mobility, some using sticks or pushing their ladderback chairs.

In the room there would be two to three conductors with two to three student conductors.

The children are woken at 6.30 a.m., take off their pyjamas and lower themselves down to the pots at the end of their plinths. The pots were each fixed to a wooden bench so as to be at the correct height for each child. The conductors talked to each child, seeing if they had remained dry overnight. If so, they received a special badge at breakfast time.

The toileting programme is an important part of their routine. The children are toileted hourly and have frequent drinks throughout the day.

On their pots the children had their first drink of the day then commenced their exercises, deep inspirations with arms held high over their heads followed by a forced expiration, pushing their arms down to their sides. They bounced up and down on their pots, leaning well forward to compress their bladders. Much praise was given for success and the results of their efforts were measured, compared and charted.

Bath time followed with two children in the bath at a time. Even the smallest were helping themselves, soaping and rinsing, applying talc and cream with a spatula, all managing very well.

We then saw a towel programme. The children sitting up on their plinths, holding their towels between two hands, first up above their heads, then behind their backs learning to dry themselves. Then on to a dressing programme. The children each received just a little help only when necessary from the conductors who moved quietly around the group. Once dressed in tee-shirts and pants - no nappies in sight - the main programmes of the day began with emphasis on mobility, improving upper girdle muscle power, games to improve their adaptability, the programmes being adapted for each individual child's needs.

The wonderful group spirit was impressive, the children waiting for each other, urging the less able ones on, cheering their successes, and encouraging perseverance when difficulties were encountered.

The children certainly appeared to thoroughly enjoy all their activities but this is an impression from a video, when normal disagreements and temperament need not be shown.

The children appeared to achieve a high level of mobility but there seemed to be little care of unprotected limbs as they pulled themselves on, over and under various pieces of equipment when they were without shoes, socks and splints. Mobility is achieved at any expense. I felt anxious about some of the poor posture that elicited no intervention from the conductors.

As in all films I had previously seen, the caring gentle manner of the conductors was very apparent. They seem to coax the very best response from the children. Their musicality is evident in the rhythmical chanting and singing. At the end of the day, as the children sat or lay on their plinths ready for bed, the conductors sat with them talking, cuddling a child or stroking the hair of one dropping off to sleep.

After the video we visited three groups of parents and younger children which was what I really wanted to see. The residential children were in the midst of a mumps epidemic and I was unable to see them. The groups I saw had one or two conductors in each room with six to eight children and each child worked with their mother or father. The rooms were small with very few toys and pictures. Again, the quiet and calm atmosphere was impressive, but here the conductors seemed to stand back, the parents working under their guidance. All the children I saw seemed to have some sitting balance, able to sit on a small wooden chair up to the table. All of the children were walked everywhere by their parents. No one was carried, most wearing the Peto below-knee splints which are made by the conductors.

The overall impressions I came away with were the amount of time available for each child, the absence of haste, and gentle but firm, quiet but effective handling of the children who worked at programmes selected to meet their needs.

## **POST REGISTRATION EDUCATION REPORT**

**Mrs. Mary Clegg, Spokesman for Post Reg. Education**

### **CONDUCTIVE EDUCATION QUESTIONNAIRE SURVEY**

The Editorial Board wish to thank those of you who returned the above Questionnaire. Enclosed is a survey of the results.

We received a total of 141 replies which represents approximately a 14 per cent return of the total number of newsletters sent out. This number of replies can only be considered a proportional representation of the total number of newsletters sent out - as many of the replies were from Departments, Schools or Development Units, rather than individuals. Therefore, it is difficult to estimate the exact number of people who replied.

The replies are representative of what is happening from over the U.K. as they came from England, Wales and Scotland with one from Singapore.

Questions are listed together with the answers. Some of the numbers may not add up to the total of 141, as occasionally it was not possible to read the answers.

We do not wish to draw any conclusions from this Questionnaire; we simply enclose it for your information.

## RESULTS OF SURVEY

Question	Response	
1. Do you work in;		
a) school	a) 41	
b) community	b) 20	
c) hospital	c) 11	
	School & Community	100
	Hospital & Community)	7
	All 3 - above 14	
2. Do you work		
a) alone	a) 21	
b) in a team	b) 118	
c) if in a team, who are other members?	c) Other members - Teachers, Occupational Therapists, Physios, Nursery Nurses, Speech Therapists.	
3. Are you involved in any group work using Conductive Educational Principles	YES 60 NO 81	
4. If 'Yes' to above, how many days per week?	Of the 60 'Yes', we have the following:—	
	1 Day 18	
	2 Days 6	
	3 Days 6	
	4 Days 5	
	5 Days 24 = 59/60 (1 discarded)	
5. Is this Group in:		
a) school	a) 41	
b) community (CDU etc.)	b) 7	
	both a) & b) 6 = 54/60 of 'yes' replies	
6. How long has the Group been running?		
a) Under 1 year	a) 17	
b) 1-2 years	b) 17	
c) longer	c) 20 = 54/60 of 'Yes' replies	
7. Is the Group with		
a) pre-school children	a) 28	
b) school age children	b) 35	
c) mentally handicapped	c) 31 = 94/60	
	Many had both b) & c) groups running	

8. Have you any children joining the Conductive Education Project in Birmingham? YES/NO

YES 12

9. Have you done a training course/day in Conductive Education?  
YES/NO

Q.9/10

Of the people who said 'No' to Q.3,  
54 answered 'Yes' to Q.9 (Days mostly)

10. Have you been to the Institute in Budapest? YES/NO

2 said 'yes' to Q.10

Of the people who answered 'yes' to Q.3

40 said 'yes' to Q.9

5 said 'yes' to Q.10

11. Any other comments?

Many people commented that they were 'Bobath' trained.

There were also many of you who said that they considered the treatment of Cerebral Palsy should be 'Management orientated' and eclectic following a sound and comprehensive assessment. Ongoing assessment as the child grows and the need to alter is also considered to be of major importance.

The number of years people have been working in Paediatrics ranged from 0 - 30 years.

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## **A. P. C. P. WORKSHOP**

### **ROLES AND RESPONSIBILITIES**

Fifteen members of APCP National Executive Committee participated in a workshop held at Cheadle Royal Hospital, Cheshire. Pam Eckersley, Ann Grimley and Neville Southern were the course tutors who had prepared a full programme.

**The Aims of the Workshop were as follows:—**

1. To demonstrate the commitment of APCP to the maintenance and improvement of as high a standard of job performance and satisfaction as possible for the physiotherapist working in paediatrics.

2. To increase the awareness of N.H.S. and other managers to the specialist role of the paediatric physiotherapist.
3. To enable participants to review their own roles and responsibilities.

It was hoped by the end of the workshop that definite statements could be drawn up concerning the **ROLE** of the paediatric physiotherapist, the necessary **REQUIREMENTS** to fulfil that role in terms of basic standards and further training, and a realisation of the **CONSTRAINTS** preventing the fulfilment of these roles.

### **FORMAT**

The workshop fell into the above main headings. Briefings were held around each topic and were followed by workshops and/or discussion. Participants were divided into three groups, all of which were lively and effective. Each group was observed by an outside assessor, feedback being given at the end of the workshop.

### **The Role of the Paediatric Physiotherapist**

Prior to the workshop, each participant had completed a lengthy questionnaire concerning their present post. Details were asked about accountability, attitudes, difficulties encountered and basic structure of the tasks required of them.

Areas of concern were mainly:— how to maintain standards with increasing pressure of work, the provision of an effective service, the involvement with distressed families, suitable recording of both treatment and progress, and the supervision of staff.

Briefings were given on Performance Review, Quality Assurance and the reason for Job Descriptions.

“What kind of job needs to be done?”

“What kind of person will do it effectively?”

i.e. Job analysis, job description and job specification.

A lively debate followed these briefings.

*Comment* - “How are we to know it works if we don't know what we were meant to be doing in the first place!”

The briefing categorised three main headings:—



Demands - that which MUST be done

e.g. case load administration

Constraint factors which limit job holders' actions

e.g. limitations and resources, legal constraints

Choices activities that job holder can do but are not enforceable

e.g. manner in which work is allocated.

The ensuing workshops discussed these aspects as they affected people in their posts and how they handled them.

## **REQUIREMENTS**

The three groups each drew up a sample Job Description for a Senior I Paediatric Physiotherapist. Much discussion was stimulated - each Job Description outlined the various roles - clinical, managerial, teaching, personal development, and attributes.

It was felt important to develop and encourage a smooth flow between hospital and community services and to establish co-ordinated services across each Health District.

Suggestions were also made concerning the necessity of registration for Paediatric Physiotherapists as well as a national framing. Regional resource centres for paediatrics were also mentioned.

## **ACTION PLAN**

It was felt important to maintain the enthusiasm and momentum generated by a result of the workshop.

Suggestions included:—

To produce sample Job Descriptions for Paediatric Physiotherapists.

Set basic standards and statements of good practice. (A Working Party has been set up).

Improve and expand Post-registration education.

The workshop was extremely stimulating and hard work - the schedule was at first daunting but each participant felt enriched by the companionship and thought provoking briefing and discussion generated by them.

Thanks are due to the North West Region for allowing us to use the Staff College at enhanced rates.

*Gill Riley and Mary Clegg*

## APPRECIATION — JEANNE LAMOND

With very real regret we have had to accept Jeanne's resignation as Editor of our APCP Newsletter.

The APCP has become a well established, well known body and is a recognised force with our profession. This reputation has been achieved, not by accident, but by dint of application of effort by many physiotherapists who have been dedicated to our work with children and their parents. This is an extra special 'area' of our work and can be undertaken only by people with a very sensitive approach to life and a deep caring of humanity.

As your P.R.O. I would like to pay a deep debt of gratitude to one such person. Jeanne Lamond has been an enormous influence in the development of the A.P.C.P. The Newsletter is our mouthpiece and she has nurtured and developed it until it has reached its present standard of excellence. We despatch it through the World and it is our ambassador. The pursuit of excellence should be the motto of every human being and it certainly is her abiding standard.

As a friend Jeanne is steadfast and constant. All of us who have known her will testify to this. The A.P.C.P. will be vastly the poorer for her absence. We are clinging to her for a little longer, in that she will change her hat and continue to help us with the membership.

Thank you Jeanne for all you have done for us. We wish you a retirement full of good things.

E. L. Bell  
Hon. P.R.O.

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## TRIBUTE TO SANDRA HOLT

At the AGM of the APCP this year, we accepted the retirement for the office of Secretary to the National Committee of Sandra Holt.

Sandra was elected to the National Committee and became Treasurer in 1981, an office she retained until 1984, when she took over the post of Membership Secretary.

In May 1985, Sandra took on the dual role of Secretary to the National Committee and Membership Secretary.

As the membership of the APCP has grown in recent years, Sandra has had an ever increasing commitment to the APCP.

Despite the extra work load, Sandra always arrived to Committee meetings with good humour and much practical sense.

We thank Sandra for her years of service to the Committee and can happily report that we are not losing her totally, as she has recently been co-opted onto the Post Reg. Education Sub-Committee.

Mrs. M. Diffey  
Chairman APCP

## SUMMARY OF NATIONAL COMMITTEE MEETING 8.7.88

1. It was decided to increase the cost of the newsletter to non-members to £3.50p from 1.1.89.
2. The Committee discussed and supported the proposed recognition/validation process of clinical interest groups by the C.S.P.
3. The APCP survey on groups being run by physiotherapists using conductive education principles had been correlated and it is hoped to publish it in the November newsletter.
4. Three Committee members to attend an August workshop in Bristol on 'Joint pre-registration physiotherapy/occupational therapy training'.
5. A paper entitled "Roles and Responsibilities of Paediatric Physiotherapists" had been put together as a result of a National Committee workshop/week-end in June 1987. This is to be published in a future newsletter. A specimen job description for paediatric physiotherapists had also resulted from the same workshop - and is intended to be included with the code of good practice guidelines, currently being put together.
6. A sub-committee was set up to determine criteria for honorary membership of the association.
7. A research paper in the New England Journal of Medicine Vol. 318, No. 13, 803-808 was brought to the attention of the Committee. It was entitled "The Effects of Physical Therapy on Cerebral Palsy" by Palmer F. B. et al. It contrasted the results of developmental therapy and intense infant stimulation programme, in which the latter appeared to be more effective.

## ABSTRACTS

### ATLANTOAXIAL INSTABILITY IN INDIVIDUALS WITH DOWN'S SYNDROME: A FRESH LOOK AT THE EVIDENCE.

**Authors:** Ronald G. Davidson M.D. FRCP (C) Program in Human Genetics, the Departments of Paediatrics and Pathology, McMaster University, Hamilton, Canada.

**Source:** Paediatrics Vol. 81 No. 6 June 1988 pp 856 - 857

In 1984 after a statement had been published by the Committee on Sports Medicine of the American Academy of Pediatrics, concerning the high incidence of instability of the Atlantoaxial joints in individuals with Downs syndrome, a series of recommendations were made in that those people with radiological signs of such instability should be restricted in the amount of sport in which they participated.

The implementation of these recommendations meant a considerable number of individuals were deprived of enjoyable activities, because of the rarity of reported incidents and the potential cost of screening it was felt necessary to undertake a case review.

From the review of published cases it was felt there was little support for the hypothesis that atlantoaxial instability is a predisposing factor to dislocation. Nearly all the cases of actual dislocation were preceded by a prolonged period of easily detectable neurological signs. Although it is considered there to be an urgent need for carefully designed longitudinal studies, it is felt a careful physical examination with emphasis on neurological signs before any sports participation was more valuable than radiological criteria.

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### **THE SOCIAL SKILL DIFFICULTIES OF YOUNG ADULTS WITH PHYSICAL DISABILITIES**

**Authors: Andrew P. Thomas, Research Psychologist, Martin O Bax  
Dept. of Child Health, Charing Cross and Westminster Medical School,  
and Smyth, Paddington Green Children's Unit.**

**Source: Child care, health and development 1988 vol. 14 pp 255 - 264**

In their work for the Warnock Committee on special education, Clarke et. al. (1977) found that children with disabilities were less likely to communicate with other children and more inclined to take a passive role. Disablement has also been associated with lower levels of self confidence and greater self deprecation. Very little has been written about young adults with physical handicap and difficulty with social relationships. This study is concerned with these difficulties in this group of people.

Fifty-seven young adults with a mixed range of physical disabilities took part in this study - sixty-two non-handicapped young adults were used as a control group. The ages in both groups ranged from eighteen to twenty-five years.

Twelve social situations were selected (from the work of Trower et al 1978) representing public skills (going to a pub/cafe, going to parties, shopping, meeting strangers etc.). Each person on the study was asked to rate themselves according to the degree of difficulty they experienced using a 4 point scale.

The analyses indicated that while a similar proportion of disabled and the comparison group experienced difficulties in a social situation the group with disabilities were significantly more likely to experience difficulties of a more severe nature. These are not likely to dissipate in time as in the case of the non disabled group because of problems with mobility. These difficulties are sufficiently significant to warrant intervention, such as social skills training programmes a special schools and colleges of further education, these forming an integral part of the programme of independence training.

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## THE RELATIONSHIP BETWEEN VISUAL MOTOR ABILITIES AND CLUMSINESS IN CHILDREN WITH AND WITHOUT LEARNING DISABILITIES

Authors : Valerie O'Brian, Sharon A. Cermak, Elizabeth Murray

Source : American Journal of Occupational Therapy

Many therapists treat children with learning difficulties for visual perceptible, visual motor problems and motor inco-ordination. These children form a heterogeneous group and it is thought probable there are sub-groups who do have or do not have visual perceptible problems.

This study was designed to further examine the relationship between visual perceptual and visual motor deficits and clumsiness in the child with learning deficits.

44 children participated in the study aged 5 - 8 years - 22 had learning disabilities and 22 acting as a control group having no problems. Each group were closely matched in regards to age and sex.

The series of lists administered were:

1. Developmental Test of Visual Motor Integration Revised. (Beery and Buktenica, 1980).
2. Raven Progressive Matrices (Raven, 1960).
3. Block Design (Wechsler 1974)
4. Primary Visual Motor Test (Haworth 1970)
5. Rey-Osterrieth Complex Figure Test (Waber & Holmes 1985)
6. Test of Motor Impairment (Stott, Moyes, & Henderson, 1984)

The children in the learning disabled group were sub-divided into two groups, those who were clumsy and those who were not, according to their scoring in the last mentioned test.

Analysis of the data revealed that in all visual perceptual and visual motor measures, the children in the clumsy learning disabled group scored much lower than the children in the control group and non clumsy learning disabled group was not significant.

An interpretation of these results is that there are sub groups of learning disabilities and one way of categorising them can be based on motor competence.

The article concludes by suggesting further examination of these factors is needed because of the implications for treatment. If the underlying problems involves impairment in tactile and kinesthetic processing, treatment would be aimed at improving sensory processing.

If the problem underlying the child's clumsiness is visual perceptual in nature, then the treatment regime would focus on visual spatial analysis.

## BOOK REVIEWS

### **The Natural History of Cerebral Palsy**

Bronson Crothers, Richmond Paine

Classics in Developmental Medicine No. 2. Series Editor Ross Mitchell.

Pp270, figs. 66, tables 37 £18 cloth. Oxford McKeith Press/Blackwell 1988.

Two gifted paediatric neurologists have carried out a follow-up study of 1841 child patients accumulated over 20 years in the United States. They describe early diagnosis, classification, complications, intelligence, life expectancy, employment and social status in adult life, treatment methods, education, emotional status in adolescence and early adult life and effects on the family. At the start of the study Crothers retired after over 30 years experience. Paine took up a chair in paediatric neurology soon after writing up these data collected during a 5 year research scholarship. The Boston clinic attended by the patients earned a reputation for frankness and a family orientation.

Beset by parents moving from clinic to clinic in search of a more optimistic prognosis or a novel therapy they still achieved a follow-up of nearly 80 per cent. Crothers had been a wartime Royal Army Medical Corps doctor and knew all about damage to the nervous system and the interaction of morale with rehabilitation. Their conclusions deserve study:

"There is good reason for believing that the motor problems and the intellectual levels are only a part, and sometimes a minor part of the total difficulty. The success of management is assured only when the child arrives at maturity with confidence and maximal ability to compete. This . . . depends on the emotional stability of the parents and the child fully as much as it does on motor competence. Some degree of confidence and satisfaction, on all sides, must be present even if levels of achievements are less than perfect . . . the child (should be) encouraged to try his own experiments . . . relating . . . to the stage of development . . . directors of clinics and their therapists will . . . check their results in terms of achievement of maximal independence in adult life . . . parents have been regarded with inadequate interest and respect and . . . the problems of adolescence have been either ignored or treated routinely."

"In their opinion conventional physical treatment is reasonably satisfactory in patients with spasticity and particularly useful where contractures of the legs are a problem . . . under any well-organised and well supervised routine as far as motor competence is concerned. In contrast we found little evidence that treatment of the usual sort was effective in the extrapyramidal group. Many of these patients improved markedly but we were not able to convince ourselves that treatment was responsible; in fact some of the most successful individuals had not been willing to carry out any orders and had justified their rebellion . . ."

"In the extrapyramidal group . . . many of the patients were distressed and some of them were bitter and resentful but most faced their problems realistically and emotional difficulties did not add to their physical disabilities. In the pyramidal cases a very typical disturbance occurred many times. Particularly where children were fully mobile and reasonably adequate intellectually, they were often subjected to incessant pressure. When this became intolerable they sometimes retreated and

showed . . . (a) . . . catastrophic reaction . . . As a rule the superior children were able to avoid this reaction; as were the frankly defective ones, but in two cases college graduates yielded to it, when domineering and unhappy parents demanded perfection and attempted to dictate all details of adult living."

It makes you think, especially as it was first published in 1959. Could another body fund an up to date equivalent?

Dr. I. A. McKinlay  
*Senior Lecturer in Community Child Health*

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### **Graded Activities for Children with Motor Difficulties**

James P. Russel  
Cambridge University Press

For those of us who occasionally run short of ideas when faced with a group of 'Clumsies' and recognise touches of Joyce Grenfell creeping into our repertoire, this is a highly practical and useful book. Therapists still require to carry out a comprehensive assessment of the child's abilities, but can then look to appropriate activities and will not be disappointed by the number of suitable ideas available. Written primarily for class and remedial teachers in Special and Primary sections of education, therapists will do well to approach this book with the intention of using it together with teachers and parents when setting up a physical management programme for children with motor difficulties.

Mrs. Jenny McKinlay  
*Senior Community Physiotherapist*

## **STUDY DAYS/COURSES**

### **Working with Deaf and Partial Hearing Children**

Training Course, Friends House, Euston Road, London NW1

Organised by Play Matters/The National Toy Libraries Association

Wednesday 16th November

Apply to Play Matters/NTLA, 68 Churchway, London NW1 1LT, Tel : 01 387 9592.

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### **Physical Education : Special Considerations in Primary Education**

Tuesday 15th November, at Cambridge Educational Development Centre.

Course No. 114, run by RNIB (see below)

Aim: To consider practical method and safety aspects of both indoor and outdoor activities. To identify, by means of discussion, some appropriate activities.

**The Assessment of Functional Vision in Infants and Pre-School Children**

Day Course No. 117, run by RNIB, Marlborough House, Holly Walk, Leamington Spa, Warwickshire CV32 4XP. Tel: 0926 452868.

Thursday 1st December at RNIB's Armitage Hall, London. Aims: To identify some specialised and non-specialised methods of assessment. To consider their practical application with reference to some recently researched methods. Booking forms from Administrator at the above address.

**The Team Approach to Development of Multihandicapped Children**

Friday 2nd December at the Nissan Playcentre, Goring by Sea.

Organised by RNIB, Course No. 118. See above for booking forms.

Aims: To consider practical methods of assessing the needs and assisting development of infants and young children. To provide an opportunity to examine and discuss facilities at the Nissan Centre.

Speakers include a Headteacher and Senior Lecturer in Developmental Paediatrics and a Senior Occupational Therapist.

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**Sensory Motor Aspects of Handwriting**

Day Seminar run by the Handwriting Interest Group, Institute of Education, University of London, 20 Bedford Way, London WC1H 0AL.

Tuesday 17th January, 1989. Further information from the Dept. of Educational Psychology and Special Educational Needs. Speaker - Stuart Bedford, Supt. Pysiotherapist, (Paediatrics).

**The Ergonomics of Handwriting**

Handwriting Interest Group (as above)

Tuesday 21st February. Mrs. B. Brown, Area Advisory Teacher.

**The Hand as a Guide to Learning**

Handwriting Interest Group (as above)

Tuesday 21st March. Mrs. Ester Cotton, Consultant Physiotherapist.

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**Children with Perceptuo Motor Problems**

4th March 1989 at the Post-Graduate Centre, Francis Road, Edgbaston, Birmingham B16 8ET

Speakers — Drs. S. H. Green, I. McKinlay, S. Henderson and R. Sassoon.

Details and application forms from Mrs. C. F. Foster, Supt. Physiotherapist, The Children's Hospital, Ladywood Middleway, Ladywood, Birmingham, B16 8ET.

£18 APCP Members. £20 Non Members.



Winslow Press have recently produced illustrated stickers depicting a wide range of positions recommended by therapists for feeding, carrying, socialising, and generally promoting normal developmental movement patterns in babies and small children. A useful medium to offer parents, teachers and all caring staff.

## ILLUSTRATIONS



*Active Prone  
Assisted Chest Prone*



*Spoon Presentation  
Correct*



*Frontflex  
Carrying Position*

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## THE DYSPRAXIA TRUST

### What is the Dyspraxia Trust?

Formed originally in 1987 by two mothers of dyspraxic sons the Trust aims:—

1. To put parents and children in contact locally and nationally.
2. To arrange regular meetings for members.
3. To produce a newsletter containing articles from parents and professionals, ideas, shared problems and information.
4. To promote better diagnostic and treatment facilities for dyspraxic children.
5. To encourage a wider understanding of the condition and its implications by professionals in the health and education fields and by the general public.

Other names for 'Dyspraxia' - 'Clumsy Child Syndrome'  
'Perceptuo-motor Dysfunction'  
'Minimal Brain Damage'  
'Motor Learning Difficulty'

For further information, please send s.a.e. to Marilyn Owen, 10 The Larches, Ware, Herts. SG12 0XJ.

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# THE ARTHROGRYPOSIS GROUP

## T. A. G.

T. A. G. was established as a support group for the families of arthrogryptic children and adults. It aims to create a greater awareness of this rare condition, both within the medical profession and the public.

Further information from the Secretary, L. Robinson, 27 Melksham Close, Macclesfield, Cheshire, SK11 8NH.

## LETTERS TO THE EDITOR

Dear Editor,

"I have recently read an interesting article comparing the gait of children using the standard 'rollator' and a posterior 'Posture Control Walker'. With the latter walker, the support is placed behind the child and the hand grips beside the child, thus hopefully promoting extension for those that can achieve this, a better posture and freer gait.

I have not yet come across any company in this country producing these rollators (there are two models in the USA). Has any other therapist come across them and used them? I would be very interested to hear from anyone using or producing these rollators."

Letters to: Mrs. J. L. Hankinson, Senior Physiotherapist, The Ronnie Mackeith Centre for Child Development, Derbyshire Royal Infirmary, Derby, DE1 2QY.

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Dear Editor,

"I am beginning a research project into the suitability of school transport for profoundly handicapped children. I would be interested to hear from anyone who has knowledge of any other research done in this area. Also if anyone has experience of either good or poor practice could they contact me."

Write to Pauline McMillen, MSCP, Sen. Paediatric Physiotherapist, Community Health Unit, Eveswell Clinic, St. John's Road, Newport, Gwent.

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## REGIONAL REPORTS

Trent

**Reg. Rep. Margaret Meagher, 9 Oak Road, Thurlston, nr. Borrowash Derbyshire, DE7 3EW.**

Things have been quiet in this region during the holiday period. Nottingham are hoping to have a study day on Juvenile Arthritis early in the New Year. Details later. Leicester have an evening

seminar at Ashfield School near Leicester General Hospital from 4.15 p.m. until 5.15 p.m. prompt and Monday 28th November on 'Recent Developments in Diagnosis of Genetic Diseases given by Ian Young, Senior Lecturer in Clinical Genetics. Details from Sue Foster MCSP, 33 Stonehaven Close, Coalville, Leicester.

**Wales**

**Reg. Rep. Lyn Horrocks, Children's Unit, University Hospital of Wales, Cardiff.**

The A.G.M. for the Welsh Region was held on Wednesday June 8th at University Hospital of Wales. This was preceded by an excellent lecture by Dr. Helen Hughes, Consultant Geneticist at UHW, Cardiff, on 'Arthrogryposis'.

**London**

**Reg. Rep. Vivienne Read, Flat 2, 62 Madeley Road, Easling, London W5 2LU.**

On Saturday 24th September there was a study day on 'Essential Paediatrics for Junior Physiotherapists'. This was a well attended and successful event with many participants asking if there were going to be repeat study days in a similar vein. The Counselling Course which was to have been held on 29th October was cancelled. This was due to the organiser, Jenni Marks' tragic death in a car crash whilst on holiday in Italy. She will be very greatly missed by all who knew her.

On Wednesday, 16th November, Dr. Margaret Lurch, Paediatrician from Guy's Hospital will be talking to us on 'Child Abuse' in the Meyerstein Lecture Theatre at Westminster Medical School, Horseferry Road, London SW1. Cold drinks will be served from 6.30 p.m. with the lecture starting at 7.00 p.m. To apply, write to Marion Main, 76 Hill Road, Pinner, Middx. HAS 1LD, enclosing a s.a.e., or telephone 01 - 866 - 7001.

Early in February, Dr. D. Meerstadt will be presenting a lecture on A.I.D.S. This will be combined with our A.G.M.

**S. West**

**Reg. Rep. Gillian Riley, Children's Unit, Odstock Hospital, Salisbury, Wilts. SP2 8BT.**

The Regional Committee met recently and are planning two regional study days for next year.

One is to be held in Taunton on March 4th on Clumsy Children, and the other in Salisbury in late September/early October on Juvenile Arthritis. Please could S. West members take note of these dates so to avoid clashes with any courses they may be planning!

Local courses are taking place in Bristol, Taunton and Plymouth this Autumn. A Bobath workshop weekend was held in Bristol in September which was well attended and much enjoyed.

**Scotland**

**Reg. Rep/Miss M. Grant, Royal Hospital for Sick Children, Edinburgh EH9 1LF**

The Study Day on Conductive Education held in June was very well attended. The slides and videos made by Lynn Campbell and

John Jolly demonstrated clearly how C. E. methods have been utilised in the education and treatment of multiply-handicapped children in Scottish Council for Spastics Schools. Their enthusiasm tempered by realism was reassuring. The final presentation by two sets of parents, one for and the other against Hungarian claims, proved most interesting and helpful, and provoked vigorous discussion.

We hope to hold a Study Day on Gait analysis and orthoses in December.

#### **N. Ireland**

**Reg. Rep. Jenny Saunders, 149 Queensway, Lamberg, Lisburn, Co. Down.**

The autumn season began in September, and we plan to meet bi-monthly considering a wide range of relevant topics. A Saturday study day was arranged in October to up-date and reinforce our ideas on the treatment of the spina bifida child. Speakers included an orthopaedic Consultant, Pediatrician, Geneticist, Nurse, Psychologist and the input on the physio aspect was in the form of a video to show treatment from 0 years with emphasis on the early use of the poropodium with progression to the appropriate splintage. It is hoped that this tape will be used in future as a teaching aid.

Interest has been shown lately by parents of C.P. children in the province to have parent support groups set up. We would be pleased to hear from anybody who has dealt with a similar situation and could offer advice and guidance.

#### **N. West**

**Reg. Rep. Lin Wakley, 1 Ash Bank, Pipers Ash, Chester CH3 7EH.**

Despite the postal strike we were able to go ahead with the Study day on 'Down's Syndrome' on 1st October which proved to be a very interesting day. The Study Day on 'Clumsy Children', originally scheduled for late November, has been deferred until 21st January, and will be held at Denton, Manchester. This will be followed on 4th March by the Regional A.G.M. which will be part of a half day course about 'Epilepsy in Childhood' at Alderley Hospital, Liverpool. Members will receive further details at a later date.

#### **N. East**

**Reg. Rep. Judith Baigent, 16 Valley Bridge, Scarborough YO11 2PF.**

On September 13th, Dr. David Cundall spoke to us about "How we measure handicap in children with Cerebral Palsy". This led to a very lively discussion which we hope will help Dr. Cundall to solve this difficult problem. Hopefully he will now be able to produce a questionnaire for us.

Our next evening meeting will be on November 22nd at York District Hospital when Christine Lumley from the Disablement Services Authority (ALAC) in Leeds will give us an update on the McColl Report and its implications for physiotherapists.

We are hoping to hold a day course in March on Conductive Education by staff from the Percy Hedley School in Newcastle. Further details will be sent to all members nearer the date.

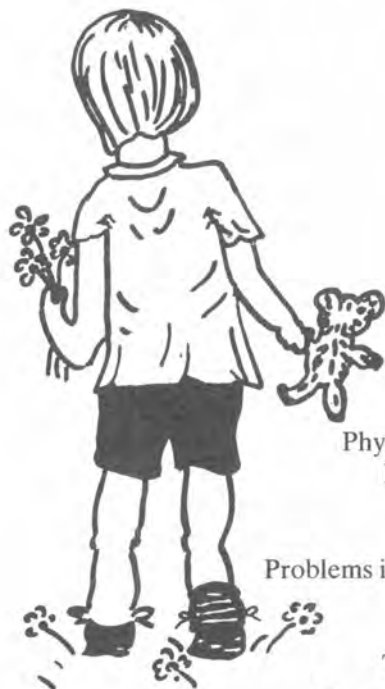
W. Midland Reg. Rep. Mrs. C. L. Dunn, The Haven, Martley, Worcester  
WR6 6PQ.

There was a meeting in October on 'The Recent Developments in the Treatment of Cystic Fibrosis' when the speaker was Miss Jenny Llewellyn, MCSP, Sen. Physiotherapist at Birmingham Childrens' Hospital. It is hoped to hold another meeting in November with Dr. Stuart Green on 'Rett's Syndrome'. The date is still to be confirmed.

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## ASSOCIATION OF PAEDIATRIC CHARTERED PHYSIOTHERAPISTS

LONDON  
REGION



### ANNUAL CONFERENCE GUILDFORD 1989

#### SUBJECT MATTER

- Radiological Diagnoses
- Physiological Effects of Splinting on Muscle
- Research on Hip Dislocation in C.P.
- New advances in Orthotics
- Scoliosis
- Problems in Osteogenesis Imperfecta and Arthrogryposis
- Leg Lengthening Procedures
- Orthopaedic Problems in J.C.A.
- The Upper Limb and Bio-Feed Back

March 31st to April 1st, 1989.

Closing date for application - 31st January, 1989.

Send SAE (9" x 6") to Mrs. J. Lough, 42 Gloucester Road, Acton, London W3

