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PAEDIATRIC

CHARTERED PHYSIOTHERAPISTS

NEWSLETTER

TADWORTH COURT CHILDRENS HOSPITAL

REHABILITATION FOR CHILDREN

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TADWORTH COURT TRUST

Association Of Paediatric Chartered Physiotherapists

Newsletter No.71 **REHABILITATION FOLLOWING HEAD INJURY** **May 1994**

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EDITORIAL

Our Journal begins with a modest, charming letter from Mrs. Hazelwood. I do hope you will read it because it is written by the physiotherapist who had the energy and determination to mobilise other physiotherapists working in paediatrics and organise that first meeting of the A.P.C.P.

Importantly, Mrs. Hazelwood explains that the impetus for her actions was a cry for help from another physiotherapist. We must remember this. Our Association should be based on mutual support, not only in sharing and increasing knowledge but also offering and asking for help when needed.

TADWORTH COURT

Many of us will remember Tadworth Court, set in beautiful grounds in Surrey, as the country branch of Great Ormond Street Childrens Hospital. Threatened with closure in 1984, the Centre's invaluable work was recognised and highlighted by the media, received long over-due public acclaim and acknowledgement. Saved from closure, Tadworth Court became the first U.K. hospital to leave the N.H.S.

Tadworth Court is now an independent non-profit making, charitable trust which provides rehabilitation treatment and education for children with severe disabilities or chronic illnesses. The centre provides three main services:

Rehabilitation for brain injured children. Sixty per cent of these children are the victims of road traffic accidents.

Residential Special Education at St Margarets School for children with profound multiple handicaps and severe learning difficulties.

Respite and Residential Care for chronically sick, handicapped and terminally ill children. This includes expertise in the treatment of children with cystic fibrosis.

This edition of the Journal is concerned with only one aspect of the work done at Tadworth Court.

Our thanks and admiration are due to the contributors who provide us with an overall picture of the pioneering, multi-disciplinary approach to the rehabilitation of the brain injured child.

I feel sure this will prove to be a valued and treasured copy of your Journal.

JEANNE LACEY EDITOR

"THE REST IS HISTORY"

The following is an extract from a letter received by Jackie Reynolds, a member of the Editorial Board, from Mrs. Mary Hazelwood.

'It all started with a phone call from a school in London - a physio there was having a lot of problems and I advised her to contact the CSP, however she got no help there and when I phoned the Secretary he suggested if I felt so strongly why didn't I start a Specific Interest Group of Paediatric Physiotherapists. So between us Mrs. D. Woods and I contacted 36 physios we knew working with children in the Midlands and I got a room at the Royal Orthopaedic Hospital Birmingham where I trained and held the inaugural meeting in autumn 1972. This was followed up by a meeting in the Great Ormond St. Children's Hospital and as I was going to have a fairly big op that year I stood down as Chairman and Moyna Gilbertson Superintendent at G.O.S. took the position. I continued as Midland Regional Chairman until I retired.

Our first Conference was at Salford University - the rest is history!

With best wishes to APCP - may it continue to go from strength to strength.

Yours sincerely
MARY

COPY FOR THE AUGUST 1994 JOURNAL MUST BE WITH THE EDITOR BY 30th JUNE 1994

The Editorial Board does not necessarily agree with opinions expressed in articles and correspondence and does not necessarily endorse courses advertised.

The Board reserves the right to edit material submitted.

LETTERS TO THE EDITOR

Withybush General Hospital
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Dear Editor,

A pilot scheme to evaluate a Parent Held Records System is currently taking place in our area. I would be grateful if any physiotherapist who has come across this method of record keeping could furnish me with any comments, for or against, the system.

Yours faithfully,
JANE WALKER
Supt.III Special Needs Physiotherapy Service.

---ooOoo---

Trengweath School
The Principal
Mrs. Judith Steward
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Dear Editor

Re; 'Letters To The Editor' - Paediatric Journal Newsletter

I wonder if anyone has experience of using drugs to help with chronic chest problems in children with cerebral palsy, specifically very sticky copious secretions but generally not infection present, accompanied by poor coughing ability and poor posture due to hypotonia.

Currently chest physio and suction are carried out by parents and the consultant is considering long-term antibiotics.

I would be grateful for any help on this matter.

With many thanks

Yours sincerely
MRS. ROGERS
pp. Marion Phenna
Senior Physiotherapist

Physiotherapy
Children's Centre
Damers Road
Dorchester
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Tel. No: 0305 251150 Ext. 4747

Dear Editor,

Since introducing the Children's Physio Sweatshirt we have had several enquiries for Polo Shirts. These are now available and anyone wishing to order can telephone for an order form and/or photograph of the design. A sweatshirt order form is in the back of the 1993 May APCP Journal.

We would like to thank everyone who has placed orders with us in the past year.

Yours sincerely,
ANN HYLAND *(Physiotherapist)*

---ooOoo---

JOB WANTED

4962 Ferro Street
Long Beach
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90815 U.S.A.

18.4.94

Dear Editor,

My name is Kishan Kooner and although I am British national, I trained and have worked for three years in California as a paediatric physical therapist. I am considering relocating to England and the C.S.P. suggested that I write to you to ..... assess job availability in England. I thank you in advance for your time .....

Your sincerely
KISHAN KOONER

CHILD HEAD INJURY AND REHABILITATION FACT AND FICTION

Stephane Duckett, PhD., MA, Rehabilitation Manager

Accidents are one of the leading causes of death in children between the ages of 1 and 14.[1] Excluding congenital abnormalities and birth complications, accidents will form the largest single category accounting for approximately one third of all paediatric deaths.[2] Head injuries specifically may account for up to 40% of accidental deaths with 249 in England and Wales in 1992 alone.[3]

In any given year approximately 40,000 admissions for paediatric head injury[4]) will take place in the UK, making head injury for certain regions of the country the single largest category for paediatric emergency room admission.[5] Yet, despite these figures, designated beds for paediatric head injury rehabilitation remain a scarcity. There are several reasons for this, including certain widely held beliefs. This article attempts to challenge some of those beliefs.

"The younger the child the better the recovery"

In 1936, Margaret Kennard published several studies[6] which examined the role that age played in anticipating recovery from cortical lesions on motor performance in monkeys. Her findings suggested that the younger the subject, the fuller the recovery. This observation became known as the "Kennard Doctrine". Lennenberg[7] lent support to this notion in a study which looked at the recovery of language from left hemisphere damage in children. This doctrine has though, over the course of the past fifteen years, been gradually challenged. Goldman and her colleagues,[8] again working with animals, found that early cortical injury in monkeys was not always advantageous. Outcome was intimately related to how and when behaviour was assessed amongst other factors.

Longitudinal prospective studies of outcome in head injured children clearly supported the notion that site and severity form the most critical factors in determining prognosis. For instance, Knight et al,[9] divided a group of head injured children into three groups on the basis of severity, as assessed by the Glasgow Coma Scale and duration of intercranial pressure. A neuropsychological test battery was administered and behavioural ratings for both parents and teachers were administered at discharge and at three and nine months post initial testing. The severe group (GCS equal or less than 8) in contrast to both the moderate (GCS 9 to 12) and mild groups (GCS 13 to 15) was associated with persistent long-term neuro-behavioural difficulties. Along with the above, performance IQ, timed tests for visual motor speed and coordination showed the greatest disparity between the three categories of severity. Few participants reported difficulties for the mild to moderate group, whilst for the severe group 90% acknowledged at least one learning or adjustment difficulty (40% three or more difficulties). Long-term studies examining recovery from paediatric head injury are rare. A pilot study currently being analyzed at Tadworth Court Children's Hospital,[10] in which the first fifteen consecutive admissions with severe paediatric head injury followed up five years plus, suggests that for this category of children significant cognitive and behavioural difficulties persist.

Following Step By Step Instructions For Bilateral Construction Task In O.T.

"No research for the cost effectiveness of rehabilitation"

The importance of research in rehabilitation cannot be exaggerated, particularly in view of not just the tremendous resources called upon but also the hopes and aspirations of parents and, in some cases, the children themselves may be at play. Tragically the harrowing nature of many of theses children's condition may make for good 'press' providing a venue for claims relating to the efficacy of treatment which remain unsupported except through anecdotal accounts.[11]

Parents, desperate to find a solution may be willing, with devastating financial and emotional consequences to themselves, to pursue services which simply cannot provide what they claim to provide. It is for this reason that the programme in rehabilitation research currently being offered at the University of Southampton under the directorship of Professor Lindsey McLennon (European Chair for Rehabilitation) is seen as a welcome and essential component to the increased accountability rehabilitation services require.

Research in rehabilitation will essentially take one of two forms:

1. Focused studies examining the efficacy of individual procedures for specific difficulties.
2. Studies which seek to examine more globally recovery following rehabilitation services in general.

In many respects studies which fall into the first category may be more amenable to the more rigorous dictates of a conventional experimental design although, under the current health care system with the division between purchasers and providers, studies which seek to examine the overall impact of any given programme may be seen as more meaningful for the allocation of resources.

McKenna, Maynard and Wright[12]) summarize studies falling into this category as deploying one of three formats:

1. Descriptive: studies which attempt to describe what happens to service recipients at one or more points following the initiation of services.
2. Comparative: studies which compare groups in an experimental versus a regular programme of services.
3. Predictive: studies which attempt to discover specific variables associated with higher rates of successful outcome, whether treatment related or patient characteristics.

The majority of studies these authors reviewed did not, in their judgement, effectively evaluate the impact of services due primarily to the inadequacy of the measures used, ie. studies relying on professional judgement.

The studies these authors describe as more successful were those that deployed standardized measures of activities of daily living (ADL), such as the Barthel Index.[13] Studies which are large, multi-centred, using randomized controlled trials, are deemed ideal although the ethical considerations surrounding the provision of services for some groups and not others may make this model inappropriate. Nevertheless, some researchers[14] have been able to overcome this constraint by comparing the outcome of patients in a rehabilitation setting with those receiving conventional care services in another district where rehabilitation services do not exist. The difficulty here of course rests with the fact that the two groups are not randomly assigned. In this study the authors sought to evaluate cost effectiveness of rehabilitation by contrasting the two programmes looking at the following variables:

1. Number of therapy sessions.
2. Duration of stay.
3. Place of care after discharge.
4. Hours of day-time care required.
5. Mobility and residential skills.
6. Vocational status.
7. Cost/outcome index.

Patients were assessed over a two-year period. Although outcome proved to be comparable for both groups, the rehabilitation group were more severely injured, therefore, the conclusion was that rehabilitation was seen as achieving a better long-term outcome.

"There are no standardized measures for rehabilitation outcome"

As will be apparent from the previous paragraph, establishing uniform measures for assessing the patient's progress is going to be central to any effort in evaluating the impact of rehabiltiation. These efforts are being spear-headed of late by Uniform Data Systems (UDS), with the introduction of the Functional Independence Measures (FIMS).[15] Developed in the USA in 1983, the initial pilot trials were assessed through the cooperation of fifty US rehabilitation centres. FIM provides a system whereby data may be collected on eighteen variables, divided into six categories, which include:

1. Self-care.
2. Sphincter control.
3. Mobility.
4. Locomotion.
5. Communication.
6. Social cognition.

The system is designed in a manner that ratings on any variable may be made by any member of the team. This allows team members to communicate in a cross-disciplinary manner and ensure that all parties are understanding of the patient's progress in any given area. Furthermore and perhaps more critical, from the perspective of purchasers, it allows for the uniform collection of data to assess one programme over and above another. Children, of course, present a special case due to the difficulties associated with attempting to differentiate developmental issues from recovery *per sé*. To this end, UDS has developed "Wee FIM". The Wee FIM pilot study has just been completed[16] and has amassed an enormous amount of data from over nine hundred children from across thirty different facilities in the US and Canada.

Tadworth Court is currently, with the assistance of UDS, negotiating with the University of Southampton contributing to a databank currently being developed for this country.

"Educational services can provide for the head injured child"

Most children who experience a moderate or severe head injury will require minimal services, such as speech therapy and physiotherapy, that may only be provided for them in schools geared for the physically handicapped. Due to the complexity of their condition, regrettably the cognitive dimension of their deficits frequently renders such settings too challenging for such children. The alternatives are schools which cater for children with severe learning difficulties. Middleton[17] has summarized the inappropriateness of such placements with the following reasons: the head injured child will have had (in contrast to a child with a congenital condition) a previous life free of handicap. "Memory of pre-injury experience is often relatively intact and for older children and teenagers who can recall a time when they could run, speak and think as normal children, placement in a SLD school may be a shocking experience" (p.667 *ibid*). Furthermore, in contrast to their SLD counterparts, a head injured child can be conservatively expected to continue to demonstrate progress over and above what might be developmentally anticipated.

Lastly, due to the specific nature of deficits seen for many traumatically head injured children with memory deficits, global IQs which would place such a child in a moderate learning disabled setting might prove too challenging. Middleton also notes, citing Brown *et al*,[18] that the psychiatric sequelae frequently seen to accompany the head injured child would further prejudice them in such a placement.

The needs of the head injured child are complex and the specialized skills offered in an interdisciplinary rehabilitation setting are crucial if optimal recovery is to be expected. A marked discrepancy exists between the current provision of services and the need as reflected by incidence. Several reasons, some historical and others due to a lack of understanding, have conspired to maintain this gap in services.

It is our hope that this publication may to some extent provide some very general guidelines on how such a service may be initiated and take form.

17 March 1994

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The Working Day Starts with the Orientation Group

TRAUMATIC HEAD INJURY
THE PRIMARY AND SECONDARY EFFECTS

Heather Everest Senior Physiotherapist

A basic understanding of the mechanisms of traumatic head injury and the physiological consequences is essential for the rehabilitation professional to appreciate more fully their task in helping head injured children reach their maximum potential.

The final outcome from a head injury is governed by three factors:

1. The pre-injury status of the brain.
2. The amount of injury caused to the brain by the impact of the head injury (primary brain damage).
3. The cumulative effects of secondary pathological damage to the already injured brain caused by systemic and intracranial mechanisms that come into play at various times after the accident that caused the head injury.

Primary Head Injury

Primary injury occurs immediately following the impact and is directly caused by the blow to the head. Any resultant brain tissue damage is usually permanent and therefore it is one of the most limiting factors for the recovery of the patient.

Depending upon the nature, direction and magnitude of the forces applied to the skull, brain and body impact, primary damage to the brain may be any or all of the following three types:

1. **Local Brain Damage**

This occurs when brain damage is localised to and beneath the site of impact on the skull. The damage may be in the form of laceration or contusion and may lie either superficially or deep within the brain tissue. Injury may range from being only slight haemorrhage to extensive brain necrosis with surrounding oedema.

Neurological signs of the patient will obviously depend on the location of the injury, eg injury to the motor cortex on one side of the brain will result in contralateral motor problems.

Skull fractures indicate the degree of force applied to the skull at the time of injury and will also give some indication as to the probable underlying pathology, i.e. depressed skull fractures which usually occur following injuries caused by relatively small objects e.g. bottles or bricks, are often associated with tears in the dura which result in a high risk of infection and may lead to complications such as meningitis.

2. **Polar Brain Damage**

This type of injury most commonly occurs when the head is subjected to forces of acceleration or deceleration.

The brain can move to a limited extent within the skull and dural envelope. When this movement is suddenly stopped damage can occur to the tips of the temporal and frontal lobes.

As with local brain injury, these polar lesions can swell, be subject to haemorrhage and can often form sizeable intracranial lesions. Patients sustaining this type of injury may often not initially present with neurological signs. However this is only until the resultant swelling/oedema has reached the point of producing brain distortion and/or shift. This is often the reason why a head injured patient may initially be unconscious then seemingly recover, only to lapse into unconsciousness again shortly after.

A deceleration example of polar brain injury :

A child cycling falls from his bike (e.g. 20 mph) and strikes his head on the road. His skull will stop immediately on impact, however the brain (which is a jelly-like consistency) will continue travelling within the skull until it strikes the front of the skull. It will often then bounce back and strike the back of the skull, so producing a "coup" or "contra-coup" type of injury.

The wearing of cycling helmets protects and slows down the deceleration effect, so reducing the severity and occurrence of this type of head injury.

3. **Diffuse Brain Injury**

Diffuse brain injury may occur as a consequence of the swirling movements that the brain makes inside the skull during head injury.

Diffuse damage is caused by the bony prominences inside the skull and blood vessels being relatively stronger than neural (brain) tissue and acting as "cheese cutters" as the brain "swirls" and moves during the head injury. Also generalised shearing and rotational forces cause tearing of axons, so resulting in multiple focal areas of damage. This type of injury can often occur in combination with acceleration/deceleration injuries.

Neurologically, patients often remain deeply comatose for weeks and recovery is slow and often limited due to the severity and widespread nature of this type of injury.

Primary brain damage often remains irreversible. However, subsequent deterioration due to secondary damage may be preventable. Therefore the initial management of head injured patients is aimed at minimising and preventing secondary complications occurring.

The energy requirements of the brain are extremely high. The blood flow to the brain accounts for 1/5 of the resting cardiac output and its oxygen consumption is 1/6 of that consumed by the body, despite the fact that the brain represents only 1/15 of total body weight.

There is no capacity for storage of energy rich substances so that the supply of oxygen and glucose to the brain must be not only plentiful but continuous. Interruption of the supply is followed within approximately 15 seconds by neurological dysfunction and within a few minutes by neuronal damage that soon becomes irreversible if the brain's supply of energy rich resources is not restored.

Following a head injury many conditions can and may occur which reduce the energy supplies to the brain tissue. These conditions may be of systemic or intracranial origin.

Causes of Secondary Brain Damage

Systemic
Arterial hypoxaemia
Arterial hypotension
Hypercapnia
Anaemia
Pyrexia
Hyponatraemia
Hypoglycaemia

Intracranial
Haematoma - extradural
- subdural, intracerebral
Raised intracranial pressure:
brain swelling
brain oedema
acute hydrocephalus
Infection - meningitis
- abcess/empyema
Epilepsy
Vasospasm

SYSTEMIC CAUSES OF SECONDARY BRAIN DAMAGE

ARTERIAL HYPOXAEMIA

The most common secondary complication of head injuries.

It is present in more than 1/3 of severely head injured patients when they arrive at hospital post injury.

When the arterial Po2 falls below 7 kPa (approximately 55 mmHg) the desaturation of arterial blood begins to occur. Under normal circumstances this fall in oxygen content would be compensated for by brisk cerebral vasodilatation. In the damaged brain however a compensatory boost in blood flow does not occur or occurs to a lesser extent, with the overall result that there is a reduction in the carriage of oxygen to the most severely injured parts of the brain.

ARTERIAL HYPOTENSION

The head injured patient is extremely vulnerable to the effects of a reduction of blood pressure as it will consequently result in a reduction of cerebral blood flow. Arterial hypotension seldom occurs as a result of the head injury alone. It usually occurs from other

injuries associated with the head injury, i.e. intra-abdominal visceral injuries and fractures of the pelvis or injuries associated with a large volume of blood loss.

Because of the nature of head injuries, arterial hypotension is seen to occur in approximately 1 in 6 severely head injured patients.

HYPONATRAEMIA

This occurs when the serum sodium level in the blood falls below 120 Eg per litre and results in the damaged brain tissue taking up excess water osmotically from the blood stream.

It results in widespread and severe brain tissue swelling and as a result will increase the intracranial pressure, so resulting in further damage.

INTRA CRANIAL CAUSES OF SECONDARY BRAIN DAMAGE

INTRA CRANIAL HAEMATOMA

A classic clinical picture of intra cranial haematoma following head injury is of a short period of unconsciousness immediately after impact followed by partial or full restoration of consciousness then a secondary loss of consciousness due to compression of the brain by the expanding haematoma. Intra cranial haematomas may be subdivided into extradural, subdural and intracerebral haematoma.

Extradural haematoma is most commonly associated with fractures of the skull as they cause tearing of blood vessels in the dura, particularly the middle meningeal artery.

Subdural haematomas develop between the inner surface of the dura and the brain. They originate from veins linking the brain surface with the dura which are torn by the motion of the brain relative to the inside of the skull that occurs with sudden acceleration or deceleration.

Intracerebral haematomas often form in conjunction with acute subdural haematomas. They can also however occur in isolation deeper within the brain tissue.

CEREBRAL OEDEMA

This is an abnormal accumulation of fluid from one of the three intracranial compartments. There are three main types: cytoxic, vasogenic and interstital. Cerebral oedema regardless of its cause may cause compression of brain tissue, blood vessels and block CSF pathways - all of which contribute to an increase of the intracranial pressure and can lead to further brain tissue damage.

CYTOXIC OEDEMA

This is an intracellular accumulation of fluid - in the glial cells. It is thought to be the result of inhibition of the sodium/potassium pump mechanism caused by cellular hypoxia, ischaemia, and it therefore results in impaired cellular metabolism.

VASOGENIC OEDEMA

Is the result of leaky cerebral vasoculoture (disruption of the blood/brain barrier). The increased vessel permeability causes plasma and fluid exudate to accumulate in the interstitial space.

INTERSTITIAL OEDEMA

This is caused by hydrocephalic conditions with subsequent movement of CSF from the ventricles into the interstitial space.

RAISED INTRACRANIAL PRESSURE

If intracranial haemorrhage and cerebral oedema occur in what is virtually a rigidly enclosed space, the intracranial pressure (ICP) will be raised. In a normal adult the ICP should remain within the range of 0-10 mmHg. Pressures over 20 mmHg are definitely abnormal and if the ICP reaches 40 mmHg there is severe neurological dysfunction and impairment of brain electrical activity. This is because the ICP at such pressures impedes the cerebral blood flow.

INTRACRANIAL INFECTION

This can occur as a result of compound injuries of the skull, via a scalp puncture/laceration. Basal skull fractures may be compound if they extend into one of the paranasal sinuses or the middle ear.

Post-operative intracranial infection may occur or the introduction of intraventricular or subdural catheters may be other potential sources of intracranial infection.

The dura mater is an extremely effective barrier to the development of intracranial infection. When it is breached either traumatically or surgically the possibility of meningitis or abscess formation must always be considered.

CEREBRAL ARTERIAL VASOSPASM

Narrowing of cerebral arteries, associated with focal or general reduction in cerebral blood flow may occur and results in the occurrence of spontaneous subarachnoid haemorrhage.

HYDROCEPHALUS

The normal pathways by which CSF passes from the ventricular system over the surface of the brain to be absorbed into the cerebral venous sinus system can be obstructed as a result of the head injury, e.g. by subarachnoid haemorrhage or during resolution of basal meningitis.

When the CSF pathways have been obstructed in this way the ventricular system expands at the expense of the cerebral white matter. The insertion of a CSF shunt to aid the draining of the CSF and reduce the pressure build up can also aid the reversal of any neurological deterioration shown by the patient due to the hydrocephalus.

POST TRAUMATIC EPILEPSY

Epileptic seizures can occur any time after head injury - early seizures post injury are particularly common in young children. Epileptic seizures always pose a threat to the brain tissue, particularly the already injured brain.

At a time when increased neuronal activity associated with the seizure is making demands for more blood, oxygen and glucose, the patient is likely to become hypoxic because of respiratory difficulties associated with the seizure.

Even when the good oxygenation is maintained the affected neurons can still become hypoxic as their excessive metabolic demand outstrips the supply of blood.

This discussion has been limited to brain damage that is a direct result of trauma or is secondary to the compressing effects of an intracranial lesion. A third form of traumatic brain damage may occur. This damage results from severe hypoxic or ischaemic insults to the brain and can be caused by many of the aforementioned episodes or by other more complex systemic contributing factors.

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THE INTER-DISCIPLINARY REHABILITATION PROGRAMME AT TADWORTH COURT

Susan Hay, Bsc. M.C.S.P. Therapy Manager Tadworth Court

When a normal active child receives an insult to the brain, the catastrophic consequences can be likened to the ripples in a still pond when the surface is broken by a carelessly flung pebble.

Rehabilitation begins by the roadside, in casualty or the intensive care unit. The initial acute phase dominated by those with lifesaving skills passes into the more recognisable stage of rehabilitation as the thrust of physiotherapy concentrates more on motor problems and the speech and language therapist, occupational therapist and the hospital teaching service become involved. Where resources are available a clinical psychologist may be consulted. Although this is sadly usually in reaction to unacceptable behaviour rather than an awareness that the child may have hidden deficits.

As the child becomes more able, he may be discharged home with outpatient support and part-time integration back into school. Hidden handicaps such as cognitive and perceptual problems, memory deficit and emotional and behavioural problems may be overlooked and not fully assessed. It is these problems that invariably lead to the breakdown and failure at school and at home.

The child with profound multiple handicaps receives the best that a busy overstretched acute ward can give. Staff may be frustrated by the inadequacy of the service they are able to provide and parents desperate to ensure their child receives as much as possible before it is too late.

Recognising these shortfalls and problems, in 1984 Tadworth Court Trust circulated a questionnaire to neurologists, neurosurgeons, paediatric consultants and others in the South East to assess the feasibility of a specialist rehabilitation unit.

The positive response led to the first child being admitted to the six bedded unit on the cystic fibrosis ward in 1985.

The objectives were:

To work towards the child reaching his maximum potential of physical, cognitive and emotional state.
To involve and support the families.
To integrate the child into his home and school.

To achieve this would require a persistent and consistent 24 hour approach.
In October 1990 the unit moved into the new residential accommodation for 10 children.

THE INTER-DISCIPLINARY TEAM

The multidisciplinary team expanded and metamorphosed into the inter-disciplinary team it is today : rehabilitation nurses, rehabilitation assistants, occupational therapists, physiotherapists, speech and language therapists, clinical psychologists, teachers, cognitive remediation therapist, recreational therapist, hospital play specialist, social worker and doctors.

All are dedicated to the common cause of helping the child reach his maximum potential by means of a child centred rehabilitation programme which includes his family.

An inter-disciplinary team is based on this common cause and a respect for each others' skills. Individual members can use techniques learned from each other to deliver a rehabilitation programme based on general practice.

It recognises the need for the child to have consistent and persistent 24 hour management where priorities and goals have been identified and all those involved in his care strive to meet them. An insult to the brain can often lead to a loss in ability to generalise skills in different environments. The inter-disciplinary team is able to offer a consistent approach to help the child regain this lost skill or use carefully planned strategies to help compensate for the loss.

All those coming in contact with the child will be aware of his functional and cognitive ability. This will ensure carry over and generalising of skills, especially where the family is involved.

The success of an inter-disciplinary team depends on good, effective communication. As the team grows this becomes more difficult with the risk of compromising programmes and creating stress within the team and family. Regular, structured meetings and joint treatment sessions help to overcome this problem.

There are however individuals who, even with experience, may never be comfortable working as a member of an inter-disciplinary team.

There is no loss of professional identity in an inter-disciplinary team but there is a back-up system of close knit individuals who have acquired knowledge and skills from each other and use them to ensure a consistent approach for that child.

THE CHILD'S PROGRESS THROUGH THE UNIT

The child referred for rehabilitation is assessed and evaluated by the team to determine whether he is an appropriate candidate for rehabilitation. He may remain on the programme anywhere from three to twelve months, depending on the extent to which he is benefitting from it.

He is allocated to one of the three colour coded care teams (so both parents and staff can identify who is primarily involved in his care) and has a named nursing key worker.

Joint goals are set after three weeks and his needs prioritised.

The timetable (Table 1) is drawn up weekly so programmes can be tailored to meet the child's changing needs.

Day to day changes and updates are discussed briefly at the daily morning meeting and at shift handovers.

There is a weekly team meeting to which parents or guardians, the child and visiting professionals involved with that child may be invited.

Parents are encouraged to visit regularly during the week. This enables them to attend sessions and learn by absorption the techniques and skills used in their child's management. They and the siblings are offered support and help in coming to terms with the changes in their child or brother or sister by the social worker and clinical psychologist. There is also the opportunity to discuss progress or concerns with the relevant team members.

TABLE I - THE INTERDISCIPLINARY REHABILITATION PROGRAMME
HEAD INJURY REHAB. TIMETABLE FROM:
1ST MARCH

BELINDA

	9.15 to 9.30	9.30 to 10.15	Break	10.30 to 11.15	11.15 to 12.00	Lunch	1.00 to 1.45	1.45 to 2.30	2.30 to 3.15	3.15 to 4.00
MONDAY										
AR	OG	PT/OT		NT	PT/OT		Rest	SC	PT	ST
CS		VA		OT	Sensory RM		Rest	Massage	PT	NT
MP	OG	SC		ST	PT		Rest	NT	OT	NT
CR		ST		PT	Side-Lie		Rest	OT	SC	Stand
JV	OG	ST		SC	OT		Rest/OT	PT	NT	Quiet Play
AL		Cycling					OT	SC	SC	
NL	OG	OT		ST	SC		Rest	NT	NT	PT
CP		Admission								
TUESDAY										
AR	OG	SC		NT	PT		Rest	ST	SC	Stand
CS		PT/VA		Drink	SC		Rest	Swim	Swim	OT
MP	OG	NT		NT	ST		Rest	Swim	Swim	PT
CR		Prone		OT	SC		Rest	Swim	Swim	PT
JV	OG	ST		PT	OT		Rest	Swim	PLT	Quiet Play
AL		SC		SC	PT		ST	Swim	SC	
NL	OG	OT		ST	NT		PT	Swim	Swim	PLT
CP		NT		NT	NT		Rest	Swim	Swim	NT
WEDNESDAY										
AR	OG	ST		NT	PT		Rest	SC	OT	Stand
CS		10%VA		Drink	Soft Play		Rest	Sensory/RM	PT	NT
MP	OG	PT		NT	ST		Rest	PLT	OT	NT
CR		Stand		PLT	Soft Play		Rest	ST	PT	Prone
JV	OG	Soft Play PLT		SC	OT		Rest/PLT	PT	SC	Quiet Play
AL										
NL	OG	OT		ST	SC		Rest	PT	NT	NT
CP		PT		PT	PT/OT		Rest	OT	ST	NT
THURSDAY										
AR	OG	OT		NT	SC		Rest	ST	PT	PT
CS		10%VA		Swim	NT		Rest	Sensory RM	PT	NT
MP	OG	SC		Swim	ST		Rest	PT	NT	NT
CR		PT		Swim	Prone		Rest	ST	Stand	CT
JV	OG	SC		NT	NT		Rest/OT	SC	OT	Quiet Play
AL										
NL	OG	ST		SC	Swim		Rest	OT	PT	NT
CP		NT		NT	CT		Rest	PT	SC	ST
				MRS. COPEMAN						
FRIDAY										
AR	OG	10%VA		NT	PT		Rest	PT	OT	Stand
CS		10%VA		Sensory RM	Swim		Rest	SC	PT	NT
MP	OG			Ride			Rest	PLT	OT	PT
CR				Ride			Rest	PT	SC	Prone
JV	OG			Ride			Home			
AL										
NL	OG			Ride			Rest	NT	PLT	PT
CP				? Ride	or Swim?		Rest	OT	PT	PLT

OG - Orientation Group
NT - Nurse Therapy
VA - Vibroacoustic Chair
SC - School
PT - Physiotherapy
OT - Occupational Therapy
ST - Speech and Language Therapy

Speech Therapist and Physiotherapist Assessing Optimum Posture For Visual Scanning

RECORDING PROGRESS

The child is fully assessed by all disciplines within the first few weeks of admission, joint goals are set and regularly reviewed.

Video recordings are used as an invaluable medium to record progress, review techniques, teach and update families and referrers with the latest achievement.

At present we use the Barthel Index of functional ability as a gross measure of independence for activities of daily living and the Rancho Los Amigos Cognitive Scale to characterise in lay terms a child's current status in recovery. More suitable child orientated scales of measurement of outcome are being explored jointly with other facilities both here and abroad.

Within the first eight weeks of admission and six weeks before discharge or the end of a funding period a comprehensive joint report noting the child's ablity, progress, residual problems, future goals and recommendations is sent to the parents or guardians, referrers, funders and representatives from Health, Social Services and Education Authorities. This report forms the basis for discussion and future planning at a case review meeting of all the interested parties.

Interim updating reports and reviews keep associated parties informed.

Ideally early contact is made with all likely agencies who will be involved in the child's reintegration back home and into school.

The child moves from the acute setting through a period of rehabilitation back into mainstream education and his community. This process may be phased with weekends at home and a day at school for a quarter to half term, building up to two days per week at school prior to discharge.

For some children it will be necessary to consider a special school. The child's educational needs are statemented and the parents are encouraged to visit special schools by Tadworth Court staff and the community based professionals (usually the educational psychologist and social worker) so that they are able to make an informed decision about their child's future.

The family flat is used not only for visiting families but also for introducing the more able teenager into independent living and self care skills or for offering the family the opportunity to care for a more dependent child with the knowledge that help is close at hand. This would lead on to care within the community. It is hoped that one day Tadworth Court will be able to offer an outreach programme to help achieve a more seamless handover to the community team as problems can then be tackled in the home environment.

At present there is a follow up at six weeks by means of a questionnaire and home or telephone interview. The follow up serves to assess satisfaction with the services as well as ensure that discharge has been fully implemented. The facility to which the child has been returned may be contacted in this context.

FUTURE PLANS

FUTURE PLANS INCLUDE :

The introduction of an outreach service.

Identifying a method of measure of outcome that encompasses all aspects of the child's management and is a useful comparative tool for referrers, funders and other professionals.

Raising the awareness of the special needs of children with acquired or traumatic brain injury by specialist study days.

Contributing to research in the field of paediatric head injury rehabilitation.

Seeking to further strengthen our ability to respond to the children's needs by dividing the programmes into specialised groups according to level of recovery. This would include for the traumatically head injured children; coma emergence; agitated-confused; cognitively challenged and an independently functioning transitional unit.

CONCLUSION

The effect of acquired or traumatic brain injury on a child, his family and friends is devastating.

An inter-disciplinary team with common goals which are regularly reviewed and a consistent and persistent 24 hour approach to rehabilitation will, in our experience at Tadworth Court, enhance the child's ability to reach his maximum potential and offer his family the education and support needed to generalise their skills at home.

SUSAN HAY, BSc, MCSP,
Therapy Manager, Tadworth Court Trust

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NURSES - THE LINCHPINS OF THE REHABILITATION SERVICE

Monica Philpot RGN, RSCN, Dip Nurse

The nursing team at Tadworth is a mix of trained and untrained personnel. In this paper the role of the nurse therapist will be discussed. In reflections I will by default also mean the role of the rehabilitation assistants as in many areas the roles are synonymous. All the nursing personnel have a degree of autonomy and direct dealings with the children here. The role of both is diverse and interesting. The nursing team are present throughout the 24 hour period and thus are in an ideal position to look at the child and family holistically. Each child has a named nurse on each shift and he/she is able to co-ordinate both the child's formal and informal programme of rehabilitation. She has constant opportunities to plan and discuss care with the child/family and the rest of the interdisciplinary team. The nursing team can thus be viewed as the linchpins of the whole service.

This paper will now look at a breakdown of the precise roles of nurse therapists working in our rehabilitation setting. The work of a psychiatric nurse called Peplau (1969) has given the framework to consider the many diverse aspects of our work.

Carers

Nurse therapists are carers, we assess, carry out and evaluate each child's total care needs. Basic care includes washing or enabling self washing, dressing, eating etc. It includes all realms of care, attempting to meet the child's physical, psychological, social and spiritual needs. Spiritual needs looked at one little boy's wish to attend Mass on Sundays. This involved a long push with him in his wheelchair to Tadworth village. He beamed to be able to worship his God.

Counsellors

Counselling, by which we mean the skills of listening and empathising with the children, their families and each other, is another of our roles here.

Technical Expert

Some of the nursing skills involve technical tasks using gastrostomies for meeting nutritional needs, passing naso-gastric tubes, utilising electronic communicator aids. Nurses can be called technical experts to illustrate this realm of our work.

Adult Learners

All nurses everywhere are, or at least should be, adult learners. By this, meaning that we are all on a continuum of learning about the field in which we work from other specialists, books, articles, study sessions/days and importantly from each other.

Teachers

In our turn we are also teachers or facilitators of learning. We all share our knowledge with each other, within the interdisciplinary team. We are involved in teaching or re-teaching the children self caring skills - also the family to take over areas of care that the child cannot yet cope with. We also teach by example.

So far I have described five roles which nurses continually fulfil in their daily round of work on this rehabilitation unit at Tadworth.

Co-ordinator

Another role is that of co-ordinator. We co-ordinate the children's care by using a key worker system. Each nurse therapist takes on a child and is instrumental in indicating and updating the child's care plan and directly linking with the child/family and all the rest of the team, trying to co-ordinate all the child's needs during their stay on the unit. Also one nurse therapist runs and co-ordinates each nursing shift.

Advocate

Advocacy is another role considered as part of our role. This is acting directly for the child, e.g. telephoning the doctor if the child has a tooth ache; speaking up for the child if he/she cannot do this for themselves.

Surrogate

Nurses are surrogates. Sometimes it is relevant to act in loco parentis to organise in conjunction with the child's family/carers birthday parties etc. This is especially pertinent to our unit as some of the children come long distances to be with us.

Therapists

Finally, and by no means least importantly, we call ourselves Nurse Therapists. We continue all the children's therapy programmes on a 24 hour basis. These therapy programmes are prescribed by other members of the interdisciplinary team attending meetings as required. The unit has now been open 3 years and over this time certain Nurse Therapists and Rehabilitation Assistants have developed therapeutic skills in their own right. For instance, one is using massage as a form of therapy. Another planning and carrying out outings to enable the children's social needs to be more fully met. Also in a general way as the nurse therapist role continues to develop and build on her knowledge base, her own skills broaden, thus enabling her practice to become more holistic and useful. To illustrate this holistic approach to rehabilitation, a nurse therapist organising a child's period of recreation in the evening - she selects and sets out a board game, thus considering working on improving a child's attention skills - she stands the child in a standing frame, addressing general organ function and imitation of normal posture. By getting the child to move the counters in Snakes and Ladders his/her hand-eye function is being worked on. Thus the nurse therapist may address three of that particular child's rehabilitation aims in one short session. This is one feature of the development of skills and functioning as a nurse therapist in the rehabilitation setting here at Tadworth.

Thus far I have described nine distinct roles which nurses function in. Someone reading this may be able to consider more. The team of nurse therapists and rehabilitation assistants function within the whole interdisciplinary team. We function as individual therapists and as part of a team. Our role is busy and stretching and ever moving on - similar in fact to that of our client group seeking rehabilitation.

Reference Peplau, 1969, What Nurses Do

THE PHYSICAL MANAGEMENT OF HEAD INJURED CHILDREN. IS IT POSSIBLE WITH LIMITED RESOURCES?

Belinda Thistlethwaite M.C.S.P. Senior Physiotherapist, Tadworth Court Head Injury Rehabilitation Unit.

Introduction

This paper is based on the author's experience within the acute paediatric setting of a general hosptial and latterly as a member of the inter-disciplinary team at Tadworth Court Children's Hospital. It is intended to offer guidance to the hard pressed therapist on an acute ward to enable her to make the best use of resources available.

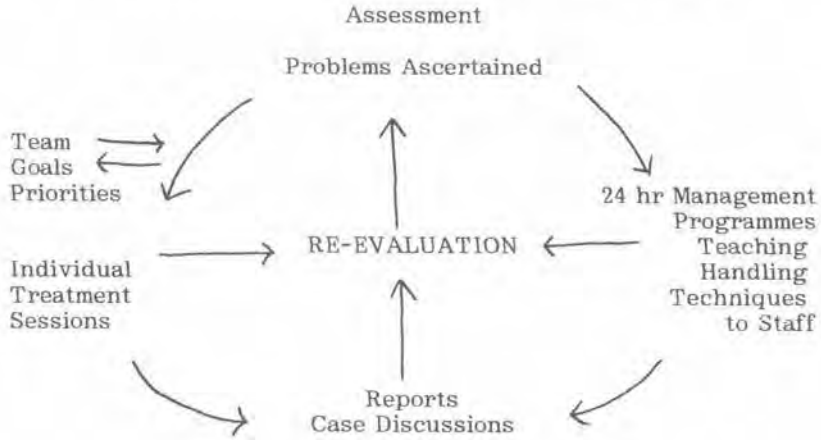
It is important as physiotherapists to remember that every child with a head injury is unique and always provides one with a learning experience. A classic diagnostic "label" may not give a true picture and may even be misleading.

The assessment is the key to an effective holistic treatment and management approach. It is always ongoing and each session will reveal more information about the child. Re-evaluation is therefore a continuous process. The team at Tadworth is able to assess the child throughout the 24 hour period which enables us to gain a more complete picture.

The children on the Rehabilitation Unit are seen by the physiotherapy team rather than having a key physiotherapist. The sharing of observations, treatment skills and knowledge ensures a stimulating environment for both child and therapist and aids communication within the physiotherapy team.

Since children with head injury are frequently known to have associated behavioural problems which are often exhibited and exacerbated by being physically challenged, this approach ensures flexibility for the child and allows the staff support.

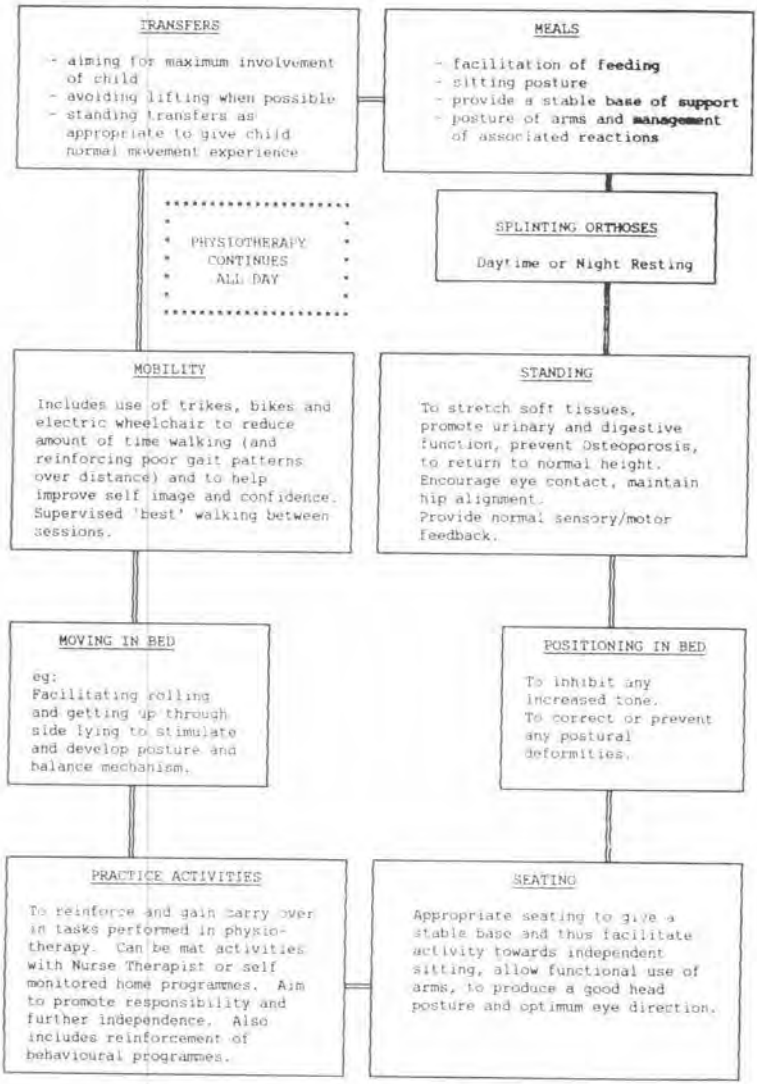
THE PHYSIOTHERAPY MANAGEMENT PROCESS



(- DIAGRAM 1 -)

The physical management of a head injured child on the Rehabilitation Unit is a continuous 24 hour process. The physiotherapist's role is two fold; that of programme planning and of individual treatment work. After the assessment, priorities and goals are worked out within the physiotherapy team and the inter-disciplinary team. A timetable is then set with the appropriate number of treatment sessions for that child. This may include hydrotherapy, riding and gym work as well as individual treatments.

It must be remembered, however, that physiotherapy is a continuous process and not just based upon individual treatments. For example, each child will follow a variety of physical management and postural programmes throughout their day.



(- DIAGRAM 2 -)

Time is spent teaching facilitative handling techniques so that programmes can be carried out by all members of the interdisciplinary team.

Mobilising in the Gym

The children have all known normal movement and, as a result, their physical recovery does not always follow a set pattern; because of this, an eclectic approach to treatment is essential. In order to maintain a holistic approach towards a child's physical recovery a compromise is sometimes necessary when independence and self esteem outweigh the aim for perfection of a high quality of movement. Every avenue of treatment will be explored in order to maximise the child's response and work on reaching his full potential for rehabilitation.

In our experience the disturbance of muscle tone of head injured children is dissimilar to cerebral palsy in that it is easier to reduce during treatment sessions. (Is this beacause they have experienced normal movement and development?)

However if the child has had a period of anoxia due to an arrest as well as the head injury the physical problems associated with muscle tone are enormous. There often appears to be a combination of rigidity as well as spasticity in many cases. These children are very difficult to manage and sometimes prevention of deformity is all that might be gained.

IF YOU HAVE KNOWLEDGE OF SOME OF THESE ACTIVITIES HEAD INJURED CHILDREN WILL BENEFIT FROM YOUR INTERVENTION

SOFT PLAY

COMMUNICATION

CIRCUITS

HORSE RIDING

STANDING FRAMES

WHEELCHAIRS

WALKING AIDS

POSITIONING EQUIPMENT

GAMES

WHAT EVERY REHAB PHYSIOTHERAPIST SHOULD KNOW ABOUT?

ORTHOTICS

HOISTS

BIKES

SPLINTING/PLASTERING

CHAIRS

HYDROTHERAPY

ELECTRIC WHEELCHAIRS

BIOFEEDBACK AND POSTURE MONITORING

VIBRO-ACOUSTIC CHAIR

MULTI SENSORY EQUIPMENT

STATEMENTING

(- DIAGRAM 3 -)

Even with limited resources head injured children on a paediatric ward and in educational settings can progress. The advantage is the children have known normal movement and, therefore, have the pre-requisite knowledge.

Recovery may be rapid, steady, slow or with peaks and plateaus. It is often during physical handling that the first changes are observed.

Think of yourselves as consultants. What you observe during your handling sessions must be passed on to the members of the team whether it be other therapists, parents, nurses, helpers, teachers or play specialists.

AIMS OF PHYSIOTHERAPY TREATMENT

NORMALISE POSTURAL MUSCLE TONE
RESTORE SYMMETRY
FACILITATE NORMAL MOVEMENT
REGAIN LOST RANGE OF MOVEMENT
PREVENT FURTHER DEFORMITIES OCCURRING
RETRAIN BALANCE
CO-ORDINATION
POSTURAL CONTROL
WORK ON ATAXIA AND TREMORS IF PRESENT
WORK ON IMPAIRED SENSORY AWARENESS

THE PAEDIATRIC PHYSIOTHERAPIST'S ROLE IN THE MANAGEMENT OF HEAD INJURY

TODAY'S AGENDA INCLUDES:
CHESTS ON CHILDREN'S WARD; SCBU; OUT PATIENTS; CDC MEETING; SPECIAL SCHOOL VISIT; VISIT TO MAINSTREAM SCHOOL; OPPORTUNITY GROUP; COMMUNITY VISIT

AND

URGENT ASSESSMENT OF A NEW HEAD INJURY ON PAEDIATRIC WARD

IS THIS YOU?

(- DIAGRAM 4-)

Practical Tips

Allow yourself time to work out physical management programmes such as written instructions with diagrams or photographs so that carers know exactly what to do in order to prevent deformity and manage muscle tone more effectively. These should include different positions for use during the day, prone, side lying, standing, sitting.

Periodic wearing of gaiters will aid symmetry of both arms and legs and discourage primitive reflexes. They also help to assist shoulder and pelvic stability, enabling head control to develop.

Tendo Achilles may shorten very rapidly. If you do not have access to splints, wearing supportive boots in bed can help to maintain tendon lengths as can daily standing. Ideally, standing frames should be used, but gaiters may be used as an alternative.

Standing is a more natural position for a once active child and widens the visual field. It is good for encouraging symmetry and normalising tone. Physiologically it will assist renal drainage, respiration, circulation and help maintain bone density. The approximation of joint surfaces stimulates muscular contraction and helps voluntary postural control. If you have a choice of a tilt table or a prone stander see which position reduces tone best.

Head injured children continue to grow at a normal rate so a spinal deformity may develop very rapidly. By providing the child with experiences of a variety of positions during the day, the spine should remain mobile. As the child progresses so too can the scoliosis improve. Good standing and seating postures are essential. If progress is slow and the child remains predominantly low tone a spinal brace could be considered to help maintain alignment in lying and up against gravity. In spite of pre-accident normal growth and development of hip joints, subluxation and in some cases dislocation may occur if asymmetrical posturing is not well monitored.

Seating can be a nightmare! Try whatever you have available. Always structure the child's sitting time. Being upright can help to encourage visual awareness and social interaction, but remember, it is a "physically challenging" position.

The seating needs of head injured children vary and they are always changing.

Sit the child as upright as possible with hips and knees flexed. Sacral sitting and pelvic stiffening can be difficult to overcome later.

Although far from ideal we have used Avon chairs with our own modifications and E & J recliners with some success. This is generally during a transitional period. If you have nothing suitable it may be possible to negotiate with the district wheelchair service for the loan of a chair. Towels rolled up and stuck with tape to maintain shape can be used or, even better, does your local market have a foam stall that cuts pieces to size?

Improvise a side lying board by placing the bed against a wall and using bed sides/cot sides with a pad; the child is held supported by a wide webbing strap and Velcro. The legs are supported by pillows.

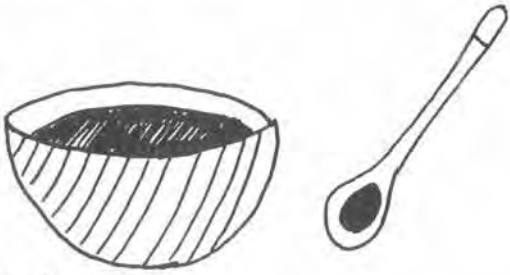
The head injured child will sometimes achieve independence in walking, despite being exceedingly disorganized and unstable. Due to their pre-accident experiences they may often wish to be mobile, when we as physiotherapists consider that further improved quality movements should be achieved first. When should we accept a compromise? It is essential that decisions over a child's moblity should be made in consultation with the inter-disciplinary team and the child's family. Maybe moblity and independence can be compromised by the use of an electric wheelchair or bike or specific timetabled walking sessions.

Be aware that too stimulating an environment might trigger primitive reflexes and spasms. Some head injured children can become hyper-sensitive to touch and auditory stimuli.

Should your team have skills in plastering you might wish to consider serial inhibitory casting of the elbows, wrists or ankles. Casting at the ankles must be followed up with intensive walking and standing programmes. We have had encouraging results with marked improvement in transferring and raised self esteem. Contractures of elbows and wrists have also been reduced.

Managing a child physically over 24 hours is more important than individual treatment sessions. When good management has been achieved changes occurring during physiotherapy treatment sessions can easily be implemented in the child's individual programmes.

THE TADWORTH RECIPE



24 HOUR MANAGEMENT

INTER-DISCIPLINARY TEAM

GOAL SETTING

PRIORITIES

REVIEWING AT WEEKLY MEETINGS

REPORT WRITING

POOLING OF IDEAS

REPETITION

This recipe really does work and organising some form of team is essential, cost effective and makes best use of all available skills. Consistency of handling and repetition is what the children benefit from most.

We are still learning with every new child that comes to us.

BELINDA THISTLETHWAITE MCSP
Senior Physiotherapist
Tadworth Court Head Injury Rehabilitation Unit

SPEECH AND LANGUAGE THERAPY AS PART OF THE REHABILITATION OF CHILDREN WITH ACQUIRED BRAIN INJURY

Dawn Moore Bsc. Senior Speech And Language Therapist Tadworth Court Trust Rehabilitation Unit

Voice Work Using A Computer

The aim of this article is to outline some of the common communication, eating and drinking difficulties which children present with following an acquired brain injury. The emphasis will be on the impact of this type of difficulty on the child's functional abilities in a rehabilitation setting and thus the implications for physiotherapy. There will also be some specific areas highlighted where the author feels great benefit can be gained from joint work between speech and language therapy and physiotherapy in the context of the inter-disciplinary team. There is some reference to the literature in this area but a great deal is drawn from the author's experience working in a paediatric rehabilitation setting.

The aim of speech and language therapy intervention as part of the rehabilitation process takes three main roles:

1. **Functional Communication**

- To discover the optimum communication media to enable the child to benefit from all therapies
- To enhance the child's communication, and relations within the family/care unit and with peers
- To optimise communication strategies for independent living skills, as appropriate
- To optimise communication to allow reintegration into school

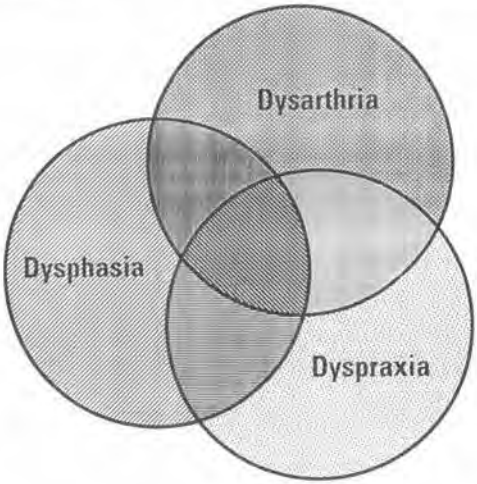
2. **Dysphagia Management**

- To optimise oral and pharyngeal function for safe, efficient oral feeding if possible

3. **Advice and Support**
To relatives/carers on helping and coping with the child's communication/dysphagic difficulties.

COMMON COMMUNICATION DIFFICULTIES FOLLOWING ACQUIRED BRAIN INJURY IN CHILDREN

Possible Communication Difficulties



LANGUAGE

Dysphasia is defined by Darley as "Impairment due to brain damage of the capacity to interpret and formulate language symbols". In children specific difficulties with language skills are referred to as Acquired Childhood Aphasia (ACA). Three major causes are noted in the literature :

a) Trauma to the brain including :
- open and closed head injury
- unilateral cerebrovascular lesion
- cerebral infection
- cerebral abscess, tumour removal
- cerebral anoxia

b) Aphasias of convulsive origin including :
- Landau-Kleffner Syndrome
- other convulsive aphasias

c) other syndromes where there is loss or deterioration of language including:
- late onset autism
- Rett's Syndrome

At Tadworth Court Rehabilitation Unit the author's experience has been with the first category of aetiologies and thus comments will be restricted to this group. Obviously each aetiology within this group will have different effects on language skills. Most comments will relate to those children with aetiologies resulting in diffuse damage, thus producing a number of symptoms necessitating an inter-disciplinary approach to rehabilitation.

What differentiates the outcome of acquired language problems in children and adults?

Two major factors should be considered here :

1. Dependent upon the developmental level of the child at the time of injury, there will be an incomplete linguistic system.
2. The well documented cognitive difficulties resulting from diffuse brain damage will mean a reduced rate of acquisition of new concepts and associated vocabulary.

The child's language performance in comparison to his peer group will gradually fall behind meaning that standard deviation scores on standardised assessments of vocabulary and concepts will become greater with time.

Acquired Childhood Aphasia is associated with different recovery characteristics than those seen in adults. Historically it has been felt that children recover completely from acquired language but recent research suggests that is not true.

The most common persistent feature is an expressive deficit usually a word-finding difficulty making expressive language dysfluent. There is a well documented period of mutism in the early stages of recovery which is not seen in adult aphasias.

Comprehension difficulties were thought not to be a part of ACA. However, recent data suggests this is not true. There are often subtle problems with comprehension of language associated with underlying cognitive deficits. These become very evident in a functional setting, eg during a physiotherapy session, where the child is being asked to integrate language, cognitive and physical skills to follow commands.

Higher level language difficulties may not initially be evident in the more able child; however it may become an issue as the child is re-integrated into a school setting. Here greater linguistic demands are placed on the child as they progress through school. Academic performance may be affected by linguistic deficits not easily detected using formal assessments. In younger children later acquisition of written language may be impaired.

The speech and language therapist should look to their physiotherapy colleagues for advice on the child's physical repertoire to ensure there is no hindrance to the assessment of the child, eg a hemiplegia or a limb dyspraxia will hinder the child's ability to respond successfully to test stimuli, thus giving a false impression of performance levels.

The physiotherapy session provides a good setting to enable the speech and language therapist to observe the child's communication skills (particularly comprehension) in a functional setting. He/she should also be able to advise the physiotherapist how to best help the language impaired child to understand what is being asked of them.

SPEECH

Dysarthria is defined by Darley et al (1975) as "a collective name for a group of related speech disorders that are due to disturbance in muscular control of the speech mechanisms resulting from impairment of any of the basic motor processes involved in the execution of speech as a result of damage to the central or peripheral nervous system".

Childhood dysarthria is similar to that found in adults. Components to consider are :

- Respiration. A joint assessment between physiotherapist and speech and language therapist of respiratory function and its use in speech production can be very useful.
- Phonation (voicing). Often voluntary voicing is first noted in physiotherapy sessions whilst the child is in certain positions.
- Speech musculature, structure, function and tone.
- Co-ordination of movements for speech.
- Sensation of the face and oral cavity.

The physiotherapist should be consulted about ideal positions to reduce tone, inhibit abnormal reflexive movements and thus facilitate improved control of the above components of speech.

In the author's present post particular areas where joint work is useful are on facilitation of impaired respiration and phonation.

The speech and language therapist should be able to advise on inhibiting abnormal oral reflexes which may present during physiotherapy, eg extensor spasm of the jaw (which may result in the jaw locking open); a severe tonic bite reflex or a rooting reflex resulting in head turning.

Dyspraxia is a disorder of motor speech programming, that is, in executing voluntarily the complex sequence of muscle contractions involved in speaking. In the author's experience an oral dyspraxia may often exist at the early stages of recovery and may subside spontaneously. Others may present with a verbal dyspraxia which is persistent. The speech and language therapist should advise the physiotherapist of the differential diagnosis and on what expressive skills should be expected of the child.

How does the child with acquired motor speech problems differ from an adult?

The dysarthria must be considered in the context of an incomplete phonological (sound) system (dependent upon the child's developmental age). Post morbid auditory processing and attentional deficits may further slow phonological development to heighten the speech difficulty.

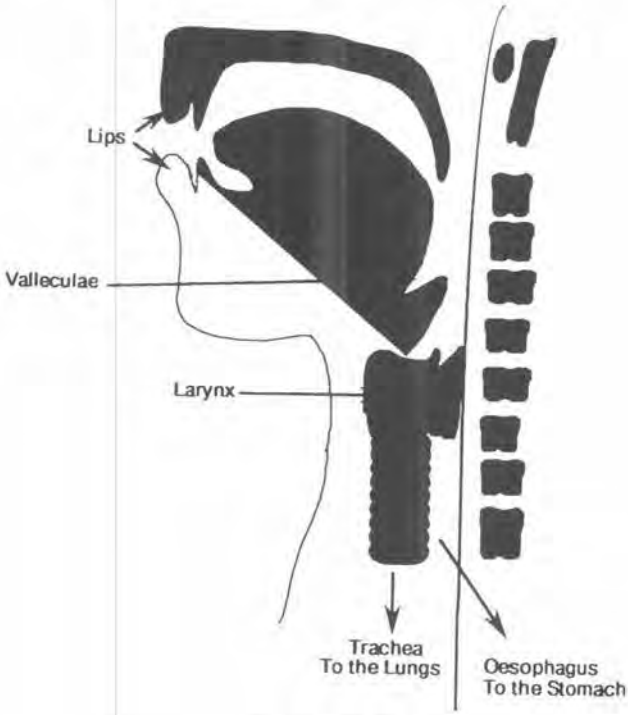
PRAGMATICS OF COMMUNICATION (FUNCTIONAL COMMUNICATION)

The way a child uses what skills are available to them may be affected by diffuse brain damage. The physiotherapist as part of the inter-disciplinary team will be responsible for joint

assessment of the appropriateness of the child's verbal and non-verbal communication skills in all settings.

DYSPHAGIA

Dysphagia is defined as difficulty in controlling a bolus of food/liquid in the mouth or pharynx for the purpose of eating/drinking.



(-DIAGRAM 2-)

The eating/drinking process is best divided into three stages although they are obviously interlinked. Below is a simplified description of these stages.

1. Oral Stage

This includes the **oral preparatory** phase where the food is chewed and formed into a bolus and **oral transit** phase where the bolus is pushed backwards to the posterior of the oral cavity using a peristaltic movement of the tongue against the hard palate. All this phase is under voluntary control.

2. Pharyngeal Stage

The primary action here is the swallow reflex which closes the larynx to prevent aspiration of food/drink into the trachea. The swallow reflex is stimulated in the posterior oral cavity. This results in adduction of the vocal chords, upward and forward movement of the larynx to tuck under the base of the tongue and closure of the epiglottis over the larynx, creating a sealed,

well protected airway. The cricopharyngeus muscle is relaxed to allow passage of food into the oesophagus. This phase is reflexive and therefore not under voluntary control.

3. Oesophageal Stage

The bolus passes down the oesophagus and into the stomach.

The speech and language therapist will be involved with the rehabilitation of the first two stages of this process.

Management of Dysphagia

Firstly the child must have an adequate level of **awareness** to react even reflexively to a bolus within the oral cavity. The **respiratory** status of the child should be investigated and any protective bulbar reflexes, especially the cough reflex, noted for their strength and effectiveness. Close liaison between physiotherapists, speech and language therapists and medical staff is essential here.

One major area where the speech and language therapist should liaise closely with the physiotherapist is in **positioning** the child for safe feeding. The aim of a good feeding position should be twofold, firstly to ensure a safe head position for maximal airway protection during the swallow. This is usually with the head in midline with a mild chin tuck if possible (although positioning can change according to the pathology of the swallow). The neck should never be extended as this automatically opens the airway and reduces or inhibits swallowing.

Secondly to inhibit abnormal reflexes and normalise tone.

Primitive and abnormal oral reflexes may be present following childhood brain injury. Common ones are listed below.

PRIMITIVE REFLEXES

Rooting Reflex

This can be inhibited by progressive and systematic desensitisation of the face and oral cavity with the child placed in an inhibitory position.

Suck-Swallow Reflex

This is a sucking and swallowing movement where the actions are not independent of each other. This will be inhibited as more refined tongue movements are developed.

Gag Reflex

In anyone other than young babies the gag reflex should not be stimulated anterior to the oral tonsils. If so the gag is hypersensitive. It is common for children with acquired neurological damage, especially those who have been fed by non-oral methods, to present with a hypersensitive gag reflex. Here a systematic desensitisation programme which particularly works on pressure on the blade of the tongue is useful. This should be done with care in a play situation so as not to build up fear of negative oral experiences which will lead to emotional and behavioural problems associated with feeding.

MORE ABNORMAL REFLEXES

Tonic Bite Reflex

This is a very disruptive oral reflex and greatly interferes with feeding. It is often associated with a flexor pattern and is usually stimulated by touch to the biting surface of the teeth. Again

desensitisation is useful including touch to the teeth. This should be done with a toothbrush or hard plastic spoon. Often seating the child in a slightly more extended position and using arm gaiters to inhibit arm flexion can greatly improve a bite reflex. The child must be fed with a hard bone or plastic spoon to reduce injury during biting.

Tongue Thrust

This is common in the early stages after head injury. It can be inhibited by assisted jaw closure. This requires much pressure under the chin to bring the teeth together. Therefore it is essential that a correctly positioned head rest is in place to prevent pushing the child's head back into extension and thus compromising the swallow.

Oral Skills

The most basic oral skills necessary for safe feeding are :

- backward tongue movement to initiate a swallow
- lip closure to aid safe swallowing.

The latter can be aided using assisted jaw control. As previously mentioned, adequate head support is essential here.

IN CONCLUSION

The need for an inter-disciplinary team approach to the assessment and management of this client group is essential due to diffuse damage and therefore complex combination of deficits. There are several areas where physiotherapists and speech and language therapists must work jointly to ensure the best possible results from any programmes.

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THE ROLE OF OCCUPATIONAL THERAPY IN THE TREATMENT OF BRAIN INJURED CHILDREN

Eleanor MacLeod Dip COT SROT **Joanna Moore Dip COT SROT**

Extract

"This article explores the role of occupational therapy within an inter-disciplinary team setting when treating acquired brain injured children.

It helps to define the common concept of occupational therapy (OT) and how it complements the 24-hour interdisciplinary team at Tadworth Court Rehabilitation Unit to offer an holistic approach to the child and family.

It expands the occupational therapy process and relates it to OT invention with acquired brain injured children."

Brightening Up The Department A weighted wrist band helps steady tremor

Readers may have many different concepts of occupational therapy. In order to establish that the readers of this article have a common understanding of occupational therapy it is useful to start with a definition.

"Occupational therapy is a health care profession which provides services to people whose ability to function in daily life has been disrupted by physical illness or injury, developmental problems, the ageing process, or mental or emotional illness. **The goal of occupational therapy is to assist each individual in achieving an independent, productive and satisfying life-style. The methods employed are based on function and productive activity."**

An occupational therapist (OT) in the setting of brain injury rehabilitation will meet children who suffer from a vast range of impairments; motor, sensory, cognitive, behavioural and emotional. The occupational therapist aims to look at each area of the child's function, aiming to have a holistic view of the child, and contribute this to the interdisciplinary team approach to provide an appropriate 24-hour treatment programme. Each discipline makes a

detailed assessment of the child and the team decide the key goals to be achieved. These are worked on by all team members integrating other professional's goals alongside their own in treatment to relate a consistent approach to the child and parents. This goal directed approach is essential when working with the complex and diverse multiple problems presented by a brain injured child. It prevents the splitting of the therapy, teaching and nursing services and fosters a truly functional and holistic approach for the child. Therefore such a team works together to devise a joint treatment plan which results in enhancing the child's learning potential. For example, if independent standing transfers were agreed as an achievable goal this would be incorporated into every session the child participates in, whether transferring from bed to wheelchair, going to the toilet at night, transferring to a seat in a school classroom or into their parents' car. The night staff, nurses, teachers, therapists and parents all need to be aware of the correct way to position the child and equipment, to supervise and encourage them most effectively, so achieving the greatest independence. This approach becomes increasingly essential if the child has short term memory deficits or attention difficulties. They may have difficulty completing a task without specific strategies and cues and may need to over learn the task in a number of situations before they can generalise it to less familiar settings.

When working as part of an inter-disciplinary team, understanding and respect of each profession is essential. It is also vital to establish thorough communication between team members with the opportunity for both formal and informal meetings and discussions. At Tadworth Court Rehabilitation Unit there are daily interdisciplinary meetings at the beginning of each day, one weekly planning meeting and numerous impromptu meetings and opportunities to discuss a child's progress. At Tadworth Court Rehabilitation Unit this is the approach the whole team works towards.

In working as an occupational therapist at Tadworth Court there are three major models that are considered. They are the Rehabilitation, Development and Educational Models of treatment. Figure 1 provides a brief description of each and is taken from Rosemary Hagedorn's book, OT: Foundations for Practice, 1992.

Figure 1

In the **rehabilitation model** it is assumed that the patient was previously able, but that function has been lost as result of illness or injury ('Was able - now can't do').

In the **developmental model** it is assumed that the patient is not functional because he has not yet reached the development level which would enable him to become so ('Is not yet able - can't yet do').

In the **educational model** the origin of the problem is viewed as lack of skill, knowledge, appropriate attitude or experience, although the basic ability to become functional is present ('Would be able to - doesn't know how to').

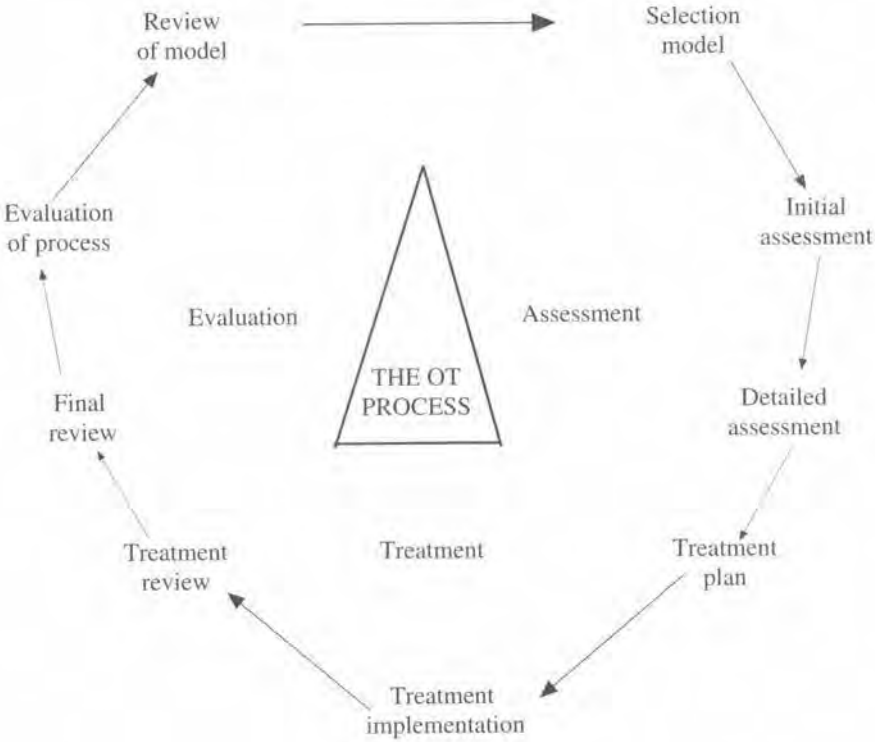
Hagedorn 1992

The process of rehabilitation requires detailed knowledge of the patient's medical, social and environmental circumstances and thorough detailed assessment. Informal observation and standardised assessments and measurement techniques are used. To enable the therapists to embark on treatment, team members need to bring both knowledge and skills together, appropriate to the needs of the child, and work closely to achieve rehabilitation goals. This goal-directed approach is recorded using Problem Orientated Medical Records (P.O.M.R.)

The process by which an occupational therapist works may be termed the OT Process (Reed and Sanderson). It is outlined below.

Figure 2

DIAGRAM TO REPRESENT THE OT PROCESS



Within the Rehabilitation Unit at Tadworth Court it is the occupational therapist's role to promote, enhance and facilitate the development of the child's **performance skills**, i.e. activities of daily living, school, play and leisure, the overall goal being to enable them to reach their maximum level of independence in all areas and, therefore, enhancing their quality of life.

Performance components are the substructure and foundation of an individual's ability to carry out these performance skills. They include sensory, motor, cognitive, social and emotional functioning. The elements of a child's function affect his/her ability to become independent. A child who has suffered a severe brain injury may have deficits in one or all of these performance components.

PERFORMANCE COMPONENTS

1. Sensory

Sensory Stimulation

The occupational therapist would be aiming at increasing the child's level of responsiveness and overall arousal and awareness. Controlled visual, auditory, tactile, olfactory and gustatory stimulation needs to be provided. It is also important to start normalising sensory input through kinaesthetic and labyrinthine systems, ie sitting so that the child can visually perceive their environment appropriately.

For a child totally dependent for all self care activities, it is part of the occupational therapist's role to work on skills that are considered preliminary to function, eg visual skills (fixing and tracking) which may be in preparation for eye pointing as a form of communication.

Multi-Sensory Room Equipment Being Used To Promote Head Control And Visual Skills

2. Motor

Positioning for Function

The occupational therapist works in conjunction with the physiotherapist to establish appropriate positioning to enable the child to play, develop, interact and function within his/her environment.

In certain situations, especially in the early stages of rehabilitation, it is necessary to provide maximum support, which enables a child to focus on other skills which require him/her to be in an optimum position, i.e. visual skills, eating, drinking.

The occupational therapist works to achieve any voluntary movement in order to enable the child to have influence over their environment for instance, to gain access to some form of communication or computer system through the use of switches. An important aim is to provide an improved quality of life for the child.

Upper Limb and Hand Function

A child's ablity to interact with its environment, play, learn, create and sometimes communicate, relies on hand function. The occupational therapist assesses, treats and may provide compensatory devices to assist function if appropriate, for example assessment and treatment of the child's abilities to use a wide range of classroom equipment in preparation for return to a school environment, e.g. keyboard skills, pencil control, use of hole punch, scissors, calculators etc.

Learning To Control A Pen With An Acquired Tremor In An Occupational Therapy Treatment Session

Splints

Together with physiotherapists, occupational therapists are responsible for making splints to maintain maximum range of movement, prevent deformity and provide a functional position for the hand.

Functional Mobility

The occupational therapist is interested in a child's mobility, particularly in functional situations, for example, mobility in bed, all transfers whether their level is standing or hoisting transfers, and mobility while out in the community.

There are many more processing demands on a child in a community situation; there are more distractions which require his or her attention, a new environment (both visual and auditory), moving people, obstacles and steps, and added to this their confidence is often fragile in their new found mobility status.

3. Cognition

Cognition comprises all the mental processes that allow us to recognise, to learn, to remember and to attend to changing information in the environment. It also refers to planning, problem solving, monitoring and judgement which may be called higher cognitive functions (Grieve 1993).

As the occupational therapist is a specialist of function and all performance skills have a cognitive component. The occupational therapist needs to assess this area of the child's abilities and works closely with the cognitive remediation therapist and clinical psychologist during assessment and remediation of these problems. Following a severe brain injury it is often the cognitive deficits the child is left with that result in being more disabling to function than the physical deficit.

Perception is "The reception by the brain of information from the senses, the integration of these sensations and the organisations of them in association with past experience to make a meaningful and functional whole" (Adams 1990). Perceptual deficits may be complex or subtle and may at first be "hidden" to the untrained observer. A severe perceptual deficit may have devastating effects on function, for example a child with a depth and distance perceptual problem may have a fear of walking or going up or down the stairs even though they have the physical skill to do so. More commonly, children have deficits in this area that impede their ability to write and draw.

Social

A child who has a severe brain injury as stated previously often has a wide range of difficulties. These difficulties may impact on their abilities to form friendships and meaningful relationships which are essential to the child's well being and quality of life. The child may lack adequate social skills and their behaviour may appear unusual or even rude to other children or adults.

As part of an inter-disciplinary team it is important that a consistent approach to the child is presented, involving specific social skills training positive reinforcement of appropriate and socially acceptable behaviour in the Rehabilitation Unit, child's home and community.

Emotional

As part of the inter-disciplinary team approach it is important that the child is encouraged to gain insight into his/her assets and difficulties in order that the child understands the need for rehabilitation. After brain injury the amount of emotional turmoil and readjustment is immense. Therefore, as part of the team, the occupational therapist works to improve and boost the child's self esteem and confidence in his/her abilities.

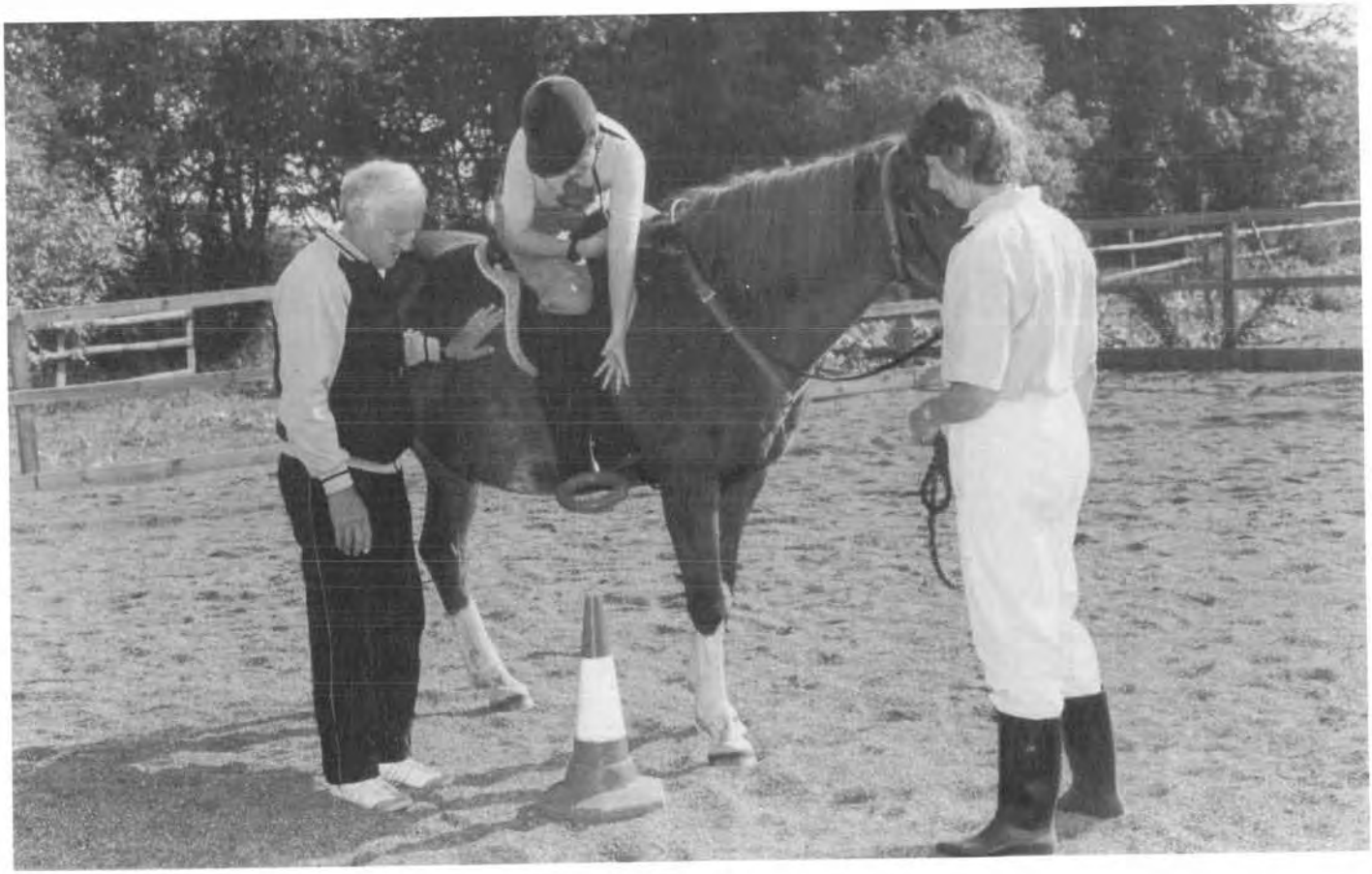
PERFORMANCE SKILLS

Activities of Daily Living

Activity of daily living (ADL) can be described as self care and domestic activities performed by an individual in daily life in all situations, e.g. home, community.

Self Care Activities May Include:

Personal ADL		Domestic ADL
Hygiene		Drink and snack preparation
Dressing		Safety
Feeding		Shopping
Toileting		Money management
Bathing	(As appropriate to age)	



Horseriding is fun - but hard work

Physiotherapy is having fun in soft play

Using hand skills in a Drama Group

Signing the Graffiti Board

CLINICAL PSYCHOLOGY

Annette Schwartz, Chartered Clinical Psychologist

This article will briefly outline the various services which psychology has to offer the inter-disciplinary team and their relevance to issues of cognition, emotion and behaviour. It will show how these skills can be applied through the use of case histories and will discuss the ways in which psychology can be particularly relevant to physiotherapy.

AREAS OF SKILL WHICH CLINICAL PSYCHOLOGY HAS TO OFFER A REHABILITATION TEAM

COGNITION

Cognitive Assessment

A cognitive assessment is vital following a head injury, brain tumour or other form of neurological onslaught. It can be a lengthy procedure, particularly with children who have more widespread difficulties and, therefore, slower speed of processing and who tire easily. Assessment of cognition is largely done formally through a variety of psychometric tests. Many of these tests will have been standardised on large samples of children drawn from the general population. Some will also have been standardised on children with acquired neuropsychological difficulties. It might be necessary to devise additional tests if standardized tests are not available and to observe the child in everyday situations such as the classroom or in a physiotherapy session.

Cognitive assessment profiles the child's strengths and weaknesses and so many areas of cognition will be assessed. These may include the child's academic attainments such as reading and spelling, their expressive and receptive language functioning, their memory, perception, spatial and constructional skills, speed of processing, executive functioning etc. Here at Tadworth, assessment is inter-disciplinary with, for example, speech and language therapy assessing language abilities and occupational therapy also assessing perceptual skills.

The importance of using standardised assessments where possible should not be underestimated. If a child fails an item one needs to know whether this failure is because of difficulties **this** child might have or whether **no** child of that age could be expected to complete that particular task. However, test results must be interpreted in the light of each child's pre-morbid abilities. As most children are not conveniently assessed just before their illness or injury, it is often necessary to undertake extensive detective work. Detailed developmental histories will be taken from parents and gleaned from medical records, schools must be contacted as well as other previous agencies who might have been involved. It is important to interpret the results in the light of any medical knowledge about the child's condition, eg which areas of the brain have been most affected.

Cognitive Remediation Programmes

Once a profile of cognitive strengths and weaknesses has been drawn up this can be used to help plan a remediation programme in conjunction with the inter-disciplinary team. If a rehabilitation team is not available then a psychologist might be very much involved in devising and administering a cognitive programme. The child's progress can be monitored using reassessments. Formal assessment can also be used to monitor the effectiveness of drug treatments or to screen for a concerning lack of progress or deterioration. The formal

assessment is often used once a child has left a rehabilitation setting to help establish the child's needs when they return to school.

It has been popularly assumed for some time that children make a more complete recovery from head injuries than adults. Recently this view has been challenged (Goodman, 1989). Whatever the nature of the specific learning difficulties a child might acquire post brain damage, these difficulties are likely to interfere with a child's ability to learn. Childhood and adolescence is a time of learning, both in terms of school and skills for every day life. The child may fail to learn at the same **rate** as their peers and so their abilities will become increasingly disparate from what might have been projected for them pre-injury. As pre-morbid learning may be relatively intact, cognitive difficulties may only become apparent after some time.

EMOTION

The Child and Emotion

Children who have learning difficulties are more at risk of developing emotional and behavioural problems (Rutter, Graham and Yule, 1970). Even apparently minor injuries or illnesses can lead to problems (which may be transient). This change in ability is often obvious to the child, particularly on return to school leading to a loss of self esteem. It is therefore important for carers to be aware of the child's abilities and ensure some experience of success by setting tasks at an appropriate level. Too many early experiences of failure may make the child reluctant to attempt tasks even when they are capable of completing them successfully.

In addition to loss of cognitive skills the child might be acutely aware of a lack of physical ability. This might be particularly important to children who placed great emphasis on sporting ability prior to their injury and if they are no longer good enough to be part of the school team they may lose the friends that went with that hobby. These difficulties may be exacerbated by what may have been a prolonged period of absence from school. It can be difficult for children to return to their class, particularly if they have visible difficulties such as hemiplegias or operation scars. Indeed, loss of friends and thus valuable social support can be a common difficulty following brain injury (Kleinpeter, 1979).

Children who have had neurological events may have undergone a traumatic experience. For example they may have been in a car crash or have had some awareness of a cerebro-vascular accident. Post Traumatic Stress Disorder (PTSD) may follow.

The Family and Emotion

The child's family may have been involved in the same event and may have been similarly traumatised. Many families experience great anxiety whilst awaiting the outcome of their child's illness or injury and may have been prepared for the child not surviving. They may feel enormous relief when they realise that the child will survive but then have to cope with an incomplete recovery.

Having a child in hospital for an extended period of time followed by an extended period in rehabilitation may place enormous financial pressure on the family, particularly if one parent is forced to give up work. Many parents have said to me that they felt torn if they have more than one child because they want to be in hospital with the child who has been injured or is ill but realise that each minute they spend there they are not with the children at home.

This can have enormous impact on brothers and sisters who may feel abandoned by their parents at a time when they feel confused and concerned about their sibling in hospital. When the sibling does return home their physical, emotional and behavioural needs may mean that

parents have to spend more time with them so that brothers and sisters still feel neglected. In addition they may feel very guilty that they survived the accident or it was not them who was ill or for the feelings of resentment they might have.

The points raised above illustrate some of the difficulties that face families following brain damage to a child. The need for psychological support for all the family is self-evident.

Behaviour

One study found no **specific** behavioural or emotional problems following head injuries although generally difficulties were more common (Brown, Chadwick, Shaffer, Rutter and Traub, 1981). Elsewhere, such problems as disinhibited behaviour, emotional lability leading to temper outbursts and repetitive obsessive behaviour have been reported as being specifically more likely following brain injury (eg. Wood, 1987). The neuro-psychologist needs to consider these behaviours in the context of the child's pre-morbid state, their cognitive profile post-injury and the emotional impact on the child and family. Within this context it might be decided to address the behavioural difficulties directly and develop a programme. It is important in all behavioural programmes for a consistent approach to be used on each occasion that the behaviours arise. Therefore, the psychologist might not be directly involved in implementing the programme but will probably be working with the people who spend most time with the child, be that other therapists, schools or the family. The inter-disciplinary team at Tadworth implements behaviour programmes, providing 24 hour a day consistency.

Liaison

It will probably be clear from the above account of a psychologist's work that liaison with all professionals is very important. Both within the inter-disciplinary team and with the community services when the child returns home.

RELEVANCE OF PSYCHOLOGY TO PHYSIOTHERAPY

The relevance of psychology to the physiotherapist might be most obvious with regard to a child's behaviour. Physiotherapy is one of the professions with most physical contact with children and as such the therapy can be very intimate. Some children might find this difficult, particularly after a period in hospital when they were very physically dependent and now wish to become more independent. Encouraging use of limbs again can cause aches. Some children find that they can walk in some fashion without the aid of physiotherapy and may see the physiotherapists's programmes as preventing them from getting better by the limits which might be set. These can all be reasons for reduced compliance in physiotherapy. In addition, physiotherapists are by necessity in very close physical proximity to a child when they are becoming frustrated and so may be particularly vulnerable to behaviour difficulties.

It is important that each child should be assessed individually to determine the best approach to managing the child's behaviour. The analysis must take account of the multiple factors as outlined previously.

Case History - 1

This case history shows how the child's cognitive profile might be taken into account during physiotherapy. Liaison between physiotherapists and psychologists can help determine the most effective way of helping children re-learn skills.

Jill was a thirteen year old girl who had suffered an extensive CVA. Her behaviour in

physiotherapy was difficult. Analysis showed that the behaviour was most pronounced when Jill was learning such skills as transferring. Initially it was assumed that she had a poor memory but close consideration of her cognitive assessment showed that Jill had particular difficulty in sequencing. It was proposed that her difficulty in learning transfers was primary because of her difficulty in sequencing the necessary steps. This was not helped by her rather poor memory. The emphasis in helping Jill to overcome her difficulties was to address the sequencing skills whilst providing some aids to her memory.

A less obvious area of collaboration between psychology and physiotherapy might be with regard to the emotional state of the child and the family. However, physiotherapists often come to know the child and family well, particularly during the early days when the child may be seen at least daily on the intensive care unit. It may be useful to discuss a family who are apparently being "difficult" with the psychologist to see if their behaviour can be better understood. An alternative approach might be fruitful.

Case History - 2

This case history helps show how physiotherapists can help the emotional state of children with neurological difficulties. **Karen** was twelve years old when she first presented at the hospital with hydrocephalus and increasing lapse into coma. Successive shunting was of only some benefit and over the next few months Karen would at times lapse into coma for several weeks. At the end of her second period of coma Karen wrote about her experience, although she was very reticent to allow staff to see it. Karen wrote of her feelings about having been in coma, of disliking the feeds because she was scared they might damage her as they felt cold and of feeling somewhat apprehensive of her regular physiotherapy. She had found it helpful when people had told her what they were doing and explained why on every occasion. Although she still might not like it, she felt that she had a better understanding of what was happening. In addition, she found it very frustrating when people had asked her questions such as "How are you today?" when she was unable to respond. She also greatly disliked people talking about her as though she was not there.

Needless to say on the next occasion that Karen lapsed into coma all staff made the greatest efforts to follow her guidelines. When she again became fully conscious, Karen reported no recall of any awareness during her latest episode of coma!

Whilst this tale might be somewhat apocryphal I think this story does illustrate how physiotherapists are often involved at the "sharp end" of treatment and can have a very positive impact on the emotional state a child (and their families) even in situations where this might not be obvious.

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TREATING CHILDREN WITH COGNITIVE IMPAIRMENTS FOLLOWING ACQUIRED BRAIN INJURY: THE ROLE OF PHYSIOTHERAPY

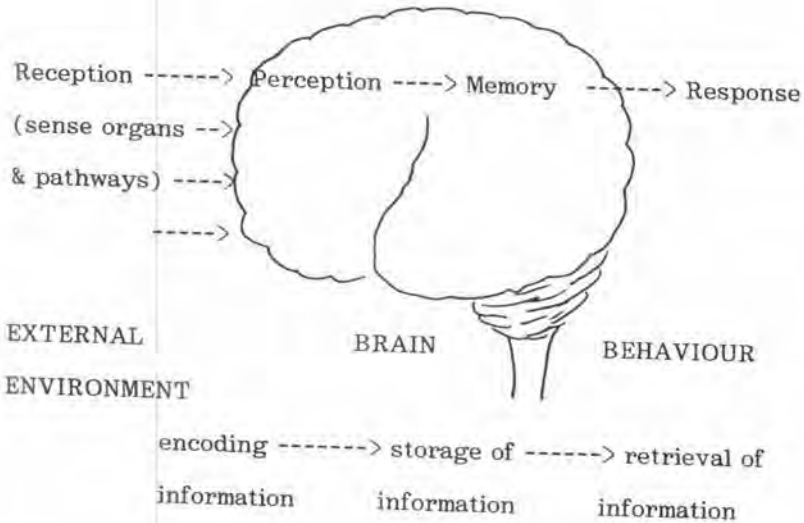
Sarah Dewing, MA, Cognitive Remediation Therapist

Despite the wealth of clinical and research evidence of the importance of cognitive deficits in the short and long term recovery of those with acquired brain injury, there is still a lot of confusion about the exact nature of these deficits and indeed the nature of cognition itself. You cannot see, hear or feel cognitive problems directly as you can see poor gait patterns, hear dysarthric speech or feel muscles with abnormally high or low tone. Therefore cognitive problems are harder to conceptualise, identify and treat. It is also often the case that a problem with processing information may be demonstrated in many different ways and may be due to a combination of cognitive and other deficits working together. It can be challenging to tease out the exact nature of the problem and treat it effectively.

Cognition and Cognitive Deficits

The term "cognition" refers to the mental processes and systems involved in acquiring knowledge, ie thinking and learning about the world around you. It has been defined as "a general term covering all the various modes of knowing: perceiving, remembering, imagining, conceiving, judging and reasoning". The most useful model to use when thinking about cognition is the information processing model, which is a three stage model (see figure 1). This involves the input of sensory information from the environment, via the sense organs and nervous system and the encoding of that information in a form which the brain recognises. The next stage is the storage of the information in memory from which information is retrieved during the final stage, output, where a physical response, either verbal or motor (gross or fine) is made.

Figure 1
INFORMATION PROCESSING MODEL



In effect, cognition is about the functions of:

1. Knowing about the world around you
2. Learning about it
3. Using this knowledge to reason with
4. Finally, acting upon this information

After brain injury, many of the processes and systems involved in thinking and learning can be impaired. These are listed in figure 2.

Figure 2

THREE ASPECTS OF COGNITION

1 COMPONENT PROCESSES

attending
perceiving
learning
remembering
organising
reasoning
problem-solving

2 COMPONENT SYSTEMS

working memory
permanent storage
response system
executive system (i.e. responsible for awareness, monitoring and managing the responses of behaviour or individual)

3 FUNCTIONAL-INTEGRATIVE PERFORMANCE

i.e. interaction of processes and systems with the environment to produce functional behaviour

Daily Living Skills Group With The Cognitive Remediation Therapist

The resulting cognitive problems can be grouped under the headings of the three main sub-skills which underlie them. These are **attention and concentration, memory** and **organisation and planning.**

Attention and Concentration

It is very common to find children who are unable to concentrate for more than a few seconds, or who are easily distracted after a brain injury. They may have difficulty shifting their attention from one activity to another, or else be unable to alternate or divide their attention between more than one thing. The ability to focus and maintain attention is a vital skill which is fundamental to learning. When it is impaired, many other cognitive skills may be affected. For example, if you are unable to attend to something you are less likely to remember it accurately. Attentional problems can easily be overlooked or minimised. Often children will appear to be attending when in fact they are not. Likewise, sometimes what appear to be memory problems are in fact due to poor attention. This leads to poor registration of information, which when later recalled is inevitably incomplete.

Frequently, the speed at which a child can process information about the environment is compromised after injury. This can make it difficult to attend properly to incoming information as the brain is unable to keep up. In addition, motor slowness is often added to the mental slowness which makes responding even slower.

Memory

There are many different types of memory, depending on the type of senses involved in their perception (visual, auditory, tactile etc), the type of information being processed (eg past events, future events, names, faces, procedures, sequences etc etc), the length of time the information has been in storage (short term, long term) and the method of retrieval (recall, recognition). It is quite common to find that specific types of memory are affected by brain injury, while others are left intact in any one individual. Most commonly, long-term memory for basic general knowledge and autobiographical information are relatively unaffected. There is usually a period of time shortly before and for some time after the brain injury that cannot be recalled. However, the most problematic kind of memory loss involves the types of memory used in learning, remembering and retrieving new or recent information and remembering future events (prospective memory). Knowing or awareness that you remember certain information (metamemory) can also be affected. Memory can be impaired by damage to any part of the brain which is involved in the processing of information (see Figure 1) i.e. at the encoding, storage or retrieval stages. This accounts for the prevalence of memory problems in children with brain injury.

Organisation and Planning

Frequently a child's ability to organise him or herself and the environment is affected after a brain injury, especially when the frontal lobes are involved. A useful analogy is to think of the injured brain as a filing cabinet which has been knocked over and many of its contents scattered. The papers are pieces of information and the files are the brain's organisational system. Before injury, the papers were sorted, ordered and categorised into the appropriately organised filing system. New information was easy to store in the correct file and easy to retrieve by using the organisational system. After injury, information that fell out may have been re-filed incorrectly, the files themselves may have been put back in the wrong order and consequently the organisational system would no longer be as efficient. It would be more difficult to add new information as the correct file would be harder to find and retrieving

information would also be more difficult. Skills such as sequencing and categorising which are necessary to make sense of the myriad of information coming to us through our senses can be impaired, leading to problems with anything which requires carrying out steps of an activity in a specific order, such as dressing, eating, problem-solving, motor planning activities etc.

"Executive skills" are another important area of cognitive functioning which can be affected by frontal lobe injury. The frontal lobe is where higher level thought processes occur and "executive" skills include those of managing and monitoring ones own behaviour. Therefore, poor self-awareness, decreased initiation, impulsive and/or disinhibited behaviour are some of the behavioural effects of damage to this area. These problems can be very significant in treatment and long-term recovery, and can be the most difficult to address.

Identification of Cognitive Deficits

The incidence of cognitive deficits following an acquired brain injury has been well documented for both children and adults. Obviously, the severity, type and location of injury determines what kinds of cognitive problems result and how severe they are. However, even mild head injuries have been found to lead to perhaps subtle but nevertheless quite disabling cognitive problems. Unfortunately, these often go unrecognised and untreated as the child appears to have made a good physical recovery.

Given the pervasive nature of cognitive deficits with respect to all aspects of human functioning, the importance of recognising its priority in rehabilitation is self-evident. Without it, children may be helped to regain physical, functional and language skills through rehabilitation, but an important piece of the puzzle is left missing if cognitive problems are not identified and addressed systematically. It is all very well being able to walk independently with a normal gait pattern from point A to point B, but if you can't remember where A was, what happened there or why you were there in the first place, that person is not functioning adequately and his or her quality of life is significantly reduced.

Failure to identify and adequately treat cognitive deficits can lead to a whole host of secondary problems, such as emotional and behavioural difficulties, low self-esteem and poor motivation. These in turn can create tremendous stress within the family, social isolation, poor school performance and decreased overall functional recovery. There is much evidence highlighting the cognitive, emotional and behavioural sequelae of acquired brain injury as being more significant than physical sequelae in terms of long-term recovery and quality of life.

Unfortunately rehabilitation is only available to most children with brain injuries on a relatively short-term basis. Once they are discharged it is rare that rehabilitation professionals are in a position to monitor the progress of children, as they are handed over to services within the community and so problems that affect long-term recovery are rarely seen first-hand. Consequently, focus tends to be on short term, more obvious difficulties. However, a comprehensive rehabilitation programme should address the whole spectrum of cognitive deficits, from the most severe to the more subtle, and the relationship between cognitive deficits and the possible development of secondary behaviour problems should also be recognised and addressed.

Increasing Awareness

It is the responsibility of the entire inter-disciplinary rehabilitation team to increase the general level of awareness of the long-term effects of all cognitive problems. Increased recognition by all rehabilitation professionals, the children themselves, families, carers,

friends, schools and, last but not least, funding authorities of the treatment needs of those with cognitive problems is vital.

There could be many benefits to such an increase in awareness. Firstly, more children who would not have previously been acknowledged to be in need of treatment could receive the help they need to remediate or cope with cognitive problems they experience, whether or not they also have any physical deficits. Secondly, funding authorities may be more willing to pay for rehabilitation of those children with minimal or no physical sequelae who have cognitive difficulties resulting from their injuries, and lastly treatment sessions could be even more successful, as methods used by all disciplines could take account of any difficulties a child may have in processing information, such as shortened attention span, difficulty following complex directions or remembering information. This could make sessions more rewarding for both therapist and child by maximising achievement and helping to boost self-confidence, co-operation and motivation.

The Role of Physiotherapy

It is significant that very few rehabilitation programmes have specific, systematic and structured cognitive remediation programmes for children with brain injury in the UK. If cognitive deficits are addressed, responsibility is usually shared by a variety of disciplines including psychology, speech and occupational therapy. Physiotherapy has tended to be the discipline least involved with the children's cognitive problems, undoubtedly due to its focus on the physical rather than mental aspects of rehabilitation. However, cognitive and physical skills are closely inter-related. Proprioceptive deficits are relatively common after brain injury, as are other perceptual difficulties such as poor depth perception and spatial awareness. Motor planning and sequencing difficulties are also common. Poor attention and concentration, slowed cognitive processing and reduced comprehension can make it difficult for children to follow instructions during physiotherapy sessions. Behavioural problems caused by cognitive deficits such as verbal or physical aggression, disinhibition, lack of initiation, poor self-awareness and hyperactivity can lead to unco-operative or even disruptive behaviour in physiotherapy sessions. Therefore cognitive deficits are very relevant to physiotherapy treatment.

Physiotherapists are well placed to be able to identify children who are in need of assessment for possible cognitive deficits and make appropriate referrals, as they are usually one of the first therapeutic disciplines to assess and treat them. However, this is only possible if they have the necessary knowledge about the effects of acquired brain injury on cognition. The best way of gaining such knowledge and experience is through working with other disciplines more closely involved with cognition within a truly inter-disciplinary team where knowledge is shared, roles overlap and treatment is based on an holistic approach to a child's difficulties.

The Need for Specialist Cognitive Remediation

Having argued for a greater understanding of the possible cognitive deficits resulting from acquired brain injury by all the members of an inter-disciplinary rehabilitation team, it is vital that at least one of the team is a specialist in cognitive remediation. He or she would be responsible for liaising with the clinical neuropsychologist who carries out the neuropsychological assessment, complementing this with further assessment as necessary, developing a treatment plan and structuring, co-ordinating and monitoring cognitive remediation treatment carried out by the team and progress made by the children. It is rare that this is the

case. Usually the person or people responsible for the treatment of cognitive problems are also responsible for providing psychological, speech or occupational therapy services. In this situation it is easy, when services are stretched, for other areas of treatment to take priority. Also, when more than one discipline is responsible for the area, lack of focus, direction and structure can result. **For cognitive remediation to be effective it should be intensive, systematic and highly structured**. It is hard to achieve this without one team member having responsibility solely for this area.

Although few rehabilitation programmes in the UK have such a specialist on their team, in the USA cognitive remediation is a recognised and important aspect of most rehabilitation programmes for people with acquired brain injury. Hopefully they will become more commonplace in this country too in the future as the need is recognised.

The Principles of Cognitive Remediation

There is not enough room here to describe in detail what cognitive remediation entails but in order for it to be effective there are several principles which should be followed :

1. Treatment should be carried out within an inter-disciplinary team approach.
2. It should be appropriate for stage of recovery, developmental and chronological age.
3. It should be systematic and structured.
4. It should be intensive.
5. It should be motivating and improve self-esteem by involving the child as much as possible in decision-making and aiming for "errorless learning".
6. It should provide frequent feedback to facilitate learning of new information, relearning old information and an increased awareness of altered strengths and weaknesses.
7. It should use areas of strength to compensate for weakness.
8. It should be as functional as possible.

These are in fact very similar to the principles of other disciplines working with this population.

Treatment Methods

Children with a high priority for cognitive remediation are those who have recovered sufficiently to the point where they are aware of their environment and are able to respond to it in a consistent way. They also need to have a basic and consistent level of communication. Rancho los Amigos level 5 and above can be used as a general guideline.

There are four basic treatment strategies used in cognitive remediation:

1. Direct Retraining of Specific Skills

This is usually carried out in the middle stages of recovery. It aims to isolate specific cognitive skills and help the child to learn or relearn them. This type of training is highly structured and systematic, using the gradual building up of skills and much repetition. Examples could be computerised attention training, paper and pencil perceptual and reasoning tasks.

2. Retraining Functional Skills

This mostly occurs in the late stages of recovery. Treatment is aimed at learning or relearning functional behaviour, rather than specific cognitive skills. The integration and generalisation of a variety of different skills is necessary for this type of learning and it is often carried out in groups and/or realistic settings. Examples could be how to be more assertive in a school setting, how to make a drink or play a board game co-operatively.

3. Environmental Compensation

This can be done at any stage of recovery and involves changing the child's physical and/or social environment to reduce the demands placed upon his or her cognitive skills. This enables a greater level of independence. Examples could be set routines which provide structure; clocks, calendars, notice boards and signs which aid orientation and memory skills.

4. Personal Compensation

Appropriate during late stages of recovery. It involves developing strategies to capitalise on strengths and compensate for weaknesses which are not amenable to direct retraining, e.g. through the use of personal organiser for memory/organisational problems.

CONCLUSION

It is clear that the identification and treatment of cognitive deficits needs to be given higher priority with the rehabilitation of children with acquired brain injury in order to minimise the complex long-term problems which can hamper recovery and affect quality of life.

The physiotherapist has an important role to play in this regard. If she is part of an inter-disciplinary team which includes a cognitive rehabilitation specialist she can carry over specific strategy training developed by this colleague such as memory books, within his or her physiotherapy sessions. She or he can use specific techniques, such as repetition, allowing for slowed information processing and reduced comprehension, giving immediate feedback on performance and using a multi-sensory approach to aid success and learning. She or he can help to integrate cognitive and motor skills through careful planning of sessions and liaison with the cognitive rehabilitation therapist.

If she works in a more multi-disciplinary programme where there is no access to a cognitive rehabilitation specialist, then working closely with those disciplines which do address cognitive issues would be beneficial. In this situation, the physiotherapist who is aware of the impact of brain injury on cognitive skills may be able to refer children with suspected cognitive problems to a clinical or neuropsychologist for assessment.

It is vital that all those working for the rehabilitation of those with acquired brain injury become more aware of the need to address cognitive deficits more intensively and systematically, ideally within an inter-disciplinary team.

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EDUCATION OF THE HEAD INJURED CHILD

Patricia Eaglen, Special Needs Teacher. Surrey Hospital Teaching Service

The responsibility for making effective arrangements for the education of sick children lies with the local education authorities. The Education Act 1993 imposes a new duty on Local Education Authorities to provide education otherwise than in schools where this is necessary to meet a child's needs. In the case of Tadworth Court Trust the local education authority is under the jurisdiction of the Surrey County Council. The teachers on the Rehabilitation Unit are part of the hospital teaching service which provides "Education Otherwise" for pupils out of school who have suffered severe head injury.

As with all hospital schools and teaching services, provision of the National Curriculum is not obligatory and the pupils are exempted from following it.

Provision for Education on the Rehabilitation Unit

At present, there is the equivalent of two full-time teachers on the Unit.

No child has full-time education on the Rehabilitation Unit because we work with an inter-disciplinary team approach, which means the timetable takes into account the needs and priorities of the children and covers all their therapies.

Timetabled sessions are of 45 minutes duration. Allowing for any priority programmes, which may overlap, and also for inter-departmental travelling, this results in approximately 30 minutes of actual working time.

After assessment of the children, based on the team goal-setting for them, we devise individual programmes designed to meet the specific needs of each child.

Standing Up For A Good Read

In school sessions we work on a basis of :-

i) One-to-one which is beneficial for intensive individual work.
ii) Paired sessions particularly where two pupils complement each other.
iii) Groups, which are beneficial for social skills, interaction with others, turn-taking and appreciation of others disabilities and problems.

Teaching Methods

In general, head-injured pupils will regain some old learning but will have difficulty with new learning because of cognitive problems.

Education in the rehabilitation setting is not as it is in mainstream teaching. New learning creates a problem because of the necessity for retention of facts and information in assimilating new knowledge. Most head-injured children have to cope with severe memory deficits. They can lose the ability to focus and maintain attention and be diverted by external and internal distractions. These skills are necessary for effective learning. The traditional methods of teaching are inappropriate in their situation. Different approaches and procedures have to be combined in an attempt to facilitate as much recovery as possible, using previous interests and strengths as a means of stimulation. It is a growing process, building on their own recalled knowledge.

We attempt to liaise and maintain contact with their previous schools, providing a beneficial link both for the pupil and for us as teachers. Pre-injury information about the child, examples of school work and any cognitive or behavioural problems can be vital in dealing with the post-injury pupil. For the child, the support given by the staff and children of their previous school can be of great benefit.

Teaching approach has to be simple and straightforward, taking one step at a time, since complex instructions only create confusion. If children find difficulty with storing information and have problems with recording their work, where more than one procedure is involved for the task in hand, they cannot follow it through. They are only able to deal with one process at a time without cueing, refocusing or help from the teacher.

The ideal of rehabilitation is for the children to regain as much of their ability and to do as much for themselves as is possible at any stage of their recovery. Stimulation, encouraging motivation, keeping occupied and "stretching" of ability has to be monitored carefully to avoid tiredness and therefore further confusion.

A challenging task, or an activity in which the child doubts his ability to achieve, and is, in effect, setting him up to fail can produce a behavioural change, leading to non-co-operation and even aggression.

Pupils require patient, time-regulated teaching in order to address the specific needs of their fatigue, bewilderment and confusion.

It is essential that at all times they are given reassurance, encouragement and praise.

Surrey Advisory Services

Disturbed visual function can be one of the possible consequences of head injury. These difficulties may not be so much a result of damage to the eyes as to parts of the brain that are responsible for those visual functions.

Surrey Education Authority has Advisory Services in many areas of Special Needs. At Tadworth we regularly call on the services of the Advisory Teacher for the Visually-Impaired. She will visit and assess, on request, advising on suitable positioning, lighting, resources and print size for the children and do regular follow-ups.

Disturbance of hearing can be another consequence of head injury that is not always immediately apparent. The Educational Audiologist will assess and report on any problems concerning hearing-impairment, suggesting ideas for working towards improving listening skills, with level of voice and accompanying gestures.

After Rehabilitation, Statementing and Future Placement

Part of the rehabilitation process to maximise recovery is to work towards re-entry into an educational establishment which may be residential or day school.

Before this process can be initiated, it is necessary for the children to be Statemented so that future provision can be made to meet their educational needs.

This is a procedure carried out by the LEA which has a legal responsibility to identify any child who has a special educational need and who will, subsequently, need special provision. In order to fulfil that responsibility the LEA is required to carry out a formal assessment, known as Statementing.

In carrying out this assessment the LEA focuses on the needs of the child rather than their disabilities.

On the rehabilitation unit the teachers, therefore, become involved with the Statementing process.

The assessment is multi-professional and any member of the rehabilitation team, who has knowledge of the child, will be asked to contribute by completing an Appendix, which is a specific form for that particular profession. The assessment must include advice from a medical officer and an educational psychologist.

Once the most suitable school setting has been established, and agreed by the local funding authority, there is close liaison between the inter-disciplinary team and the head, teachers and other staff of the school. Information, advice and full reports are provided and visits exchanged. If possible, a phased integration is put into action.

Follow-up provision and contact is maintained for as long as is thought necessary by all the agencies concerned to enable as smooth and as beneficial a transition, as possible, for the child and the family.

PLAY IN HEAD INJURY REHABILITATION

Angela Tyrrell, Senior Play Specialist

In order to understand the meaning of play in rehabilitation it is necessary to first look at what play is. Play provides a vital opportunity for a child's emotional, social, physical and intellectual development.

Learning takes place through play, helping the child to prepare for life's experiences. Play allows the child to express emotions freely. It can be completely unstructured, where no end result is necessary, therefore failure is not experienced. It is a way of acquiring skills and feelings of mastery and importance. Through play all round development takes place. Play helps the child to make sense of the world according to his current level of cognitive functioning. Play, in particular free play, enables a child to express fears and fantasies. The expression and reliving of fears and painful desires through play can lessen levels of anxiety. It may also communicate the nature of the child's fears to an adult who may be able to help.

Hospital play has vital functions. It provides a normal experience for the child within an alien setting. It helps to prevent developmental regression often associated with traumatic episodes in childhood. Through structured programmes play can help the child meet specific developmental goals. It reduces stress and anxiety through relief of boredom by providing opportunities to act out fearful situations. It can help children relate to staff, medical, nursing and ancillary and to other child patients. It reduces anxiety in parents by allowing them to engage in normalising activities by playing with their children. Play can also help to improve recovery rates both by reducing anxiety and by facilitating communication between staff and child.

Play in the Tactile Room

The effects of hospitalisation can have far reaching effects on children. Faced with separation from their family, unfamiliar people and surroundings and routines which they cannot predict, they undergo enormous stress. This can exhibit itself in many ways - regression, behavioural problems, enuresis, sleeplessness. The play specialist is the only member of the paediatric team whose primary function is concerned with the social and emotional well-being of patients.

While others, apart from the teacher, are largely concerned with the pathology of the individual, the play specialist is concerned that the normal, healthy needs that all children and parents have for comfort and stimulation are not overlooked. The key elements in the role of the play specialist are to put play on the agenda so that it is an accepted part of hospital routine, to contribute to clinical judgements (that is to observe and communicate special difficulties that the child or adolescent may be having), to identify children and/or parents who are distressed or having difficulty coping, to introduce some normality into the child's day and to integrate the nursing staff into the children's play. It is important that children should not identify certain staff with bad experiences and others with pleasant ones. The play specialist works closely with, and complements, other disciplines working together towards specific goals and treatment requirements.

Play in Rehabilitation

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The function of play in rehabilitation is still based on the principles already mentioned. Brain injury results in a multitude of changes that affect the long term functioning of the child and adolescent.

When a child comes for rehabilitation after sustaining a traumatic brain injury the play needs of each child are assessed according to a number of factors depending on the severity of the injury and the child's level of cognitive function. The structured play programme is devised taking into account the needs of the individual. These needs are complex and diverse and may include a combination of the following: loss of vision and/or speech, memory problems, difficulty with sequencing and organisational skills, physical limitations, word finding difficulties and receptive language problems.

Working in close liaison with the inter-disciplinary team, the play needs of each child are assessed by the play specialist. Individual programmes are devised, these include one to one sessions working on a number of deficits. The approach is systematic, repetitive and continuous. Games which provide manual dexterity, gross and fine motor control and hand-eye co-ordination are played in a variety of settings. Activities are thought out which help with cognitive problem solving, concentration, listening skills and attention. In fact the child's programme includes all areas: social, physical, intellectual, emotional and language. The aim is to work on aspects of the "whole" child whilst encompassing specific areas of need.

Sensory Impairment and Play

Many brain injured children have sensory impairment. Play is used to work on stimulation of the senses.

Vision

Vision is the main co-ordinating sense and through play fun, enjoyment and stimulation can help the beginnings of controlled range of eye, hand and body movements. This aids and increases handling toleration and can lead to the beginnings of vocalisation and visual memory.

Hearing

Sound gives the child an awareness of himself and his environment. He can communicate his needs through simple sounds forming a highly individual communication programme. One of the most important requisites for brain injured children is the re-establishment of attention and listening skills. Listening can lead to improved head control, increased tolerance to a range of sounds, enjoyment, simple discrimination, tracking to locate, beginnings of vocalisation and communication. Materials used include tapes, stories, instruments, familiar sounds.

The sensory room provides a distraction-free environment and a variety of sound and light equipment.

Tactile

Tactile play helps create awareness, increased tolerance of handling, increased fine and gross motor movement and the beginnings of a touch/tactile memory bank. Materials used include sand, water, messy play and assorted stimulating materials.

Access to a soft play room provides ideal surroundings for energetic physical play and allows the child tactile experience in a safe environment. It has benefits for the ambulant child, providing opportunity for expressive free play, it helps the child regaining mobility and is ideal for the immobile child for relaxation and gentle movement. Often the physiotherapist and the play specialist work together here.

Olfactory and Smell

These senses are more difficult to explore in isolation and do not fit the play mode well.

Multi-Sensory

Multi-sensory, i.e. using all the senses simultaneously, benefits communication, encourages movement and cognitive skills, helps emotionally and with self expression and life skills. This multi-sensory experience is particularly useful during rehabilitation. The neighbourhood and community environment offers opportunities for multi-sensory experiences. During rehabilitation the children are regularly taken on trips to farms, parks, museums, cinemas and seaside. The effects of such environments are very meaningful for children who need increased stimulation, as well as providing a normalising experience.

Invariably the child who has sustained a brain injury will be lacking in motivation and spontaneous play. He has the same need for play that he had before his injury but is now without the mechanism to initiate it. The play specialist has, through her knowledge of child development, the means of providing the right play to suit that child's needs. Many skills are lost post-injury and sometimes it is necessary to adapt the games and activities. Owing to the loss of pre-morbid skills the head injured child can have a poor self image and low esteem. The play specialist provides programmes and activities to regain some dignity and self respect.

Another means of providing play is through group activity. The advantages are peer support, feedback and modelling as well as socialisation. Group work allows the brain injured child to feel less isolated and provides opportunity for demonstrating competence and successfully helping peers, thereby increasing self-esteem.

According to Middleton, Johnson and Hall, "The overall aim of rehabilitation is best defined as the re-establishment of the maximum physical, intellectual and emotional independence and dignity that is possible for the person in that particular environment. The disabled person is all too easily turned into the passive recipient of care and not permitted to make a decision for himself".

Faced with a combination of complex neurological and physical disabilities it may seem an impossible task to provide suitable play, but the innovative and resourceful play specialist is an essential part of the rehabilitation team. "The aims of rehabilitation cannot be achieved by individual professionals working in isolation; an inter-disciplinary approach is essential for initial assessment and for the planning of a management programme" (Middleton).

"Evidence of acceptance of the play specialist within the team is the extent to which she/he is included in discussion, whether she/he is included in discussion, whether she/he has access to medical records and whether she/he is called upon to offer training and advice on children's developmental needs. The quality of the contribution she/he can make will largely depend on the judgement made by others about the value of the role" (S.C.F. 1989).

Happily the management is enlightened and play for brain injured children is firmly on the agenda at Tadworth.

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WHAT IS RECREATIONAL THERAPY AND WHY INCLUDE IT IN A REHABILITATION PROGRAMME?

Andrea Chaman Smith, Recreational Therapist

What is Recreational Therapy?

Remedial procedures utilising recreation to facilitate retraining and development of functional skills in order to achieve overall maximum recovery and quality of life.

A service to develop the concept of leisure and encourage initiation of recreational activity.

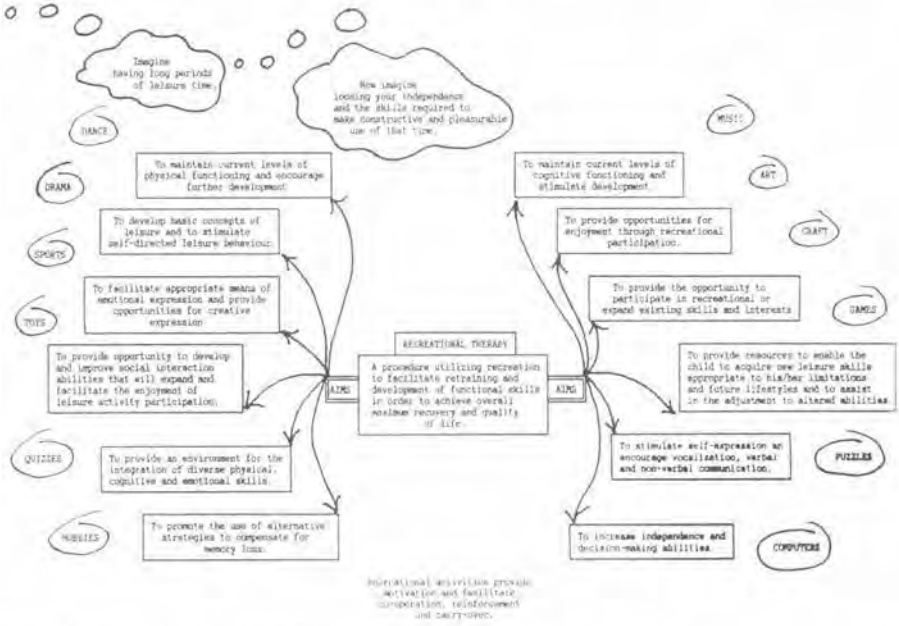

Diagram A RECREATION IN LEISURE TIME IS A FUNDAMENTAL PART OF ALL OUR LIVES

Recreational Therapy as a Service

Recreation and leisure experiences are a fundamental part of all our lives. The concept of leisure to enhance the quality of life and personal, social and emotional well being has been increasingly recognised in recent years. Those with disabling conditions should not be excluded from the right to experience a satisfying leisure lifestyle. The acquisition or retraining of appropriate skills required for leisure participation is a basic need, and therefore establishes an area for professional intervention, ie recreational therapy.

Recreational Therapy in an Inter-Disciplinary Rehabilitation Programme

When thinking of rehabilitation we think of retraining physical skills and mobility, speech and communication and independence in daily living skills. It may be argued that once these skills are established the ability to use leisure time is also achieved. This is not necessarily the case as although these skills can lead to a level of independent functioning in most areas, leisure time is generally unstructured and requires initiation and motivation.

When time for rehabilitation is limited it is understandable that the ability to use leisure time is not generally recognised as an area requiring intervention and often comes low on the list of priorities. Why should it be excluded from the other life skills addressed? If leisure dysfunction occurs, therapeutic leisure services should be available as rehabilitation aims at achieving maximum recovery of the "whole" person.

Long Sitting to Watch "Neighbours"

In addition to addressing the need to develop functional skills and to provide opportunity, recreational therapy provides relaxation and enjoyment in what is usually a very intense programme. The implementation of stimulating activities addressing the treatment goals determined by the interdisciplinary team provides motivation and enlists the co-operation of the child. As such activities are essentially for leisure time, they provide carry-over outside of formal therapy hours.

Leisure activities involve numerous skills simultaneously. Under supervision the emphasis can be on improving a specific skill whilst monitoring and reinforcing others. Repetition occurs naturally in games and activities allowing practice of skills without boredom.

Peers, parents and carers will all readily engage in play with a child whereas they may feel uncomfortable teaching the individual skills involved. Parents in particular benefit from knowing they are helping their child's recovery by playing with them. They may feel deskilled in handling their child in the presence of so many professionals. Playing allows parents to participate in their child's rehabilitation in a natural way.

The therapist may need to explain to the parents how the recovery of functional skills is continually reinforced in the less formal and less structured setting of recreational activity. A useful example is the role of parents in the pre-school years when they provide stimulating learning opportunities for their children through play. Parents should understand that their child's whole process of learning has been interrupted by injury which includes his natural learning experiences in addition to formal education.

It is important to include retraining and development of leisure skills in any rehabilitation

programme. If this area of need is not addressed in therapy it can be difficult for the child to have insight into his altered lifestyle as during rehabilitation he will rarely be left alone and therefore will remain unaware of the need for self-occupation. Once retraining of "leisure" skills has begun the child must be encouraged to initiate activities to occupy himself in order to reduce dependency. It is possible that the head injured child's future leisure lifestyle could be mainly restricted to home-based activities with limited social interaction with peers outside of school hours.

Recreation And Co-Ordination

Leisure and Social Interaction for the Head Injured Child

Any disability results in limiting opportunities for an independent and pleasurable lifestyle. Leisure opportunities are seldom readily available for the disabled child and although a number of organisations providing recreational pursuits exist, they tend to cater for either the mentally or physically handicapped. The head-injured child does not fit easily into either category.

Following a severe head injury a child usually has a long period of isolation from his friends during intensive care, the acute phase, and then a period of rehabilitation.

The problems of the head-injured child are multiple. Physical handicaps resulting from head injury can lead to a loss of independence and the effect on the child's recreational and social interaction is visibly obvious. Less obvious but just as restricting are the effects of cognitive dysfunction, particularly the higher level/executive functions, all of which are required in the process of play. Emotional and behavioural difficulties and subtle changes in personality also add to the child's social limitations.

These so called "hidden handicaps" can be extremely distressing for the child and his parents and often the most difficult to adjust to. This can be particularly so when the child appears to have made a full physical recovering, and looks the same child as pre-injury. Parents

who have been so close to losing their child and may now be rejoicing over their physical recovery may need careful counselling about the presence and effect of these hidden handicaps, particularly as they may not always be recognised, acknowledged or understood by some of the professionals involved in their child's future. The lack of insight into these problems can result in the child becoming socially isolated.

Following rehabilitation it is hoped that the child will be reintegrated into family life and school. Parents, siblings and teachers should all have been informed of the cognitive difficulties the head injured child may have. Parents will assist and encourage the child's efforts at home. Siblings will be expected to "understand" their brother or sister (placing an enormous stress on their tolerance) and teachers will be guiding the child in the structured setting of school. Play and social interaction however are generally unsupervised by adults and unstructured, requiring numerous skills all of which tend to be taken for granted.

Imagine a child who has problems with some or all of the following: initiation, motivation, memory, perception, orientation, decision making, problem solving, speed of processing, planning and organisation.

This child has made a good physical recovery, speech is unaffected and he has returned to school with no visible disability.

a) Think of a child's game in the school playground

b) Which of the above skills would be required?

c) How would dysfunction of these skills affect his ability to participate fully and "keep up" with the other children?

The head-injured child who is physically able can still eventually be "left behind" by his peers, after all, children's intolerance of each other is generally accepted. How can the child's friend be expected to understand that although he looks the same as he used to and can physcially "keep up" he is struggling to process the information required and remember the rules and strategies as they develop in the natural, fast moving events of play.

CONCLUSION

Quality of life is closely associated with leisure experience. We all value our free time and most of us never seem to have enough but a person with a handicap often finds himself isolated with too much time on his hands. Rehabilitation involves retraining and developing physical, cognitive, social and emotional skills and behaviour. As a service, recreational therapy aims to facilitate the progression of these skills to promote independent leisure functioning thereby reducing the possibility of social isolation.

THE ROLE OF THE SOCIAL WORKER ON THE REHABILITATION UNIT

Sybil Foreman Senior Social Worker

The role of the social worker on the Rehabilitation Unit developed from the identification of the need for more specific support to parents and other relatives.

Staff can feel helpless when parents' needs and demands cannot always be met. Parents are vulnerable when on the Unit, perhaps seeing staff as coping better with the day to day care of their child than they themselves are able to do. There are feelings of guilt, anger and despair because they have lost the child they had and there is a need for parents to be given the opportunity to grieve and to adjust to the new situation.

The social worker is here specifically to offer emotional support for the parents and family. The social worker needs to be able to work with parents at their own pace. Not all parents are able to share emotions and the social worker needs to be sensitive to their needs.

The social worker will speak up for parents to the inter-disciplinary team, help with discharge plans, liaise with other agencies on their behalf, organise case reviews and generally to be on hand to give advice and information. The social worker will also help parents with forms and information on benefits for the disabled child and liaise with other social workers regarding problems associated with a head injured child, such as housing needs.

There is a parents' support group which takes place once a month. This enables parents to share their feelings and problems and makes them aware of all sorts of different benefits and schemes, for example holidays that may be available. It also enables them to put forward ideas on the best ways in which the staff can help parents with their children's progress and care.

At present there are plans for a C.H.I.T. (Child Head Injury Trust) group to be set up here at Tadworth Court. To this end contact has been made with all Social Services Departments, hospital consultants and General Practitioners in the area and some voluntary organisations to try to ensure parents of head injured children are made aware that support for them is on hand when required.

"Quality Assurance" is an important part of the social worker's role too and involves following up all families after the child has been discharged from the Unit. There is a questionnaire on all areas of our service with the aim of improving our service in response to the family's needs.

The role of the social worker on the Rehabilitation Unit is varied and interesting and involves pulling all the various aspects of the service together.

HEAD INJURY RE-EDUCATION (H.I.R.E.)

H.I.R.E. was founded in 1985 as a voluntary organization to establish, preserve and protect continuing educational provision for people with acquired brain injury.

Its aims are to increase awareness of the educational needs of survivors to lobby for improved educational provision and to provide a comprehensive information service relating to education for those with acquired brain injury, their carers and interested professionals.

Membership of H.I.R.E. is open to anyone with an interest in educational services for those with ABT. These may include survivors themselves, families, friends, carers, teachers and therapists.

It offers an information and contact service, information packs relating to education, including further education, regular newsletters and a yearly study day. This year the topic will be "Disinhibited Behaviour".

For further information about services offered or membership,
please contact :

MR. JOHN SMALLWOOD
Further Education Dept
Portland College
Nottingham Road
Mansfield
Nottinghamshire NG18 4TJ

Telephone :
0623 792141

Ref: HIRE.SAD

The object of The Children's Head Injury Trust is, "To relieve the disabilities of head injured children." In practice, this is extended to children with other forms of acquired brain damage not covered by other charities. Handicaps suffered by these children range from profound and multiple - more of these survive as medical techniques improve - to subtle deficits which may go unrecognized because the child looks 'normal'. The impact on their families can be devastating and long-lasting.

The Trust was set up in 1989 to promote research into the treatment and consequences of head injury in children. When the widening of the objectives took place, the Research Fund remained an important element. From early 1992, Membership was invited from interested professionals in whatever discipline: clinical, therapeutic, educational, legal or social services. Membership is also open to families. In addition, there are Family Support Groups: not just self-help, but professionals and families working together to provide much needed emotional support, information and advice in a local area. Some organizations working with head injured children, such as children's wards, or charities with related interests, have become Associates in order to receive information about CHIT activities.

From its central office, CHIT disseminates information either in printed form (leaflets and small booklets) or via the advice line which aims to put callers in touch with someone from the appropriate speciality. Publications to-date are an Information Pack of leaflets dealing with aspects of the immediate, medium and long-term aftermath of a child's injury; and a booklet, "Head Injury: Some Consequences for Injured School Pupils, their Teachers and Schools". In preparation are: head injury as seen by siblings, and advice from an architect about appropriate considerations when adapting a property for a physically disabled child. Information is being collected for a database, starting with educational provision. CHIT also produces a six-monthly Newsletter.

For details of how to become a Member of CHIT,
location of Support Groups, or other information, contact:

CHIT, c/o Neurosurgery, The Radcliffe Infirmary,
Woodstock Road, Oxford OX2 6HE,
Telephone : 0865 224786.

CHIT is a registered Charity No. 1007856

READY, WILLING, YET NOT LEGALLY ABLE

Not one M.P. opposed the second reading of Dr. Roger Barry's Civil Rights (Disabled Persons) Bill on 11th March. However some of the basic principles of the Bill may yet be eroded during the Committee stage.

The following article first appeared in the Guardian on 26.3.94. and is reprinted with the kind permission of the author Mr. Alan Howarth C.B.E. M.P.

Mr. Alan Howarth has stood as the Conservative Member of Parliament for Stratford-on-Avon since 1983. He was appointed Parliamentary Under Secretary of State Dept. Education and Science in 1989 and has written several books including "Changing Charities" and "Save our Schools".

As this Bill affects so many of our patients both now and in the future I feel we as physiotherapists should take an active interest in its progress through the House.

Editor.

---ooOoo---

Rather than dodge legislation that would ban discrimination against disabled people, the Government should seize an opportunity, argues Alan Howarth. After all, it claims to stand for the active citizen.

In Warwickshire, a building society refuses to employ a man on discovering he has once been a patient in a mental hospital. In Wiltshire a deaf person on a carpentry training scheme has sawdust and glass put in his food. The persistence and extent of discrimination in our society against people with impairments is a scandal. I say "people with impairments" because it is the discrimination rather than the impairment which, so frequently, is disabling.

Next week at Westminster the Civil Rights (Disabled Persons) Bill goes into committee. The bill has all-party support. Yet now ministers say they "remain to be convinced" that anti-discrimination legislation is appropriate.

Discrimination is partly a matter of prejudiced attitudes among individuals: government research found in 1990 that 6 per cent of employers candidly admitted they would never employ a disabled person, while 25 per cent admitted they might discriminate. But it is also deeply embedded in the practice of our institutions. Children with "special needs" remain extensively segregated and disadvantaged. Training and Enterprise Councils largely fail to develop effective training for people with disabilities.

Indeed, discrimination permeates the social-security system. The 1948 National Assistance Act required local authorities to "arrange services" for and forbade them to make cash payments to disabled people. The orthodoxy has remained equally patronising and demeaning to this day. The conventional terminology of "care managers" and "case managers" perpetuates dependence and militates against independent living. So the impaired are disabled, and our society is impaired.

Disabled people are three times more likely to be out of work than others. When they are in employment they are lower paid and in poorer working conditions, which means not only poverty, but diminished status and self-esteem. As Nicholas Scott, the Minister for Disabled People, said: "We all know that there is too much unjustified discrimination against disabled people. We know that it is wrong and often has a cruel impact on the quality of life of disabled people. It is also remarkably stupid."

Of course, no one is saying that where the impairment genuinely disqualifies a person from doing a particular kind of work the employer should be required to appoint that person. But unjustified discrimination is an intolerable indecency. And where an adaptation could reasonably be made to enable a person to do a job for which he or she is qualified, an employer should make it.

A government that believes in the promotion of personal opportunity and autonomy, enterprise, and the "active citizen", has every reason not to tolerate discrimination that disables. A government committed to enlarging the scope of the free market must remedy the injustices that mere freedom produces. A government that attaches importance to the rule of law should address itself to the wholesale flouting of the requirement under the 1944 Disabled Persons (Employment) Act that employers of 20 or more staff should employ at least 3 per cent registered disabled people.

To subvent discrimination, as we do, is hugely expensive: large numbers of people depend on benefits instead of creating wealth and paying taxes and national-insurance contributions. The Government told M.Ps in January that anti-discrimination legislation would lead to "unquantifiable" costs for businesses and taxpayers - but we cannot afford, morally or economically, to continue as we are. The Government must act decisively to change the culture.

The 1975 Sex Discrimination Act and the 1976 Race Relations Act set the precedents. There is no doubt that the legislation has, albeit gradually, conditioned and improved our culture in these fields; and it is anomalous and retrograde that we do not have a law establishing the unacceptability of discrimination on grounds of disability. Canada has done so; so have Australia, New Zealand and the US. If we need a model, we can turn to the Americans with Disabilities Act of 1990, which covers discrimination in employment, public services, access and telecommunications. The Law Society considers that "the concepts in that legislation could easily transfer into UK law".

From this July, US firms with 15 or more employees must not discriminate in application procedures, qualification standards or any other terms and conditions of employment.

Employers are not required to employ a disabled person if to do so would entail "undue hardship", difficulty or expense relative to the resources and nature of the employer's activity. They must however be willing to make "reasonable accommodation" which is "readily achievable". They have access to financial assistance, by way of tax credits and deductions. The same principles apply to providing services to the public. Reasonable and practical time-scales apply for the adaptation of buildings, fleets of vehicles and so forth.

Some ministers, however, are apprehensive that comparable legislation in Britain would transfer power from government to the courts. It would be expensive and unworkable: business and public-service providers would suffer additional costs as well as bureaucratic and litigious hassle. The resentment anti-discrimination legislations would cause would actually be detrimental to the interests of those it seeks to help.

These fears are misplaced. The experience so far in the US is that accommodations have proved for the most part easily affordable. Half of the adaptations have cost less than $5 and most of the rest less than $1,000. Assistive technology, government incentives, advice and the example of positive experiences are causing initial resistance to dissolve. And the National Federation of Small Business Owners reports that the Act has led to significant new business opportunities.

The Civil Rights (Disabled Persons) Bill draws upon the US model. A code of practice would clarify what more precisely is expected of employers. The Act and the code would need to be complemented by other efforts.

The Government should think again about the additional costs to employers of their proposed changes to statutory sick pay, as they have about the Access to Work proposals. Improved funding, in addition to the mainly welcome reforms of sheltered employment, would help more severely disabled people. Further improvement in Disability Working Allowance would help other disabled people towards self-sufficiency. And an intensified drive in education and training is crucial.

The time is ripe for this legislation. Unemployment is falling, deregulation is lifting burdens from businesses. It is only right that business in return should be obliged not to discriminate.

The Government wants to limit its expenditure on Invalidity Benefit; the best way is by promoting the employment of disabled people. George Bush signed the American Disabilities Act with the words: "Let the shameful walls of exclusion finally come tumbling down." John Major's vision should be no less.

A review of wheelchair funding policies on mainland Europe demonstrates that, once again, the British Isles stand alone in

Not so splendid isolation

If precedent and peer pressure are persuasive arguments, then the British Government need look no further than across the English Channel to find examples of wheelchair funding policies which fully acknowledge the individual's right to independent mobility. ***Batteries Not Included*** *asked thirteen European countries about state wheelchair funding policies.*

SWITZERLAND Under national disablement insurance arrangements "persons who are unable to operate an ordinary wheelchair and can only move independently thanks to an electric motor are entitled to the use of a powered wheelchair".

THE NETHERLANDS "'the government' pays the costs for battery-powered indoor/outdoor wheelchairs when there is a medical indication (of need)".

DENMARK "in Denmark it is possible according to the social assistance act (paragraph 58) that a disabled person in need can get an outdoor as well as a combined in/outdoor electrical powered wheelchair. The municipalities lend out at no cost for the disabled. The user should take care of insurance and pay for repair in most cases."

PORTUGAL confirmed that the "state support includes both indoor and outdoors powered wheelchairs."

FRANCE "the Government (Social Insurance) take care of the electric wheelchairs inside and outside after a technical and administrative agreement. Only the agreed models have financing which does not cover all the cost of a wheelchair costing between 20,000 and 35,000 French Francs. 5,000 to 8,000 French Francs are paid by the user."

In addition to these specific examples our research shows that indoor/outdoor powered wheelchairs are funded to some extent by the state in : **LUXEMBOURG, BELGIUM, GERMANY, NORWAY, GREECE, AUSTRIA** and **ITALY.**

Of those countries contacted only the **REPUBLIC OF IRELAND** appears to share the **UK** Government's wheelchair funding philosophy. Where once Britain was the envy of Europe and the developed world for its social policies, it now seems we have much to learn from our European partners.

THE GROSS MOTOR FUNCTION MEASURE

Carole Hurran Claremont School, Bristol

I attended a Training Workshop at the Wolfson Institute on 24.3.94 arranged by David Scrutton and given by Mary Lane, research therapist with the Gross Motor Measures Group, McMaster University, Hamilton, Ontario, Canada. The day was subsidised by the Spastics Society.

The workshop was designed to introduce therapists to the background and basic concepts of the measure, and train and test participants in the specifics of testing and scoring individual items on the measure. This was done using video of children going through the test and we had to give appropriate scores at the end of the very intensive day of training.

The purpose of this standardised observational instrument is to measure change in gross motor function over time. The GMFM was developed as a criterion referenced test for use with children with cerebral palsy and was designed to be used in both clinical and research settings. It is also useful for describing a child's current level of motor function, determining treatment goals and providing easy explanations to parents concerning their child's progress.

The GMFM is used to assess motor function, i.e. **how much** of an activity a child can accomplish, rather than the quality of the motor performance, or **how well** the child accomplishes the activity. It should be possible to complete the whole test in 45 to 60 minutes and has been used for children of any age from 4 months upwards.

88 items are used to assess activities of motor function in 5 dimensions: 1. lying and rolling 2. sitting 3. crawling and kneeling 4. standing 5. walking, running, jumping. All items would usually be accomplished by a five year old with normal motor abilities. Normal gross motor development milestones are the basis for the 5 dimensions and the measure aims to capture maturation occurring naturally while at the same time being sensitive to the specific deficits resulting from cerebral palsy. A generic scoring system is used, based on how much of each activity the child can complete. **The manual is essential for scoring** which is on a 4-point rating scale. It also gives detailed information on exactly how to test each item, including the starting position and explicit instructions.

Orders for GMFM manuals and scoresheets and any requests for training should be sent to
Dianne Russell,
Building 74, Room 29, Chedoke Campus, Box 2000, Station 'A',
Hamilton, ON, Canada L8N 3Z5.
Tel: (416) 521-2100 Ext 4064, Fax (416) 574-2838

HARE ASSOCIATION FOR PHYSICAL ABILITY

STUDY DAY
ENVIRONMENT POSTURE AND MOVEMENT

What effect does gravitational environment have on posture and movement?
Can we use this knowledge in our clinical practice?

Speakers will address such topics as;

THE DEVELOPMENT OF UPRIGHT POSTURE

MOVEMENT IN WATER

ALEXANDER TECHNIQUE;

Basis and application/a form of postural therapy

AND MORE

VENUE; ROYAL HOSPITAL & HOME, PUTNEY. LONDON SW15 3SW

DATE: 21ST MAY 1994

Time; 10.15 - approximate finish 4.00
Cost; £25.00 Members

N.B. Members A.G.M. 9.15 a.m.
£30.00 Non Members

Applications to ROY NELHAM

Rehab Engineering Unit,, Chailey Heritage, North Chailey, Nr. Lewes, E. Sussex, BN8 4EF

A Clinic for Children's Special Seating

May 9/May27/ June 8 '94
Fee on application

Course Directors :
Mr David Scrutton & Ms Alison Wisbeach

This one-day clinic is designed to provide an opportunity for discussion about the seating needs of children in the care of the participants. Its aim is to provide a framework for examination leading to a needs-led solution. The day will include some instructional seminars to illustrate points most likely to arise from the children seen. The course is primarily 'hands on', based around the children provided by the local team. Maximum number of participants: 15. Before booking please contact David Scrutton or Alison Wisbeach on 071 837 7618.

Institute of Child Health, Continuing Education Office
30, Guilford St., London WC1N 1EH Tel: 071 829 8692

Title:

NEUROLOGICAL ASSESSMENT AND DEVELOPMENT CARE OF THE PRE-TERM INFANT.

Venue:

MAYDAY UNIVERSITY HOSPITAL,
MAYDAY ROAD, THORNTON HEATH, SURREY.

22ND JUNE 1994.

Lecturer: MRS. ROSLYN BOYD,
Superintendent Paediatric Physiotherapist,
Newcomen Centre, Guy's Hospital.

Apply To:

Mrs. H.R. Palmer, MCSP, Physiotherapy Department, Mayday University Hospital, Mayday Road, Thornton Heath, Surrey, CR7 7YE (Tel: 081-401-3093)

Fee: - £40.00 Payable to "Mayday Healthcare NHS Trust"

SWIMMING FOR DISABLED

Halliwick Method (basic A and B): Ormerod School, Wayne Flete Road, Headington, Oxford - (July 25 - 29).

Tutors: ANN CRESSWELL, JOAN MARTIN.

Apply to Dr. Joan Martin MBE, Flat 2, 66 Kensington Church Street, London W8 4BY.

Fee: £120, £60 students, payable to 'Association of Swimming Therapy', (c),(e),(h).

CLOSING DATE JULY 1.

INTRODUCTION to PAEDIATRICS

Date: Monday 3rd October - Friday 7th October

VENUE: Chartered Society of Physiotherapy
14 Bedford Row, London WC1R 4ED.

Cost: £175 Organisers: A.P.C.P.

This course is designed to introduce junior/senior II physiotherapists to most aspects of paediatric physiotherapy. The course is ideally suited to those who wish to enter paediatrics and to physiotherapists who are beginningtheir first paediatric post.

It will encompass normal child development, neurodevelopmental assessment, aetiology and treatment of the more common childhood illnesses and disabilities, the use of specialised equipment and the legal aspects of paediatrics.

For further information and application form contact:
Miss L Wakley, 2 Ash Bank, Pipers Ash, Chester CH3 7EH

PLEASE ENCLOSE A STAMPED ADDRESSED ENVELOPE

CASTLE PRIORY COURSES

Apply to - CASTLE PRIORY
Thames Street,
Wallingford
Oxfordshire OX10 0HF
Telephone : 0491 837551

142/107/94 **£180 (plus £31.50 VAT)** **20-21 June 1994**

INTRODUCTION TO MULTIPLE DISABILITY

A two-day intensive course on working with learning disabled adults and young people who have multiple disabilities. Ideal as an introduction for care assistants or newly started staff and volunteers in residential or day care settings.

Aim

- working with visual disability and its implication
- sighted guiding techniques
- working with physical disability and its implications
- wheelchair guiding techniques
- working with deafness/hearing impairment and its implications
- networking and intervention

The course will be a mixture of practical exercises and seminar work.
Course commences at 9.30 am on **20 JUNE** and concludes at 5.00 pm on **21 JUNE.**

Course Tutor. **MARK GRAY**

146/131/94 **£60 (pluse £10.50 VAT)** **24 June 1994**

PRESENTING YOURSELF

- Are you asked to give short talks or presentations as part of your job?
- Would you like to improve your skills and learn some new techniques in presentation?

This one-day workshop is for people in the health care professions and would be especially useful for managers, research workers, new trainers and lecturer practitioners. The aim is to illustrate different presentation styles and give delegates an opportunity to try out some of these techniques themselves.

Course content will include

- the elements of good presentation
- Preparation and delivery
- interacting with the audience
- mastering the overhead projector
- venues and audio-visual aids
- task and buzz groups
- using flipcharts and handouts

Numbers will be strictly limited to 16 so that each delegate will have the opportunity to prepare and deliver a short presentation under 'safe' conditions and obtain a structured evaluation from the group.

The course commences at 10.00 a.m. and concludes at 4.00 p.m.

Course Tutor: **TREVOR STEVENS BA. BSc. MEd.**

172/15/94 **£60 (plus £10.50 VAT)** **11 July 1994**

INTRODUCTION TO THE USE OF MULTI-SENSORY ROOMS

A one-day course that can be taken separately or as part of a three-day course when combined with Advanced Working in Multi-Sensory Rooms including Assessment and Communication Development on 17/18 May and 12/13 July.

Aims

- history of Multi-Sensory Rooms
- types of Multi-Sensory Rooms
- equipment used in Multi-Sensory Rooms
- buying and using equipment
- basic principles of room design
- implications of Multi-Sensory Rooms for people with sensory impairments.

The day is a series of lectures and demonstrations on how to set up, plan and use a Multi-Sensory Room to its best effect for the value of the room's users. The day will also cover the use of Soundbeam and Midi-Creator as a possible activity to supplement Multi-Sensory working.

Early application is advised as numbers on this course will be limited to 22.

Course commences at 9.30 a.m. and concludes at 4.45 p.m.

Tutors: **MARK GRAY** or **RICHARD HIRSTWOOD**

178/163/94 **£180 (plus £31.50 VAT)** **12-13 July 1994**

ASSERTION SKILLS FOR EFFECTIVE NEGOTIATIONS

- Are you fearful when preparing to ask your manager to adjust the rota so you may take a day off for an appointment?
- Do you tend to move into a defensive, aggressive or passive mode when you want something very badly for your client and you know there are budget restrictions?
- Do you feel unequal when making a request to a person of higher status at work?

Assertion skills which help you to negotiate on an equal footing so that both parties feel respected and the outcome feels positive may be what you need.

OBJECTIVES

Participants will have the opportunity to:

- understand what being assertive means
- look at your usual ways of dealing with situations
- begin to make the decision to change your ineffective behaviours and build on the effective ones
- practice assertion skills which improve your quality of negotiations in a safe non-judgemental environment
- decide to keep practicing these skills with sympathetic colleagues and friends after the course!

This course is for all people who have the courage to make changes and can acknowledge that we all make mistakes at some time in our life!

Course commences at 9.30 a.m. on **12 JULY** and concludes at 4.30 p.m. on **13 JULY.**

Course Tutor: **SANDY SLACK**

POSTGRADUATE DIPLOMA
In
LOWER LIMB ORTHOTIC BIOMECHANICS
AWARDED BY
UNIVERSITY OF STRATHCLYDE

This is a one year course involving distance learning and attendance at the National Centre for Training and Education in Prosthetics and Orthotics. The course covers the fields of:

INTRODUCTORY BIOMECHANICS.

BIOMECHANICS OF NORMAL GAIT AND GAIT ANALYSIS (KINEMATIC, KINETIC AND ENERGY CONSUMPTION)

MECHANICS OF MATERIALS

BIOMECHANICS OF THE PATIENT/DEVICE INTERFACE.

BIOMECHANICS OF FOOT ORTHOSES, ANKLE FOOT ORTHOSES, KNEE ANKLE FOOT ORTHOSES, HIP KNEE ANKLE FOOT ORTHOSES, AND WAYS OF ACHIEVING PRESCRIPTION AIMS.

BIOMECHANICS OF STANDING FRAMES AND SWIVEL WALKERS

Mrs. Elaine Owen is the first physiotherapist in the U.K. to get this qualification and says the course is to be recommended to physiotherapists who have an interest in gait analysis, orthotics and biomechanical analysis.

The Editor has the details of the course components on request.

FURTHER INFORMATION CONTACT:

Mrs. Elaine Owen M.C.S.P.
Sup. Community Physiotherapist
Child Development Centre
Holyhead Road
Bangor
or
National Centre For Training & Education in
Prosthetics & Orthotics
Curran Building
University of Strathclyde
131 St. James Rd.
Glasgow G40 LS
Telephone : 041 552 4400

UNIVERSITY OF CENTRAL ENGLAND BIRMINGHAM

Certificate In Paediatric Studies M Level Post Graduate Study

This Certificate has been developed following the successful running of the Advanced Certificate in Paediatric Physiotherapy.

The course is a complete component and offers a certificate of 36 credit points at Masters level, which can be linked into full M Sc. degrees.

Subject to validation on 21 APRIL 1994 and due to start SEPTEMBER 1994.

ENQUIRIES TO:

Mrs. Mary Clegg MCSP SRP
Course Director
University of Central England in Birmingham
Faculty of Health and Social Sciences
Perry Barr
Birmingham
B42 2SU

MEMBERSHIP MATTERS

At the A.G.M. in Chester in April 9th there were three nominations for three committee vacancies. The members elected to the National Committee are:

Mary Goy
Elizabeth Harty (previously N.I. Reg. Rep)
Carole Hurran (previously S.W. Reg. Rep)

Margaret Cameron (Trent) and Finola Beattie (N.I.) were welcomed as new Regional Reps. to the National Committee.

The National Committee elected the Officers of the Association from their number:

Chairman	Jill Brownson
Vice-Chairman	Viv Williams
Secretary	Fiona Corkhill
Treasurer	Angela Glyn-Davies
P.R.O.	Michele Lee
Post-Grad. Education Spokesman	Carole Hurran

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PROFILE

The National Committee have agreed to feature a profile of the Executive Officers for the benefit of the membership.

JILL BROWNSON

Trained at St. Mary's Hospital School of Physiotherapy. Qualified 1971. Has worked continuously in paediatrics for 20 years. (Part-time while bringing up her children.) As a member of the S.E. regional committee she was on the organizing committee of the (now infamous) Canterbury Conference. Elected onto the National Committee at that conference in 1986, she held the office of Hon. Treasurer for 4 years. Since then she has rewritten the Conference Guidelines, she is a member of the core group of the Editorial Board and is the CSP representative to the Spastics Society. She was elected Chairman of the Association in 1992. Jill Works for Worthing and Southlands Hospitals NHS Trust. She is married with 2 teen-age sons, and is a JP.

MEMBERSHIP MATTERS

1994 has been a very good year so far. We have welcomed over 70 new members. If you are one of these new folk, we welcome you again and hope you find benefit in being one of a large team - some 1,000 physiotherapists from all round the British Isles, and abroad. Make yourselves known to your peers, make contact with your regional representative and, should you be willing, offer your expertise in the continuing development of our Association which has come of age this year.

We are now on the Data Protection Register, which means that our filed information is subject to certain obligations. Under the Data Protection Act, we are:

1. registered to hold information as described on the 1994 application form.
2. able to disclose such information to:
   - (a) The data subjects themselves
   - (b) The members (e.g. Committee)
   - (c) Suppliers, providers of goods or services. (This does not currently apply as committee has decided NOT for the moment to apply for mail shots)
   - (d) C.S.P. (This only applies at the moment to information given regarding those willing to take staff/students on electives, and those willing to have visitors.)

It has been quite challenging to use the Association computer and load in all the information given. Thank you to all of you who have been willing so to provide.

Association of Paediatric Chartered Physiotherapists

APPLICATION FOR MEMBERSHIP 1994

1. Ordinary Membership is open to annual subscribing members of the Chartered Society of Physiotherapy.

2. Associate Membership is open to professional people with an interest in paediatrics, subject to the approval of the National Committee.

3. **Annual Subscription for 1994 is £16.00**, and runs from 1st January to 31st Dec. All cheques should be made payable to 'A.P.C.P.'

4. Retiring members are only required to pay half the total annual subscription.

5. Subscriptions for overseas members are £2.00 less than the current full subscription.

Cheques made payable to 'APCP' should be sent to:
Jenny McKinlay, Membership Secretary 3, Stanley Gardens, Sanderstead.
S. Croydon. Surrey CR2 9AH.

P.R.O. NEWS - MARCH 1994

* The APCP stand has some new posters and pictures on it. I felt that the stand should depict two areas - what WE do as Paediatric Physiotherapists and what IS APCP. I continue to need new photos and if anyone has any please send them to me but please ensure you have the agreement of the parents first.

* A further meeting took place in March on Outcome Measures and the pilot studies are going well. Further feed back will be given at the next meeting in three months time.

* March 13th - 19th was National Continence Week. Anyone wishing advice for children with day or bed wetting problems can contact Enuresis Resource and Information Centre, 65 St. Michael's Hill, Bristol BS2 8DZ tel: 0272 264920. Alternatively information may be sought from the Continence Foundation, 2 Doughty St. London WC1N 2PH or from the helpline telephone no.091 213 0050. For people with faecal incontinence in particular send a s.a.e. to British Digestive Foundation, P.O. Box 251, Edgeware, Middx. HA8 6HG.

* I am continuing to want ideas from anyone on new leaflets and information packs that we can give the membership.

REGIONAL REPORTS

Southwest

Mrs. Carole Hurran, 23, Bayswater Ave., Westbury Park, Bristol.
This is my last regional report for the journal as I am handing over to our new rep. **Gill Smith, 23 Gunville Crescent, Castle Mead, Bournemouth, BH9 3PZ.** Gill works at Southampton General Hospital and specialises in neonatal physiotherapy.
Our AGM and Study Day on Paediatric Audit at Salisbury was attended by 25 people, and was an interesting and useful day. The new committee will meet on April 29th to plan future courses and exchange news. Please write and let us know if you are planning a course so that we can avoid dates clashing, and publicise your event.

South East

Shiela Minet, Old Knowle, Frant, East Sussex, TN3 9EJ.
There is no report because unfortunately Shiela has been very ill with the 'flu, and was unable to come to Conference. We wish her better. Ed.

London

Rowenna Hughes, 87 Norbury Hill, SW16 3RU.
A successful study day was held on Saturday March 12th at G.O.S. The subject was "GEMS" - Guide to Early Motor Skills - presented by Chris Bungay - Superintendent Physiotherapist and Molly White - teacher.
It was encouraging to see other professionals for example occupational therapists and teachers attending the course.
The A.G.M. was held during the morning session and there was a good attendance.

Courses:

Mr. Peter Bullock, Consultant Neurosurgeon at Maudesley Hospital London is giving a lecture on Dorsal Rhizotomy on May 19th at the Royal London Hospital at 6.30 p.m.
Future courses are being planned by the Committee aimed at specific areas of interest. We are hoping to plan a day on Management, looking at auditing, costing, case weighting and a clinically orientated day i.e. respiratory, musculo-skeletal.

Committee News:

Unfortunately our Secretary Jackie Church is resigning. She has done an excellent job and hopefully she will remain on the Committee.
Kate Lough has given birth to a son Max. Both are well.
If any member is interested in joining the Committee please contact any of the members. We have a vacancy.
Suggestions for courses and venues are always welcome.
I was pleased to see members of the London Branch at the Conference in Chester.

East Anglia

Sue Whitby 3 Manor Way Hail Weston Huntingdon
A study day on A.F.O.'s was held at the C.D.C. at Addenbrooke's Hospital, Cambridge on March 5th. together with our A.G.M. The day was led by Phil Rees from Camp Ltd. who gave an excellent presentation covering the anatomy of the foot, the biomechanics of stance and gait and the use of

ankle foot orthoses. We were joined after lunch by the daughter of a physio who had been wearing A.F.O.'s for some time. It was most interesting to watch and hear Phil's assessment and to watch him cast new splints.
At lunch time we held the A.G.M. and elected five new Committee members. Linda Fisher is the new Chairman and Sue Whitby is now the Regional Rep. Our joint Treasurers, Eva Mason and Jean Offord have agreed to stand for a further year.
A study day on Cystic Fibrosis, Child through to Adult, will be held in October at Papworth with Dr. Bilton. There will be a Sharing Day on June 15th at Thurrock Community Hospital from 2 p.m. to 6 p.m. This new hospital is near the Lakeside Shopping Complex which you could visit in the morning. Please keep this day in mind! More details from Sue Whitby.

Trent

Margaret Cameron, Child Development Centre, City Hospital, Hucknall Road, Nottingham, NG5 1PB.

There have been several recent changes on the local Committee following Jenny Gill's departure from the Chairman's role. Margaret Cameron who has been Secretary for the last two years has taken over as Chairman and Regional Rep.
The A.G.M. was held in Nottingham on March 9th. This year the format was changed from an evening meeting to the afternoon. Two talks were organised during the afternoon. The first was a lecture on the anatomy of the foot by Mr. Moulton, Consultant Orthopaedic Surgeon and his Registrar Dr. Lopez. Following the A.G.M. Mr. Vickrage and Mr. Collins at Genesis Orthotics who make the David Hart Walker spoke about their current work.
Continuing the theme of the feet a sharing afternoon has been arranged on 24th May at Peterborough C.D.U. from 2.00 - 4.00 p.m. Mr. A. Shair, Consultant Orthopaedic Surgeon will talk on the management of the talipes foot and there will be an opportunity for informal case discussions afterwards. A nominal charge of £2 will be made for tea and coffee. For details contact Ruth Hilton on (0733) 67451 ext. 4718 or 4735.

West Midlands

Carol Foster, Physiotherapy Department, The Childrens Hospital, Ladywood Middleway, Birmingham, B16 8ET.

The A.G.M. of the W. Midlands branch was held on March 9th. at Bray's School. The meeting was well attended and was followed by a most interesting presentation by Dr. Helen Roper, Consultant Paediatrician at Heartlands Hospital East B'ham H.A. on Neuro-muscular disease and its management. An excellent buffet was provided by the Branch.
There is much activity in the West Midlands area with the first Midland eight week Bobath Course being held at Lea Castle Hospital Kidderminster in April and July.
A Bobath day at Brays School with Colin Stevens as presenter and a proposed Paediatric Course for five days is to be held at the Children's Hospital (details in next Journal)
The new Committee meets for the first time on Wednesday 13th. April when future events will hopefully be organised.

The membership of the West Midlands Branch now stands at 99 paid up members. We would like to encourage lapsed members to rejoin and new members to join. The membership secretary will be glad to receive your applications (address at back of Journal) Application forms are available from me at the Children's Hospital.

Wales

Barbara Bowen, Childrens Assessment, East Glamorgan Hospital, Church Village, Nr. Pontypridd, Mid Glamorgan, CF38 1AB.

Our membership is building up at a steady trickle. Most members I've spoken to are in favour of direct debits as we are all such busy people that re-joining is just another item on our endless lists of 'jobs to be done'.

Our Annual General Meeting as advertised will have taken place on March 24th followed by cheese and wine. Our speaker Professor Sibert, and his subject 'Child Abuse'.

In May we have a 2 day counselling course on the 4th and 11th at the Bavistock Hotel, Heads of the Valleys Road, Aberdare. May 8th - 11th 3 day introductory Bobath course at Bobath Cymru.

June 11th, Sarah Dyer, Bobath Cymru. 'Caring for a child with C.P. a comparison of Therapists and Parents perception of The Problems.'

September - Management of The Baby with Talipes - Morriston Post Graduate Centre.

November proposed S.C.B.U. course at Prince Charles Hospital, Merthyr.

We plan to have a combined study day with the Cystic Fibrosis group and welcome any other suggestions. The Genetic Department at the University Hospital of Wales have been carrying out an early screening programme for Duchenne Muscular Dystrophy. Following this, they are researching into the outcome of early physiotherapy intervention with these children. Representatives from around Wales, involved in this research, are meeting at Conference and a further meeting open to all interested parties will take place on May 16th at Llandrindod Wells.

For further details please contact myself or Dr. Parsons or Dr. Angus Clark at the Department of Genetics, University Hospital of Wales.

North West

Alex Winney, Physiotherapy Department, Dorin Park School, Wealstone Lane, Upton, Chester, CH2 1HP.

The Committee has been extremely busy organising the A.P.C.P. Conference in Chester. Thanks to everyone for all their hard work. We hope all delegates had a rewarding and enjoyable time.

On March 5th. we held a combined study day and A.G.M. There was an excellent attendance of over forty members. Dr. Ian McKinlay spoke on Syndromes and four physiotherapists spoke about their experiences working with children with syndromes.

A study day will be held in October in Oldham at the Park Dean School on "Integration of the older physically handicapped child into adult life.

North East **Liz Hardy, 45 Kestrel Close, Norton, Stockton-On-Tees, Cleveland, TS20 1SF.**

The "Head Inuries" study day held at Leeds on 12th February was a great success, but as places were limited, many people were disappointed in being unable to attend - the moral is: "Apply early next time." However, we do plan to run a similar day next year.

Your committee are currently planning the next exciting event - see the insert. Please let us know what topics you would like for future study days. It was nice to see some of you at the conference in Chester, last month - wasn't it good!

Scotland **Lyn Campbell, 19 Craigmount Avenue North, Edinburgh, EH12 8DH.**

Our A.G.M. and study day on Sensory Integration were held on the 5th March 1994 and were well attended.

Two of our committee resigned at the A.G.M., Ishbel Spence and Moira White and we would like to thank them for all their work over the years. The new committee, the area they represent and their work telephone numbers are as follows:

Lyn Campbell		Chairman	0236 456100
Maggie Heggie	(Glasgow Schools/Community)	Treasurer	041 554 1866
May Dempster	(Edinburgh Hospitals)	Secretary	031 667 1991
Lesley Smith	(Glasgow Hospitals)	Course Organizer	041 339 8888 Ext. 4063
Christine Shaw	(Edinburgh Community/Schools)	Comm. Member	031 337 1236
Helen Turner	(Ayrshire)	Comm. Member	0294 274191 Ext. 3281
Doreen Shorthouse	(Central)	Comm. Member	0786 434000
Linda Cunningham	(Tayside)	Comm. Member	0382 84606
Rhona Ritchie	(Fife)	Comm. Member	0333 425656 Ext. 162
Kathy Banford	(Dumfries & Borders)	Comm. Member	0387 46246 Ext. 3452
Liza Lindsay	(The North)	Comm. Member	0345 517488

If you have any queries please contact the committee member in your area. The Committee continue to be very involved in planning for the 1995 APCP National Conference but we hope to run a study day in the autumn.

At the present time we have a healthy bank balance and would like to be able to give this back to our members; thus if you are seeking funding for courses etc., we can at present help in a small way; so please write to us and each case will be individually examined.

Northern Ireland

Finola Beattie, The Royal Belfast Hospital For Sick Children, Belfast, BT12 6BE.

The AGM was held on 14th March in Fleming Fulton School and we were delighted at the attendance - let's hope numbers at the meetings continue to swell. Three Committee members resigned and have been replaced by three members who have not previously been on the Committee - it's good to get new blood - and new ideas. Lets hope that the 1994/95 programme will be of interest to more of our members - details to follow.

Meanwhile, a two day course on Counselling Skills will be held on 20th/21st May - please contact Joy Hegarty at Fleming Fulton School for details. Unfortunately, we have had to postpone our Study Day on "The Clumsy Child" but hope to organize this at a later date."

22 OCTOBER 1994

National Congress of Physiotherapists

"EUROKINE -KINEXPO 94"

Place: Leuven, Belgium.

Organization: K.U. Leuven, branch for motoric revalidation
Scientific Committee N.F.D.L.K.
The European Magazine for Physiotherapy KINE 2000
Secretariat of Congress: K.U. Leuven
Branch for Physical Education and Physiotherapy
Tervuursevest 101
3001 Heverlee, Belgium.
Tel.: ++32-(0)16/20.14.31 Fax: ++32-(0)16/20.14.60
Price: 250 BEF. (without lunch), 500 BEF. (with lunch).

PROGRAMME DETAILS TO FOLLOW