

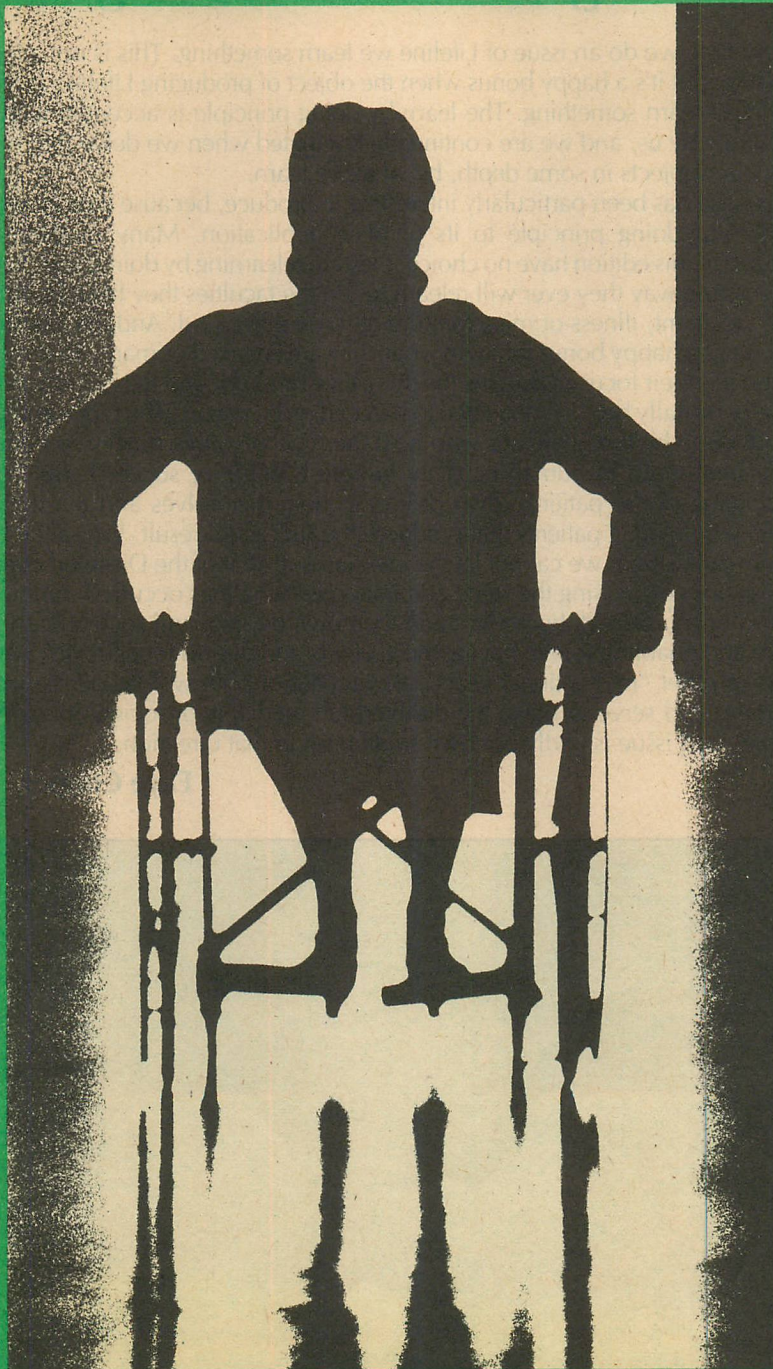
Lifeline

MAGAZINE



Vancouver General Hospital

Vol. 3 No. 5
December 1981



Physical
Medicine

Renewing faith in human ingenuity

Every time we do an issue of Lifeline we learn something. This is not altogether surprising, but it's a happy bonus when the object of producing Lifeline is really to have YOU learn something. The learn-by-doing principle is accepted with some equanimity by us, and we are continually fascinated when we delve into medical and social subjects in some depth, by what we learn.

This issue has been particularly interesting to produce, because it probably takes the learn-by-doing principle to its ultimate application. Many of the patients discussed in this edition have no choice; they are relearning by doing, and that is the only possible way they ever will relearn to use the faculties they have lost through stroke, accident, illness or misadventure of some other kind. And the learning-by-doing is not a happy bonus for them while they are engaged primarily in some other activity; it is their focus of activity, the thing they must do, and they must work hard and be personally heavily motivated to succeed, even in part. The range and variety of work done by the clinicians who help them achieve this success is enough to restore one's faith in human capacity to adjust, achieve, succeed. But it is the combination of the patients' own desires to help themselves and the therapists' ingenuity in helping patients that produces the successful result. We salute both.

In similar fashion, we cannot let the International Year of the Disabled come to a close without expressing the same admiration for what has occurred during it: the disabled have asserted themselves and their own desires, and society has taken a sincere and enabling role in having those efforts and desires recognized. We hope that as in other "international years", the impact of both will be permanent and important, and serve to make the disabled full members of society in every way possible. This issue is partly our own small push in that direction.

Faye Cooper

Contents

Rudee's story	4
Physical medicine — working towards independence	7
History of physical medicine	10
Out-patient clinic	12
Early involvement	14
Working with children	16
Rehabilitation	22
Other aspects	25



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Rudee's story



"I remember looking up and seeing shiny stars over my bed. I was told it was Christmas, but I didn't know what Christmas was . . ."

At 11:30 p.m. on August 29, 1979, Rudee Gessie, 20, was riding his motorcycle when he was involved in an accident and suffered severe head injuries. A University of B.C. physical education student, he was working in Williams Lake for the summer and had to be flown to Vancouver for emergency treatment.

At VGH his parents, Pat and Bernie Gessie, anxiously awaited the outcome of surgery aimed at relieving Rudee's brain damage. Pat remembers that night clearly. "When we finally saw him he was in a coma. He didn't respond to anything. They told us people in a coma can sometimes hear. Right from the beginning his father and I would go and sit with him, talk to him and his friends did too. Many came to help, one read the sports pages aloud during his visit."

During the critical period neurosurgeon Dr. Paul Steinbok inserted a sub-dural screw down to the brain's dura, which permitted him to monitor intra-cranial pressure changes. Rudee was given massive doses of barbiturates to shut off brain activity. Steinbok later inserted a ventricular peritoneal shunt, a fine tube which would drain excess fluid forming on the brain, down through the body and into the peritoneal cavity.

The neurological intensive care unit on D4 of Heather Pavilion is lovingly nicknamed "the pit" by patients, families and staff alike. To the unprepared it looks like a battle ground. In a sterile environment patients are nursed naked between sheets, fed through nasogastric tubes lying in a semi-prone position to prevent them inhaling their own secretions. Turning is carried out every two hours to prevent respiratory complications and formation of pressure sores. Splinting may be necessary to try and prevent contraction of limbs.

Rudee spent a long time in "the pit" suffering mainly from high temperatures associated with serious head injuries. Meanwhile the Gessies waited. They came every day, twice a day, and began to ring up a parking bill that would come to more than \$400 before Rudee was discharged some seven and a half months later.

They had no idea what to expect. They didn't know if he would regain consciousness, if he would ever move or see, hear or speak again. No one knew. It was terrible for them to watch their only son lie immobile, a young man who, in addition to being a fine student, had been ranked in tennis, played football, skied and was looking forward to coaching the Vancouver College 'Fighting Irish' football team for the 1979-80 season.

Physiotherapist Maureen Desborough worked on Rudee from the beginning, using techniques to inhibit spasticity and mobilize joints in unconscious patients. Even when Rudee finally opened his eyes, there was no sign of communication. Without some cooperation the future looked bleak for a reasonable recovery.

"Inability to communicate is just a living hell," said Pat Gessie. "His eyes just had a glassy stare for a long time. After a while he went through a stage of primitive motion. His legs would cycle — it seemed like forever. He wore the skin off his legs and developed sores. We tried everything to distract him, we brought in books and magazines with bright colours. For a time he would stop cycling and look, then start again. This gave us a great deal of hope."

Desborough worked hard throughout this period. "He had severely abnormal patterns of movement and wouldn't respond to us at all. This thrashing caused us a lot of concern. He was a prime candidate for bad contracture. We tried everything to get him to communicate and there were times when I thought we might have to give up. But through it all I just sensed something was there deep down."

Acting on a hunch, Desborough began taking him down for treatment in the pool. Once as Pat waited outside she heard Rudee screaming. The screaming continued whenever Rudee went for therapy or received a new stimulus. It was his way of communicating. "There was a patient in the bed next to Rudee who told us we had to get him out of the hospital because the staff were killing him," Pat said.

To get relief from his interminable screaming, the staff would strap Rudee in a wheelchair and sit him by the nursing station just for the distraction. At this point everyone was concentrating on getting him to respond — to make a sound, to make a gesture. Pat bought him a whistle, but he couldn't blow. They bought him a T.V. set but he reacted with violent screams. Pat, remembering he used to wear glasses, had his old prescription filled. When she put them on him he reacted with a smile of pleasure, he was regaining visual communication.

Four months after his arrival at VGH things were looking up. One day Pat noticed Rudee was twitching at the side of his mouth, as though he was thirsty. "I filled a glass with water, brought some lifesavers, wet his lip, ran a lifesaver along it and his tongue barely crept out. That was a big break, you've no idea how many lifesavers we went through!"

In addition to dogged support from family and nursing staff, Desborough and occupational therapist Theresa Mackie began work again in earnest. "After trying a lot of different things we finally got through," said Desborough. "He moved his right finger and his eyes — it was a big moment as everyone was involved with his case and wanted it so much."

They took Rudee to speech pathologist Judy Semotiuk who elicited his first deliberate sound in five months by getting him to hum. "I really cared about Rudee. What we tried was a shot in the dark, I didn't really know if he was comprehending what I said. He wasn't even breathing correctly for speech so we had to do lots of exercises. But he was keen and worked hard."

"I feel it was the best thing I have ever done. When he first came to me all he could do was yell, but once he found he could articulate some sounds, he realized he might be able to communicate. What he achieved was incredible."

Within eight months Rudee was sitting straight, feeding himself and turning over on a mat. Desborough and Mackie gave his recovery all they had and were so impressed by his progress that they captured it on film. The improvements were amazing and Rudee progressed from D4 to VGH's rehabilitation wards and from there to a 16-month spell at the G. F. Strong Rehabilitation Centre in Vancouver.

This summer he finished attending the centre as a regular outpatient. Today he is enrolled in psychology and English courses at Vancouver Community College, Langara. His memory is back completely, so much so that he passed last year's psychology test relying solely on the work he did in his first year at UBC almost three years ago. His voice is slightly hesitant, he is still unable to walk far without crutches and his hands are contracted. But he drives a car, swims regularly and makes plans for the future that include practising recreation leadership, psychology, perhaps counselling the disabled who have suffered head injury.

Neurosurgeon Steinbok described Rudee's recovery as "remarkable".

"I don't remember the accident," said Rudee. "They say people usually don't. The first thing I remember is looking up and seeing shiny stars over my bed. I was told it was Christmas, but I didn't know what Christmas was."

"Things really started to happen for me after I started speech therapy. I just loved it, I never screamed there! She was very tough on me. But after I started to talk, my memory seemed to come back a little better. Not remembering was the worst part. But it gradually came back, especially after I started school."

"Right now I want to do things by myself as much as possible. It really bugs me if someone does things for me — right mum? She's cautious where I would throw caution to the wind."

Pat Gessie grimaced as he said this. After a nerve-racking two years when her son came back slowly from the dead before her eyes, hearing his impatience is very hard. "Sometimes I can't believe it," she said slowly. "It happened because people care, we are very, very grateful."

Physical medicine — working toward independence

We save more lives today than ever before. But, having saved a life, health care professionals then have to concern themselves with the quality of that life, which means different things to different people. How hard we try to heal people and the cost of that work; how long we try for complete recovery and the morality of giving up are questions that haunt everyone in hospitals today.

This issue of Lifeline is not about life and death situations. It is about a group of dedicated people who take a survivor of accident, illness or injury and try to make his or her life the same as it was before. If that is not possible, they work to achieve the best possible movement, activity level, communication and independence. They are a cushion between the soft, ordered life of dependence in hospital and the often harsh, seemingly unmanageable reality that waits outside.

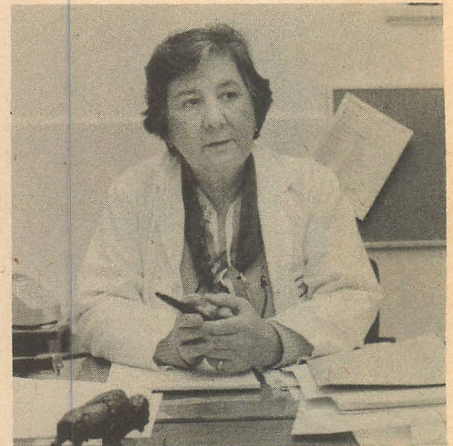
Every day at VGH 798 patients are visited by staff of the physical medicine department.

Physiotherapists in blue, occupational therapists in green and speech pathologists in white lab coats cover the hospital's entire area at a pace leading the rest of us to believe they are constantly on the go. They are — they have to be if they are to fulfil their role of providing support and help to all the patients who need it. Their common complaint is that there is not enough time in the day. And, given the size of VGH, the scope of its practice and the variety of its inmates, you can understand why some therapists feel they are banging in a nail with a popsicle stick.

The physical medicine department is run by manager Barbara Nowell. It is one of the largest departments in Canadian hospitals with a staff of 60 physiotherapists, 21 occupational therapists, 11 activity aides, five recreationists and three speech pathologists. PT head is Pamela Jeacocke, head OT Jean Stephens and senior speech pathologist, Ita Kelly. Five clerical staff and two attendants are key to the smooth running of the department.

Teams cover the spectrum of specialties including burns, pediatrics, cardiothoracic, intensive care, oncology, psychiatry, long term care, rheumatology, respiratory medicine, family practice, orthopedics and general medicine. Service is provided seven days a week, 13 hours a day — 15 in the case of heart patients. The acutely ill get first priority at all times. Physiotherapists see out-patients until 9 p.m. Monday to Friday. The department is always in one long whirl.

Therapists are in short supply today. Canada does not produce enough for its health care institutions and must rely heavily on graduates from overseas. Developments in both fields



Barbara Nowell, Manager of Physical Medicine at VGH.

over the last 10 years have seen a mushrooming of demand for their skills not only in hospitals but in rehabilitation centres, mental institutions, long term care residences, community health departments, sports institutes and the schools system.

As demand has increased so both services have met the challenge by becoming more specialized. As in medicine and nursing, OT's and PT's cannot always jump from one special area to another and practice safely. It is vital they know exactly what they are doing if they are to enhance the work of surgeons and other medical specialists.

Physiotherapy

Many people have experienced physiotherapy at one time in their lives. When questioned about their experience they may grimace, as the road to rehabilitation after physical injury is almost always painful and exhausting. But at the same time they remember that their PT's cajoling, often during difficult times, made them move and work and made the difference between a slow recovery and a speedier one.



Pamela Jeacocke, Head Physiotherapist

The job of the physiotherapist is to prevent or alleviate impaired bodily function by working on motor skills, joint range of movement, muscle strength and cardio-respiratory function. To do this they have a lot of manual techniques and can draw upon agents such as heat, cold, water, air, sound, compression, electricity and electromagnetic radiation. In essence they want to make you as normal as possible, as soon as possible, and will try everything available.

In the acute care cases they aim to improve levels of functional recovery, reduce incidence of complications and shorten hospital stay. In rehabilitation they plan and carry out physiotherapy including education programs for the disabled. For extended care patients they organize individual and group therapy designed to increase their activity levels and physical well-being.

To do all this requires a thorough knowledge of kinesiology (the study of movement) and a working knowledge of the patho-physiological mechanisms that produce abnormal movement. All physiotherapists need to have an understanding of how the brain works and a detailed knowledge of human development.

"What we look for in PT's for VGH is a good ability to communicate," said head PT Jeacocke. "Obviously good manual skills are required because the work is still very much 'hands on'. It can be hard work involving a lot of mental and physical activity, so PT's have to be up to that.

"On top of this there is a need to take the initiative. Few doctors send us a patient and say 'this is what I want you to do'. Because we usually make an assessment and plan treatment, there is a large measure of responsibility. In our hospital PT's need to react quickly when they are dealing with the acutely ill. Although it can be emotionally draining when there is a long involvement with seriously ill patients, there is a great measure of job satisfaction which, I think, is what keeps us going."

Occupational therapy

OT is still much misunderstood today. Physiotherapy is more visible and is accepted, no, welcomed as part of any medical team. In comparison OT is still fighting off the old image of 'the arts and crafts cart' at a time when the profession is rooted firmly in 20th century science.

An occupational therapist aims to help anyone physically or psychologically impaired by increasing or maintaining their level of independence in daily tasks; be that in a work, social or domestic environment. They use special techniques which include stimulation of sensory, motor and cognitive skills needed for normal work, play, leisure and self-care tasks. Today's OT training draws knowledge from biological and behavioural sciences, sociology and anthropology. Skilled basketwork is not



Jean Stephens, Head Occupational Therapist

a requirement of the job!

With a staff of 21 therapists, OT services are thinly-spread throughout several clinical areas. Frequent staff shortages create problems in providing appropriate ward cover and continuity of service. This forces OT's to concentrate on the more seriously incapacitated patients, even though this may mean a widely dispersed case-load and overlap into another clinical specialty.

In order to cope with this, it is imperative that all OT's on staff have the opportunity to develop skills in addition to their areas of expertise. They are backed up by recreationists who man playrooms and the adolescent social program in the Health Centre for Children. In addition, activity aides play an important role helping within the department and with the long term care patients who, by default, end up in VGH and require their services desperately.

Resourcefulness is a major requirement for VGH OT's. Part of their work is the design, fabrication and application of splints for patients recovering from surgery or acute or

chronic problems where contracture of muscles may set in. This is time consuming. A simple resting splint for a hand can take 45 minutes to make while a dynamic hand splint with metal outriggers can take up to three hours. Sometimes OT's are asked to splint or position a patient under anesthetic in the operating room. In addition, OT's and aides, with volunteer help, adapt equipment for the disabled, particularly to help encourage correct development in children.

Treatment of the neurologically-impaired is a major part of OT — from a premature baby in the Intensive Care Nursery, to an elderly stroke victim. VGH has pioneered innovative OT treatment in Neurology. A Sensory Integrative approach to treatment, based on the phases of neurological development has been applied here for a number of years, although it is still considered 'a new treatment method' by some institutions.

Other important work is known as Activities of Daily Living (ADL) in which OT's assess patients' ability to move, care for themselves and housekeep. They help patients learn new techniques for independence. This is very necessary at the pre-discharge stage.

Education plays an equally important role. OT's spend time counselling families on how to cope with patients on their return home, also with the patients themselves instructing them in the acquisition of new skills to maximize function and prevent further injury. At the same time this gives them confidence and encourages self-worth.

"Our work can shorten hospital stay, improve quality of life and, while participating in treatment programs that establish a patient's maximum functional level, can also determine what aids or adjustments may be necessary in order to achieve and

maintain the highest possible level of independence," said head OT Stephens.

"However, problems of staffing exist and with even one vacancy it can become very difficult to maintain a consistent service and meet the expectations of patient and multi-disciplinary team members. We are a high profile department and get requests for student and intern clinical placements, not only from the University of B.C., but from other Canadian universities. Unfortunately we can only accept a small percentage, and projected planning for student placement, taking into account vacations and potential staff vacancies, is an annual and escalating challenge."

Speech pathology

Speech pathology has expanded in the last 10 to 15 years and has been available at VGH since 1970. Three speech pathologists provide assessment and remediation and family counselling for patients with speech and language disorders. They stimulate communication by correcting articulation problems, improving language comprehension and expression, voice quality and speech fluency.

The biggest part of their case-load are stroke and head injury victims, followed by laryngectomees (patients who have lost their larynx) and other cancer victims, whose tumour or treatment affects the mouth or voice box. Top priority is given to inpatients. A third group, mainly out-patients referred by ear, nose and throat specialists, have voice disorders. VGH speech pathologists also work with stutters and children experiencing early language difficulties.



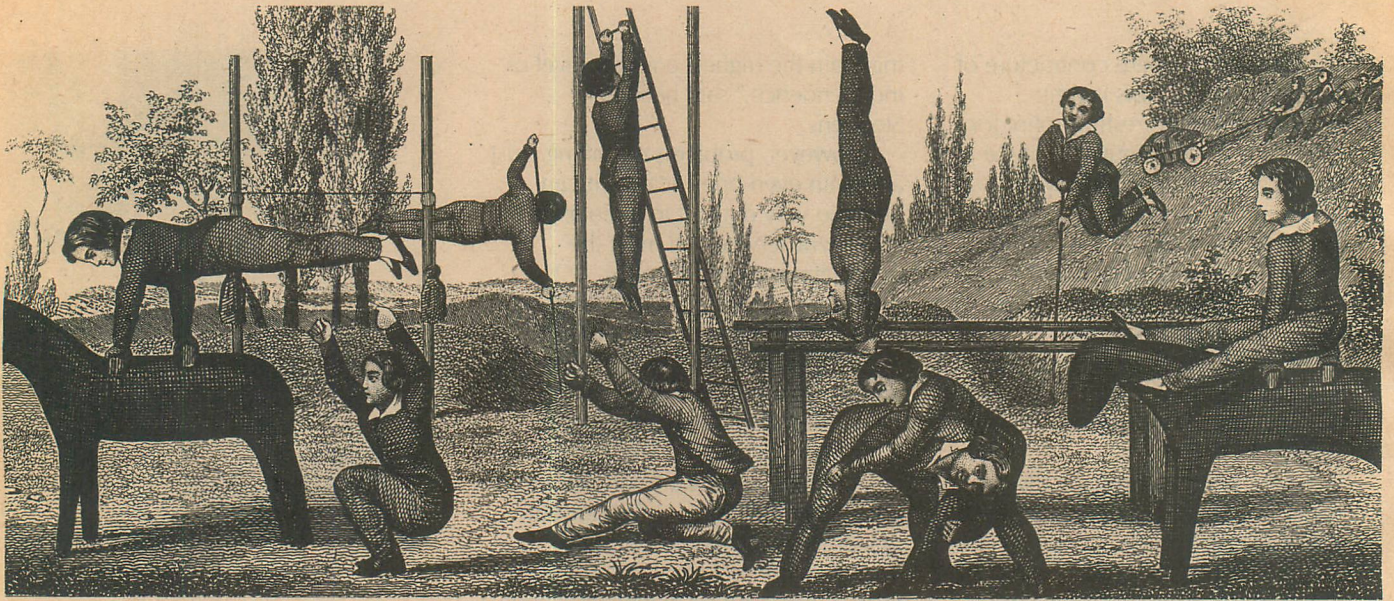
Ita Kelly, Senior Speech Pathologist

Recruitment and training

There are 12 physiotherapy and 10 occupational therapy training programs in Canada, which do not meet the current demand for graduates. Traditionally, most staff have come to Canada from the U.K., Australia, New Zealand and other parts of the Commonwealth to fill the gap.

VGH participates in the training of therapists and speech pathologists by providing clinical experience for students and interns during their academic training and has a flood of applications from across the country each year — first because it offers such a wide variety of work, second because it has developed a unique training program for new graduates. Junior staff are able to rotate through all the specialty areas, gaining expertise just not available elsewhere. This also gives them an opportunity to select a specialty and gives VGH a qualified, versatile staff.

History of physical medicine



“Movement is life” – Aristotle

Despite major advances made in treatment techniques over the years, the physiotherapist’s most important tool remains a sensitive pair of hands.

Massage still plays an important part in preparing patients for other forms of treatment. It stretches skin, softens tissue, improves circulation, loosens scar tissue, smoothes roughened surfaces and restores mobility in muscles and ligaments.

Records show that massage was used extensively by ancient civilizations — among the earliest evidence comes from China in the writings of Kung-Fu. It was also practised in India under the name “shampoo.” In 327 B.C., Alexander the Great employed professional “massers.” But as time passed, massage became a luxury for the rich and fell into ill-repute.

Both the Greeks and Romans took pride in health and physical fitness. Homer’s *Odyssey* records that “beautiful women rubbed and anointed war-worn heroes to rest and refresh them.” Hippocrates himself extolled the virtues of massage and urged fellow physicians to learn friction techniques.

In ancient Greece a class of physicians called *Iatrolepta* treated numbness of the knee with percussion; headaches with pressure to the temples; and fits of hysteria by pulling and rubbing the fingers. Julius Caesar himself was pinched all over to relieve neuralgia pains. In the 2nd century A.D., Galen, who was also surgeon to the gladiators, recommended that the athletes “be rubbed until they were red, and anointed.”

Records of massage apparently disappeared during mediaeval times, surfacing again as anatomical knowledge improved during the 16th Century. European wars stimulated better treatment for the wounded and two British physicians Bright and Sydenham were enthusiastic about its use. But as massage again became fashionable, and increasingly used for pleasure, it had a detrimental effect on its use in medicine.

Captain Cook’s journeys show that pressure techniques were practised extensively in India, China and Egypt, also by North American Indians. In the existing record of his third voyage in 1779, we learn Cook suffered from severe sciatica. In Tahiti he was treated by 12 women, who “as many as could, squeezed him with both hands from head to foot, particularly where the pain was, till his bones cracked and his flesh was like a mummy.” This drastic 15 minute treatment, repeated three times, apparently did the trick.

Early in the 19th Century Dr. Balfour of Edinburgh used compression for gout and physical debility; and percussion to relieve fluid build-up. In the latter half of the century Dr. Gustav Zander, who constructed gymnastic apparatus, produced the first mechanical vibrators.

But it was Swedish physician Per Henrik Ling, founder of the Central Institute of Gymnastics in Stockholm in 1913, who brought physiotherapy a step closer to birth. He placed great emphasis on medical gymnastics and used massage extensively. Later, the scientific applications of Dr. Mezger of Amsterdam established massage as reputable in Europe and America. The French surgeon Lucas-Champonnière pioneered the technique to treat fractures, while in Philadelphia, Dr. Weir Mitchell, a neurologist, used it in conjunction with rest and diet for his patients.

But before the close of the 19th Century, massage suffered yet another setback in medicine, particularly in England where "houses of ill-repute" operated under the guise of massage establishments. This led four British masseuses to form the Society of Trained Masseuses in 1895 to "make massage a safe, clean and honourable profession for British women." It was in 1917 that VGH opened its physical medicine department offering the services of one male masseur.

"Toil and pleasure in their nature opposites are linked together in a kind of necessary connection." Livy.

Today occupational therapy has come a long way from the mere application of arts and crafts as diversions for institutionalized patients. Its new philosophy has a historical base. The Egyptians in 2000 B.C. and the Greeks in 420 B.C. described diversion and recreation as means of treating the sick. In A.D. 172 Galen wrote that "employment is nature's best physician and is essential to human happiness."

During the Dark Ages play was frowned upon by the Church and was regarded as evil. But its mental and physical influence was again recognized during the Renaissance.

It was not until the latter half of the 18th and the beginning of the 19th centuries that occupation was used as treatment in Italy, France, Spain and England. In the middle of the French revolution Phillippe Pinel introduced it in the Bicêtre Asylum for the Insane near Paris. In one of the first descriptions of prescribed use of work he said: "The return of convalescent patients to their previous interests, to the practice of their profession, to industriousness and perseverance have always been for me the best omen of final recovery."

In 1797 Dr. Benjamin Rush in the U.S. prescribed "spinning, sewing and churning" for his women mental hospital patients and "grinding corn, gardening and cutting corn" for the men. In the early 1800's Samuel Tuke, an English Quaker, described "moral treatment" for asylum patients, providing them with work therapy, permitting them to wear clothes and discontinuing the use of chains and corporal punishment. This most basic use of occupational therapy continued in mental institutions across the globe.

In 1905 American's Susan E. Tracy was training to become a nurse. She noticed that occupation relieved nervous tension and made bedrest more tolerable. She saw work as an important adjunct to drug treatment and felt instruction in self-help was important. In 1911 she conducted the first training course in occupation and did much to disseminate its use in treating both mentally and physically ill patients. The work was carried out by nurses and teachers until occupational therapists became a reality with the founding of the National Society for the Promotion of Occupational Therapy in 1917.

Work began in earnest as the U.S. faced an onslaught of returning wounded from World War 1. Occupational therapy to treat physical dysfunction gained impetus during this period as did a more scientific approach to the treatment of physical disabilities.

Out-patient clinic



Some 2500 patients with musculo-skeletal conditions are referred for physiotherapy as out-patients each year. Very few come in with a specific diagnosis. Most often they are experiencing pain and it is up to the physiotherapist to carry out a thorough examination, locate the structure that is damaged or weakened, and plan a tailor-made program.

Senior of the nine-member team is Fatima Mendonca. The staff are all good generalists, and have all taken some extra PT training in the specialized field of musculo-skeletal dysfunction. The conditions seen are secondary to sprains, fractures, immobilization, cut or torn tendons and ligaments, with or without surgical repair. VGH has a great deal of expertise in the treatment of hand injuries. PT Heather Newsome specializes in such patients and works closely with the hand team. Mendonca also provides coverage of VGH's trauma clinics. Other special programs include treatment and education for spinal problems, control of chronic swelling, hydrotherapy and ultra-violet light.

Most often the first stage of treatment involves passive joint mobilization, a method of moving joints while the muscles remain at rest. This is considered so useful today that researchers are experimenting with mechanical devices to exercise limbs this way in patients who have poor mobility.

"Today's PT's have to know osteo and arthrokinematics — the movement of bones and intimate mechanics of joints," said Mendonca. "We must know very precise surface anatomy to be able to localize the joint being treated and to be accurate in performing the passive mobilization."

Some of the problems treated are stiffness, decreased strength, pain, swelling, adhesions and skin conditions such as psoriasis and acne.

Many different techniques and agents are available to help combat pain, swelling, stiff muscles and joints and to affect the body's healing process. For the relief of pain, heat, cold, ultrasound and transcutaneous nerve stimulation (TNS) may be used. Ultrasound may be used in cases of more superficial injuries to soft tissues. To help relieve pain, particularly in severe shoulder or hand injuries, therapists may apply transcutaneous nerve stimulation, an acupuncture-like technique using an electrical current. "This is quite useful in sympathetic dystrophy which may mean about an 18-month period to return a hand to normal function," said Mendonca. "These patients benefit from TNS and nerve blocks."

In addition to passive mobilization, they use active exercises to achieve mobility, which involves patient participation. PT's use biofeedback mainly for educating muscles, the portable unit picks up electrical activity in muscles to pinpoint any contracture. Another electrical technique is Faradism (application of direct electrical current) to activate muscles. For chronic swelling, as in lymphodema of the arm following mastectomy, Jobst compression pumps may be used.

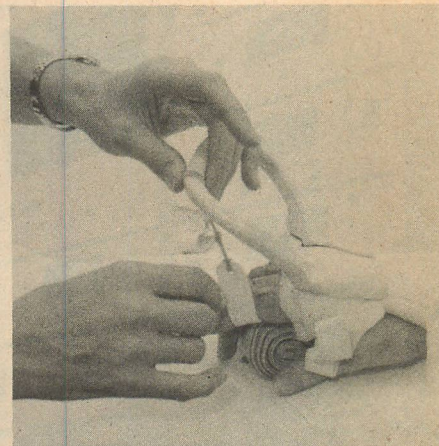
"The conditions that we treat haven't really changed over the last 10 years. But there has been a change in the way we approach them. Today we realize the need for patient participation and we concentrate a great deal on education and teach preventive measures when possible.

"In most cases we can see results very quickly. We either have more movement or less pain, or increased strength. But we have a higher success rate if we see the patient as soon as possible after an injury, that's something we try to get across to physicians and the public. If we get them after nothing else has helped, they may not do so well," Mendonca added.

Providing total care

The OT's role is to provide good follow-up care. Judy Coombes sees patients referred from the hand, trauma and orthopedic clinics. In many cases, out-of-town patients have to be treated on the day they attend the clinic. This creates a sense of urgency and situations arise when only patients with the most critical needs receive attention.

The patients fall into two groups — those with problems resulting from trauma, or those with disabilities caused by disease. Nevertheless the patient invariably provides a fresh challenge to Coombes, who has a wide variety of skills and treatment agents to draw upon. Splinting is very important, particularly the dynamic type that allows selective movement with appropriate supportive restraints. She also fits Jobst garments, used to correct the formation of hypertrophic and keloid scar tissue following injury.



She liaises with the Social Services Department to help those patients needing a new job; provides hand re-education programs, including motor and sensory re-training, and hand-eye co-ordination tests.

Referrals also come from general practitioners, clinics and other Vancouver area hospitals who may not have occupational therapists on staff. "As the field of medicine and surgery develops with its new techniques and treatments, so correspondingly do the skills of the therapists as part of a lively, growing profession," said Coombes.

Early involvement



Treating heart surgery and intensive care patients

Physiotherapists play a vital role with patients undergoing heart surgery in both the pre- and post-operative stages.

The day before surgery a PT will sit down and explain to the patient exactly what she will be doing when surgery is over, and why. Physiotherapy is required immediately afterwards to clear clogging mucous from the lungs, a by-product of anesthetics lasting anywhere from three to eight hours. Without this clearance there could be complications like pneumonia.

"Patients have difficulty coughing after surgery because of the pain," said senior PT Lorna MacDougall. "They may be on morphine, which also suppresses breathing. We stress the importance of participation and show them the incentive spirometer we use to help them check their own breathing levels. They also need to learn how to move around without placing stress on their incisions."

In the post anesthetic recovery room (PAR) the stable patient is rolled from side to side and encouraged to do deep breathing and coughing. He or she will be sat up and "dangled" over the side of the bed — five minutes in the morning, ten in the afternoon and will stand for a few minutes in the evening.

The following day, nursing staff will sit the patient up for meals. Cooperation is extremely important if recovery is to be swift and uncomplicated, said MacDougall. Patients are treated three times a day while in PAR and twice a day on the ward. In four or five days, after the chest is clear, emphasis is placed on mobilization and conquering patients' fear of movement, a natural reaction following painful surgery.

"We counsel patients about their two-month recuperation period — what kind of exercises they should do, how they can relax and, of course, giving up smoking. Most of our patients are very tense and need to learn the value of relaxation as part of therapy, perhaps by doing something like yoga. They usually have a lot of questions that they hadn't thought to ask their surgeon or cardiologist, and we answer them as best we can."

MacDougall and her team hope in future to find funding for a post-cardiac exercise program. This would require the services of a cardiologist to perform stress testing. "We think this is a program that we very much need, that would motivate patients to get moving and learn the right way to exercise to achieve a healthier lifestyle."

An occupational therapist provides an on-call service for certain patients with neurological involvement. This can include assessments for splinting, establishing a means for early communication and helping with feeding problems.

Two PT's on MacDougall's team work in VGH's Intensive Care Unit. Although the prognosis may not be good for many of their patients, the PT's do their best to achieve any improvement — no matter how small.

Most of ICU's patients have experienced respiratory failure and are on ventilators. The PT's job is to keep the chest clear of secretions and maintain, or improve, lung capacity. Using a stethoscope to check the lungs' status, the PT uses correct positioning techniques, manual pressure and vibration on the chest to loosen the secretions, helps the patient cough or may need to use suction.

Many patients have multi-organ failure, extensive burns, head injuries or orthopedic problems, making physiotherapy difficult. The two PT's each have five or six patients to treat twice a day. Each treatment lasts about 45 minutes and includes chest therapy, passive mobilization and range of motion if the patient has increased tone (tension in resting muscles). If conscious, the patient is always encouraged to participate.

OT services are again provided on call, with OT's coming in from a particular specialty area. This may be fabricating and fitting often very complex splints in order to maintain normal joint position and prevent further complications once the patient is past the critical stage.

The noise from the ventilators, the stress that comes with looking after the seriously ill, the emotional involvement that comes with seeing so many very sick young people can make ICU a very depressing place to work, said MacDougall. "But the team spirit is what keeps everyone going. ICU attracts people who like treating challenging patients and coping under pressure. For all the patients that don't do well, there are a lot who do. It's rewarding to see those people transferred out."

Working with children



Pauline Ardley leads a team of five PT's working in VGH's Health Centre for Children and the Intensive Care Nursery. They are expert in child development for it is important that they know the abnormal when they see it if early problems are to be corrected.

They work throughout the centre on physician referral, for example in the Special Care Unit where young children recover from major surgery, serious illnesses like meningitis and respiratory problems. Chest care, positioning and mobilization are all important here.

Sue Berryman works in the neurological ward, seeing both in- and out-patients for assessment and referral to community resources. She works with children suffering seizures, brain tumours, head injuries, myopathies such as myasthenia gravis and birth disorders, such as cerebral palsy. "We see young CP children soon after birth and begin work immediately to reduce contractures and abnormal patterns of movement."

Berryman has detailed knowledge of brain and motor development, vital to assess and treat children from a few months old up to 16, with a wide range of problems. "I wish I had more time," she said. "No matter how much I do, I always see something else that I could have done. It's important to work with the parents. If the child is very neurologically involved, everyone from the PT's to the nursing staff is doing something to achieve normal results. Seeing this, the parents soon realize that getting involved in their child's care is a way to help," said Berryman.

Maggie McIlwaine works with cystic fibrosis children. From birth to adulthood they require specialized therapy to clear their lungs. Parents

must be taught the regimens so they can perform them two or three times a day at home. McIlwaine also teaches self-therapy to teenagers.

She also participates in the cystic fibrosis clinic, coordinated by Sister Maureen O'Loane, which follows the progress of all B.C. CF children. In addition McIlwaine attends the annual summer camp. "It is a get together for the kids, they see they are not the only ones who have to have therapy and medication.

"We try and teach them to be more independent, to see they can do everything that a normal person can. Cystics require a lot of support. During their therapy the kids often open up and talk. I enjoy that, and the long-term involvement with the family."

Pediatric physiotherapy is a whole specialty unto itself, said Pauline Ardley. "As a group we are excited about how children develop and what affects that development. Kids have very little concept of sickness. They give you so much in return, they are so very positive. They are growing, excited about growing and excited about life and we feel it."

Helping children understand

Coming into hospital is always traumatic for children. At VGH many of them are either acutely ill, recovering from major surgery or receiving treatment for serious problems. They are generally in hospital a lot longer which can seriously delay their normal development.

Two OT's work in the Health Centre with children of all ages and a multitude of problems. Sheila Cox is particularly concerned with investigating possible developmental delays and providing a normal, stimulating environment for the child in hospital.

A child in intensive care following major surgery, attached to life support systems, is greatly deprived of normal experiences needed to develop auditory, visual and tactile skills. She positions a child to inhibit abnormal movement patterns, provides a wide variety of sensory input and stimulates normal feeding.

She works with neurologically impaired children and emphasizes the close liaison between OT, PT and nursing required to help each child reach his or her maximum physical and psychological potential. Children in isolation have a special need for a stimulation program with regular visits from the OT, and follow-up as necessary.

Parents are counselled in ways of helping their children at home and referrals are made to appropriate community agencies. Some children are seen on an out-patient basis following discharge, or may be seen for assessment prior to referral to a community resource.

On the cancer ward Susan Williams' main role is to promote normal growth and development despite chronic illness. She helps the child cope with the frequent hospitalizations, painful procedures and side effects from chemotherapy and radiation. "I do a fair amount of play therapy with the younger children using actual hospital equipment such as syringes, and using dolls as patients. Any fears and misconceptions which the child may have about his illness or treatment, can be clarified while he plays."

For the older child, it is important to spend the time talking about what is happening, and any concerns, and give the necessary emotional support. The adolescent recreation program is designed to stimulate them to join activities and prevent extended depression as a reaction to their illness. Specific assessments and treatment of developmental delays, neurological problems, muscle weakness and perceptual-motor problems are sometimes necessary for these children, added Williams.

The two OT's work closely with their support group of recreationists who provide a play and stimulation program that make hospital life more bearable for patients in HCC. A special recreation room is used for adolescents where they can relax and enjoy table games, pool and movies along with their peers. The smaller children have their own playrooms on each floor.

Intensive care nursery

Many premature babies have immature lungs and are unable to clear their own secretions. In VGH's Intensive Care Nursery, PT Val Lewis works with these infants from admission to discharge. In addition to focussing on chest care, she teaches these techniques to ICN nurses and works with parents on home care.

VGH's physiotherapy department has produced a manual on its work in ICN which has formed the basis of similar programs implemented at other Canadian hospitals. Today physiotherapy is accepted as an important part of the care of sick newborns — not only the chest care, but in preventing deformities and helping with normal development.



Babies requiring intensive physiotherapy usually have pneumonia or insufficient expansion of the lungs due to Respiratory Distress Syndrome, meconium aspiration or mucous plugs. Bronchopulmonary dysplasia is often seen following prolonged ventilation. Thick secretions must be removed by increased humidity, percussion and vibration of the chest.

For newborns weighing under 1000 grams, where there is a risk of bradycardia (a slowdown in heart rhythm) vibration is carried out by applying the back of an electric toothbrush. For babies over 1000 grams, a resuscitation mask is used.

OT Susan Williams is concerned with the way a baby develops while in ICN and is committed to promote normal growth and development. When a baby is stable and at an appropriate age, she initiates and carries out a sensory stimulation program which includes visual, auditory, tactile and vestibular input. As the child gets older, motor demands are added to the program. She also participates in an orientation program for new nursing staff, discussing the importance of developmental therapy in the ICN.

"I get involved with the parents of babies that I am seeing to stress the importance of stimulation. I give them guidelines for handling and include expectations based on the baby's age, corrected for prematurity, and the condition."

Abnormalities in posture and movement show up quite early. For babies with neurological abnormalities she works closely with the PT in planning a specific treatment program, and demonstrating it to parents. There is an ICN follow-up clinic where Williams carries out developmental assessments in children up to age six. Developmental and neurological problems are screened and, where appropriate, children are referred to community treatment centres.

Speech pathology

Learning to speak does not come naturally to every child. In a hospital like VGH there are many children who have been involved in accidents, have severe inherited or acquired illnesses, or are emotionally disturbed. Many of them need speech therapy to get them talking again or to bring them up to the appropriate level of development for their age.

"A lot of the problems are rooted in learning difficulties. We see language problems, articulation problems, some stutterers. A number have a poor organizing process or auditory discrimination problems," said speech pathologist Judy Semotiuk. "We also see those with an inability to recognize or understand what is seen or heard; or those who do not have the skills necessary to express ideas verbally. Some of our patients are delayed developmentally, have failed to thrive, or are victims of child abuse. Many are simply not developing well because their home environment is not supportive."

A skilled assessment is of prime importance to both in- and out-patients. The children are put through a number of tests designed to detect a whole host of speech and language defects and zero in on the problem area. "Once we have done the testing the rest is management, and it takes time. We give priority to school age children as pre-schoolers can usually get help out in the community. We require a great deal of support from the parents otherwise therapy is not as effective."

Some of Semotiuk's most rewarding work is achieved through a small language group, made up of three or four children aged three to five. These children have problems of lack of verbal output. They may not know the names of parts of their bodies, cannot understand or name common objects, and have difficulty following more than one-stage commands.

Semotiuk literally gets down on the floor and makes therapy fun. Through a reward system and much encouragement the patients find they actually enjoy learning. One child who attended the group was totally non-verbal. He came initially to watch the other children and today is learning to speak.

Therapy can last from a matter of weeks to a couple of years. Semotiuk recently treated an eight-year-old for two years. At eight he was totally unintelligible — even his vowels were pronounced incorrectly. The child initially attended therapy three times a week, then once a week, then monthly for follow-up.

"With very young children the reason they are not speaking is usually that they have not been exposed to speech. Often the adults around them don't talk very much. Most don't do it



consciously, parents just have to realize that they themselves have to be good models. On the other hand there are parents who may expect too much and this just frustrates the child. I often see the children without the parent initially to get an idea if parental management is perhaps the problem underlying lack of verbalization. I then expect full cooperation and consistency in management throughout therapy."

Semotiuk also works with Dr. R. I. Dickson of the Ear, Nose and Throat service testing children who present with a hyper-nasal quality to their voices. Dickson uses the X-ray technique of cinefluorography to visualize the speech mechanism while Semotiuk tests the child's ability to produce specific sounds in isolation in words and in connected speech. She also assists PT's and OT's in Health Centre for Children when they are faced with a patient with an unusual oral structure. "If the oral musculature does not develop properly the child may have limited ability to articulate," she said.

Adolescent unit

VGH recently opened its long-awaited 10-bed adolescent psychiatric assessment unit on East 2 of HCC. As with the child psychiatric unit, it is the only short-term diagnostic and assessment unit of its kind in B.C.

Adolescents aged 13 to 16 may be referred to the unit through GP's and psychiatrists for intensive assessment over a period of about a month. The adolescent will undergo many developmental assessments including physical, neurological, behavioural, educational and psychological. This

combination helps the team evaluate and focus on the individual's needs and abilities and helps plan for the future.

The OT's role on this multi-disciplinary team is partly to use standard testing to evaluate gross and fine motor skills, but a large part of her work is to facilitate life skills to promote self-esteem, awareness of others, improve communication and many other socially necessary skills.

Child psychiatry

Children aged three to 12 who are exhibiting behavioural problems in the home, community or school are referred to VGH for a four-week stay and assessment. This unit is the primary referral centre for the province and assesses children whose problems are too complex to be reviewed in any other setting.

During this time, a specially-trained staff assess the child's problem to see if it is caused behaviourally or by a neurological disorder. OT Lorraine Fawcett gives appropriate children a two-hour sensory integration test. "This helps us to detect if there is some problem within the brain processes which could be creating difficulties, for example at school there may be visual perception problems causing letter

reversals; or a child may be tactile-defensive — not able to adequately interpret (and tolerate) touch sensation; or there may be balance and coordination problems — all of which are dysfunctions."

If Fawcett can identify any abnormalities, the child is referred for appropriate help in the community, or attends out-patient clinics at HCC. "We look for ways to help the child increase self-esteem. The team works with parents or community resources to give the child the maximum support on discharge."

Susan Williams also works in the out-patient clinic with a group of young children aged 11 to 13 who are having problems with peer relationships. Through weekly sessions with Williams and a social worker, they learn to identify and come to terms with their problems.

There are also referrals for consultation on children with development and perceptual difficulties and she may recommend home programs, school programs, or specific therapy. Intervention at this level provides some children with guidelines and structure they need in order to cope with things at home or at school.

Rehabilitation



"There's not much I can't do now that I could before ..."

Sylvester Bellesen

When Sylvester Bellesen was faced with partial amputation of his foot following vascular surgery he told the surgeon to take his leg off below the knee.

"After I had a bypass to clear a blockage in my femoral artery, gangrene set in. I was in so much pain I couldn't see it going away. A week later I went to the doctor and showed him my foot. I could see by the look on his face that the foot and I would shortly be parting company. I had no worries, I mean if a tooth hurts I go and get it fixed. This was the same thing. I knew things had gone wrong and decided I didn't want to risk it happening again. That's why I told them to amputate higher. When something like that happens, there is always the possibility that the lower leg might have to come off anyway."

Syl never went into a depression but concentrated on working hard at physiotherapy using the TAIPER. He credits VGH physiotherapists with getting him going quickly and occupational therapists for helping him make the necessary adjustments to life at home. "Another thing that gave me a lot of encouragement was seeing a lady who had lost her leg in a car accident. She also had a below-the-knee amputation and she walked before me. I was also surprised at how little pain and discomfort there was throughout the whole thing and how quickly I was moving around."

A longshoreman for 33 years, Syl was motivated to get moving because his commercial fishing license was about to expire. He has an 18-foot gillnet skiff and does a little fishing on the side. "It was quite a while before I got my permanent prosthesis because my stump hadn't shrunk properly. Because of my work I needed it so it would take a five-ply sock. There was a problem when it finally came because I couldn't get my rubber boot on over it!"

Today Syl is back at work and back on roller skates, a sport he has enjoyed since childhood. "People seem very surprised when they see me doing most normal things. The guys at work didn't really expect to see me back. So far I haven't been able to fool anybody about my leg, it hasn't been long enough. But I think that will be possible in another year!

"I've got three years before I retire and I want to make the most of them. There's not much I can't do now that I could before, it just takes a little more effort. My stump is still a bit tender and I can probably expect it to be like this for as long as three years. But it doesn't stop me, I went to a dance recently and showed everyone up!"

The road to recovery

For many years VGH had rehabilitation beds set aside for patients needing lengthy recuperation and long-term therapy. These beds were closed in September 1980 and today these patients are moved quickly on to rehabilitation centres such as G. F. Strong, Shaughnessy and Holy Family hospitals.

VGH is an acute care hospital and many of its patients require rehabilitation in the early weeks, perhaps daily, following admission, while their medical conditions need monitoring. These can range from amputees and neurologically impaired patients, to cancer victims and rheumatoid arthritics.

Until recently, the build-up of elderly patients in VGH added an extra dimension to this officially 'non-existent' rehabilitation problem. Old people brought in for medical reasons and unable to return home and care for themselves had to remain in hospital until they could be placed in long term care facilities. VGH developed 'holding wards' to do just that. Often the process of waiting for placement is lengthy and many of the 200 odd patients spent 12 months or more in this transitional phase — a serious problem faced by most acute care hospitals today.

In November the Ministry of Health moved some of these patients out into community facilities. However, there remains a need to care for a considerable number of elderly non-acute patients distributed throughout the hospital. Occupational therapists who have developed dynamic, meaningful programs for long term care patients aimed at keeping them active and in touch with reality are now facing a transition themselves — how to make such programs workable when their patients are no longer together. With the manpower shortages in OT, the problem won't go away.

Physiotherapist Nicola Stowell, head of the PT rehab team, is in charge of the gym and the staff who go out and treat rehab patients on wards before they can come down for therapy. Some days that 1000 square foot area is so crowded and noisy it is difficult for patient or therapist to concentrate.

Privacy is impossible. The severe head injury patient works with therapists next to the stroke victim, the amputee next to the patient with a hip replacement. If patients require activation they get it. But Stowell looks forward to 1982 and additional gym facilities planned for Physical Medicine in Centennial Pavilion.

"We take patients from anywhere in the hospital, but one of my main roles is working with amputees. We see them prior to surgery and explain the therapy. Then they are treated on the ward for the first few days before we put them on an exercise program."

There has been a change in the approach to treating amputees, particularly those with amputations above or below the knee. They are up and moving and discharged home or to rehab centres much faster. One of the most exciting developments happened at VGH when PT Shirley Bambury and Biomedical Engineering's Dr. Carolyn Small, developed the TAIPER (temporary air-inflated prosthesis for early rehabilitation.)

An inflated, pressurized air-bag, the TAIPER can be applied to a stump immediately following surgery. It cushions the wound, promotes healing and prevents swelling for many patients. It also encourages early mobilization.

Occupational therapist Dale Blue works closely with the PT's. He begins seeing amputees shortly after surgery to help them adjust to, and manage with, their disabilities. Much of the early work concentrates on teaching proper stump care and, later, bandaging techniques.

Patients are helped to maximize their increasing strength and mobility in performing routine activities such as transferring from bed to chair and chair to toilet, getting dressed and taking a bath. When a prosthesis has been fitted, patients are taught how to care for it and how to wear it comfortably. Patients' families are involved in the treatment process whenever possible.

OT's also have a special training program for upper extremity amputees who are not eligible for transfer to the Workers' Compensation Board. This involves preparation of the stump by correct bandaging and strengthening exercises prior to prosthesis fitting. This is followed by training in use of the terminal device (hook) and elbow joint in the case of above elbow amputations.

Patients who are preparing to return home and who need minimal amount of community follow-up are eligible for a pre-discharge home visit. An OT will accompany them home and will help them determine what adaptations would be useful, such as grab bars in the bathroom, wheelchair ramps or new furniture placement. Some can only return home if ongoing help is available in the community. The OT maintains a close working relationship with the social worker and community agencies to make appropriate referrals for homemakers, OT, PT or speech, visiting nurses and meals on wheels.

Working with stroke patients

Many stroke victims are treated on VGH's neurological wards during the acute phase of their illness. The neurological PT and OT team make the early assessments such as what side is involved, how severe is any paralysis and how the patient responds to stimulation.

Right paralysis (right hemiplegia) means left brain damage. Right hemiplegics will often have difficulties with speech and language. They also tend to be cautious, anxious and disorganized. Left hemiplegia means damage to the right hemisphere of the brain. These patients tend to have difficulties with spatial-perceptual tasks such as judging size and distance, rate of movement and form; and will likely be impulsive or careless.

The occupational therapist emphasizes assessment and treatment of sensory and perceptual deficits and, along with PT's, provides controlled sensory input to both sides of the body using a variety of visual, tactile and auditory stimuli, depending on the patient's awareness. This 'Sensory Integrative' therapy means a lot of repetition, encouragement and correction until the maximum movement patterns and function are re-established.

The OT is also concerned with helping patients re-learn self-help skills. This includes early stimulation of swallowing, and feeding, for the patient who is in danger of choking. Recovering from a stroke is often a long, slow process and some patients may require up to two months of intensive, early treatment, to be followed by months of rehabilitation elsewhere.

Learning to speak again

VGH speech pathologists see stroke patients who have aphasia (a disruption in understanding and producing spoken and written language) and dysarthria (difficulty in pronouncing sounds or performing oral functions like swallowing because of a paralysis or incoordination of the speech muscles.)

Speech pathologists do a complete evaluation of the patient's communication abilities including understanding speech, reading, speaking, writing and gesturing. Within each of these areas, basic skills may be disrupted. For example, a patient who cannot understand spoken language may have difficulty in word recognition, sound discrimination, or retention of phrases or sentences. There may be more difficulty with longer words and the patient may understand better when the speaker slows down.

"Patients are most appropriate for intensive therapy when they have good concentration spans and some ability to understand," said senior speech pathologist Ita Kelly. "We see these patients daily. Within the first six months there is a lot of spontaneous recovery. When speech returns it tends to move such a recovery along, as it boosts patient morale."

Kelly, Judy Semotiuk and Linda Rammage stimulate their patients using printed words, pictures, sounds and spoken language geared to the patient's language level. Patients use the specific stimulation to retrieve words and are encouraged to cue themselves to produce language in other situations. Work begins with elements of language tailored to suit individual needs and builds upon the patient's ability to listen, read and write, as well as talk.

"Both patient and family have to be realistic in their expectation of progress," said Kelly. "We work a lot with families, counselling them on the nature of aphasia and its limitations and teaching them how to carry on language stimulation activities. We also spend a lot of time teaching other health professionals how to deal with aphasia so that the patient makes the best possible recovery."

Other aspects

Medical wards

Physiotherapists covering VGH's medical wards have a wide variety of problems to treat. Their main focus is on respiratory patients who need chest therapy and must be taught postural drainage and secretion clearance before discharge.

However, senior PT Rosemary Martin and her team also see acute and chronic rheumatology patients in for bed rest, stabilization and drug changes. These patients require a lot of support, she said. "Much of our work here is making them comfortable and maintaining their mobility while in hospital by carrying out range of motion exercises. Many of these patients are in great pain — they may have as many as 20 joints involved."

Medical wards also include the diabetic programs, both in- and out-patient, said Martin. PT's stress the importance of exercise in preventing sugar build-up in the blood. They also cover the acute family practice wards and visit leukemics who need bed exercises. At certain stages in their chemotherapy, leukemics are prone to infection and may also need chest physiotherapy.

OT Helen O'Brien is primarily involved with the rheumatology patients. "If their condition is acute and this is their first admission, there is a great need for education. They need to learn about the implications of their disease, a knowledge that is developed gradually when a new patient has so many concerns. Up-to-date reading material and other resource information is provided for both patient and family.



"I am also concerned about joint protection, and make special light-weight splints to help rest a joint or prevent a deformity from developing and yet allow for as much function as possible. Even footwear may be adapted."

O'Brien assesses patients' ability to cope with daily living tasks and recommends and provides appropriate adaptive equipment to simplify tasks and save energy. She and the social worker may arrange home help for patients who need it.

Rheumatoid arthritics may also need guidance in learning to live with side effects of some prescribed drugs, such as bone calcification and weight loss. "They need to know how to cope and must have the best resources available to them. A team approach where OT, PT, nursing and social service appreciate each other's roles, and a close liaison with the Canadian Arthritis Society all contribute to maximize the care of the rheumatology patient," added O'Brien.

Orthopedics

A team of seven PT's covers the 123 patients in VGH at any one time for orthopedic surgery. They begin working with trauma victims as soon as they reach the nursing floors and try to see every patient who comes in for elective surgery before going to the operating room.

"At that time we do an assessment of the joint and run through with them exactly what we expect them to do post-op," said Mairead O'Brien, senior orthopedics PT. "If we explain, and get cooperation, they usually lose their apprehensiveness and recover very well."

Therapists working in orthopedics enjoy seeing quick results and like working in a high turnover area. Unless the patient has chest involvement they wait until the first day post-surgery to start mobilization and strengthening, progressing to independent ambulation using walkers, crutches or canes.

"The techniques in orthopedics are pretty standard. The surgery changes and, in some cases, we follow the wishes of the different surgeons — for example in the case of total hip replacements. In general today we are probably mobilizing patients a lot sooner, with an emphasis on getting them out of bed and getting them moving, within their tolerance."

Most patients are visited twice a day for 15 or 20 minutes. PT's emphasize programs that the patients can practice when alone. "The most challenging cases are the multiple trauma; multiple limb involvement, possibly an abdominal injury or pneumothorax requiring intensive chest physiotherapy. Sometimes we see a head injury which means that responsiveness is impaired."

In orthopedics it is vital to know when not to treat, said O'Brien. "The biggest mistake is setting goals for patients that are unrealistic. Patients' conditions vary from day to day and it is important to know when to back-pedal."

Following hip or knee surgery some patients have difficulty in carrying out activities of daily living. Once the pain has decreased and mobilization is underway, the OT assesses functional abilities and provides necessary aids for dressing, bathing and so on. A few well-designed aids and access to community resources can enable a patient to return home and be independent.

Some elderly patients with orthopedic problems may not be able to return home and the OT is then consulted to determine the level of long term community care required.

The OT designs and makes splints using thermoplastic materials, developed for the space program. Skills in this area are particularly applied when working with arthritic patients who undergo joint replacement surgery. The ability of a rheumatoid arthritic patient to walk properly following surgery often depends on the OT providing a custom-designed sandal moulded to the patient's foot.

The position of finger joints following silastic implants to correct severe deformity, depends on a well-designed, well-fitting resting splint, followed by a more active splint aligning and assisting the movement of the fingers.

OT techniques in orthopedics range from the straightforward ADL assessment to highly technical fabrication and application of splints. At present, 1.5 OT's cover 123 beds, a situation that seriously stretches the department's resources.

Adult psychiatry

Psychiatry was where it all began for occupational therapy. In the bad old days, patients had nothing better to do than to bang their heads against the wall or sit staring into space.

Occupational therapy humanizes institutions. It encourages patients to take up purposeful activities, helps them learn to cope with life outside and make appropriate changes, it orients them to the real world when, for them, it might be fading away.

VGH has its share of psychiatric patients. Acutely-ill adults are admitted as emergencies through the Psychiatric Assessment Unit, or by private psychiatrists in the city to two wards in Heather Pavilion. They may be hospitalized for anywhere from three weeks to three months, then are either discharged to family, with support from community resources, or referred to an institution or community care facility.

OT Terri Taylor works full-time with these patients, sometimes with as many as 40 on her caseload. From an OT point of view this is disappointing and often discouraging, a patient-therapist ratio which is much higher than the provincial average of 13 to one. Staff shortages do not permit her to carry out the work she feels she should be doing to adequately help her patients. But, as happens all across an institution the size and scope of VGH, she copes.

Patients cover the spectrum of psychiatric illness, from the anxiety-stricken to the psychotic, all with different methods of coping with their difficulties. Taylor runs group sessions for most of these patients, aimed at increasing communication, activity and motivation. "Some of the patients have limited verbal skills. I try

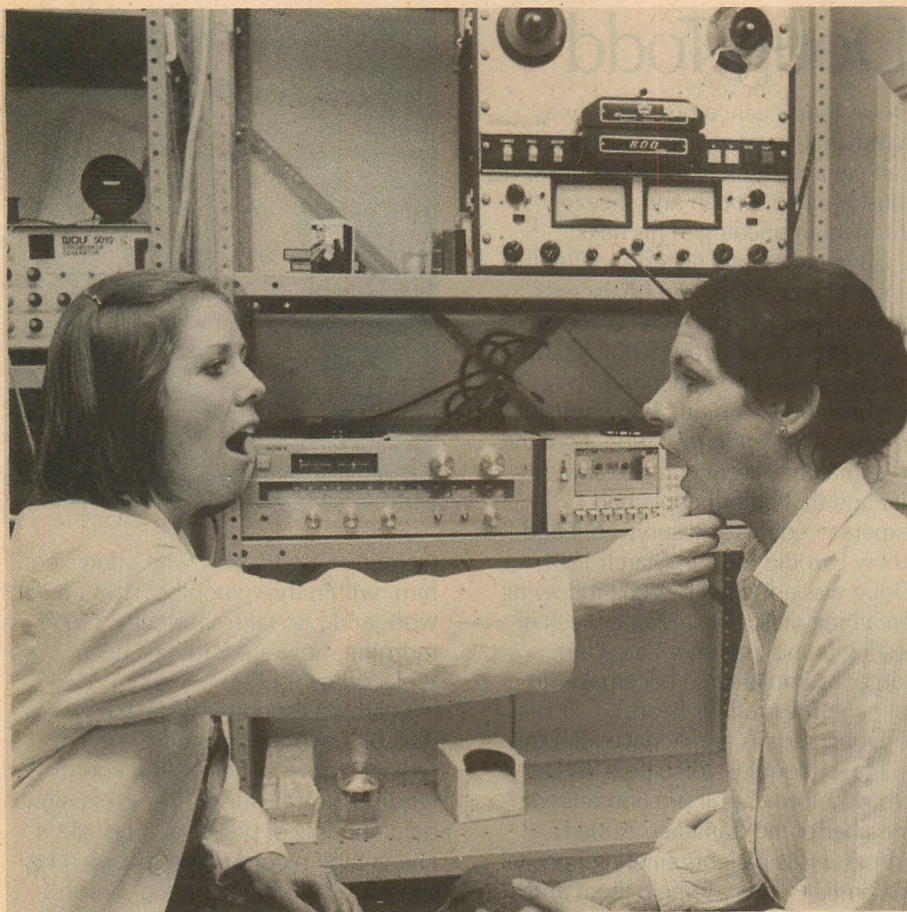


Terri Taylor

whatever I can to have them express themselves through activities or in discussions. I also help orientate them to reality — for example, where they are, what time it is, anything I can do to help them become more socially appropriate and aware.

"In addition to helping them cope with reality, we run exercise classes every day for 20 minutes. This is a 'normal' activity that I want to stress. Associated with psychosis is the loss of physical fitness and loss of awareness of physical needs other than the basics. Many of our older patients are reluctant to attempt exercises but when they participate they appear to enjoy it."

Taylor also runs discharge groups for those about to leave hospital. Topics covered include dealing with the stigma associated with psychiatric care, time management, researching available community resources and job finding. OT also participates in VGH's work adjustment program, helping patients make the transition from hospital to the working world. They also teach life skills to help with early discharge such as activities of daily living ranging from self-care to use of kitchen appliances. The ADL assessment is vital before a patient returns home and helps to restore confidence.



Crossing language barriers

Speech pathologists see a group of patients with voice disorders of various functional and organic origins. They also see neurological problems such as dysarthria, or spastic dysphonia, which gives patients a quiver to their voices.

Rammage works alongside Dr. Murray Morrison, head of VGH's Department of Otorhinolaryngology, in the hospital's new Voice Clinic. Using indirect laryngoscopy, Morrison is able to videotape the larynx and vocal chords, record the patient's voice and make a complete analysis. Based on his findings they decide if a patient

requires speech therapy, surgery, psychotherapy or a combination. Morrison and Rammage also see patients from the Cancer Control Agency of B.C. prior to surgery, or to check on the progress of cobalt treatment in shrinking tumours of the throat.

"This testing is especially useful for patients who have an organic problem, such as a nodule on the vocal chord. This almost always occurs from some sort of vocal abuse," said Rammage. "Speech pathologists plan and carry

out therapy to try and get them to modify the behaviour causing the problem, for example excessive yelling, screaming, coughing a lot, strain and tension in the neck — all of which produces hoarseness. We see a lot of singers and actors suffering from such problems."

In addition, VGH speech pathologists see outpatients with a whole host of communication problems, including some stutterers. "We carry out detailed speech and language evaluations on these patients," said Ita Kelly. "About 1.7 per cent of the adult population stutters. The current view is that stuttering is a learned habit, a tensing up and holding back of part of the speech mechanism. Therapy focusses on teaching them to slow down their speech to single sentences and showing them, in a very structured way, how to generate fluent speech."

Throat cancer

Cancer of the throat is the main reason for performing a laryngectomy or voice box removal. Temporary voice loss is traumatic. Possible permanent loss is terrifying for a future laryngectomee. These patients require a lot of support from speech pathologists who have to convince them they will be able to communicate very well, given a little time.

Speech pathologists meet with patients before surgery to explain new ways of speaking and to arrange for speech therapy after the operation. This usually begins immediately after the nasogastric feeding tube is removed, a few weeks post-surgery.

The goal of therapy is to help patients produce a substitute for a normal laryngeal tone. The first way is to force air down the esophagus and

release it in a controlled manner. This is "esophageal speech". The second way is by using an artificial larynx, an electrical or mechanical instrument that is held against the neck or part of which is placed in the mouth.

The tongue, lips and mouth are able to shape the new tones into words, phrases and sentences the same as before, said speech pathologist Linda Rammage. The main difference between the old way of talking, and the new, is the way the tone is produced.

Most laryngectomees prefer esophageal speech to an artificial larynx. They feel it is easier to understand and the loudness and pitch can be varied more easily. It is also convenient in that it leaves the hands free. "Sixty to 70 per cent of our patients achieve esophageal speech. We try it with everyone, but some patients prefer not to persevere. It requires a lot of motivation. We see them two to three times a day for about 15 minutes while they are in hospital; twice a week on discharge for a couple of months, plus they attend group therapy sessions once a week.

"I find the family often requires more emotional support than the laryngectomee. We do a fair amount of counselling, helping families understand that they will be able to communicate again and that life will be able to go on much as usual. The Lost Chord Club is a very helpful organization which shares information and supports new patients."

Doug Todd

Doug Todd's cancerous larynx was removed five years ago. Although he can eat and drink like the rest of us, he must breathe, cough and sneeze through an opening in his neck.

Surgery became necessary after the onset of sore throat and hoarseness lasting three months. After a course of cobalt treatment, Doug's physicians recommended he undergo a laryngectomy. "I didn't know what it was but I took it in my stride. I got the idea that they were going to save my life and that other people had experienced this and survived it and I knew I would too." In March 1981, Doug was admitted to VGH following breathing difficulties. After a week of resting in the Intensive Care Unit, surgeons implanted a pacemaker to take the stress off his heart.

Doug and his family have adjusted to life without his voice box. Today Doug, a former golf pro and retired member of the Canadian Armed Forces, visits patients entering hospital for similar surgery to help them and answer questions about what the operation means and how life can go on.

Laryngectomees are particularly vulnerable to depression before surgery and during the immediate post-operative period, he said. With his optimism, empathy and sound practical advice he helps patients face their future. Vancouver's Lost Chord Club, a special group for laryngectomees which is affiliated with the International Association of Laryngectomees, offers a support network for post-surgery patients and their families.

Following his laryngectomy, Doug immediately opted for esophageal speech "because I preferred the way it sounded." With the help of two speech therapists he was able to perfect the



technique, so that his wife understood him, within three months. "It is hard work and I do take shortcuts, 'Good morning, how are you' has been replaced by 'hi!'"

Learning esophageal speech is difficult. Two thirds of all laryngectomees stick with it and it requires strong, supportive professional help and lots of practice." I bought a cheap tape recorder and recorded my speech which helped a lot. Group sessions were also useful, they help you lose your nervousness. That's a problem, because if you are nervous, the muscles in your throat tighten up making speech impossible."

Doug mastered that problem with ease and has become a vocal spokesman for the Lost Chord Club, visiting service clubs, schools, and organizations involved in first aid to explain what it is like to be a neck breather.

"My laryngeal cancer was, I'm sure, linked with the fact that I smoked two packs a day for many years and I never miss a chance to bring that home. We also need to make people understand why we talk the way we do. Telephone operators do hang up on our members occasionally. We try and get laryngectomees to say 'Please

excuse my voice, or lack of it, but I recently had my vocal chords removed'. That gets them listening."

Lack of public understanding does pose social problems, he added.

"When I first got out of hospital two or three of my neighbours would cross over the street rather than talk to me. They didn't know what to do — it was ignorance and fear really. After I started talking to them and showed them it wasn't so bad, things got a lot better."

Emergency personnel have to be aware of the difference when treating a laryngectomee who has collapsed. It is vital that neck breathers receive resuscitation directly to their stoma, known as mouth to neck breathing. The neck area must be kept clear with a clean cloth, not tissue, and when breathing is re-established, oxygen must also be administered to the neck.

The environment poses the biggest threat to laryngectomees said Doug. Their airways must be kept moist in order to prevent mucous build up in the lungs. In warm, dry climates humidifiers can help. Smoke and chemical odors can be extremely unpleasant and excess noise can make talking difficult. But with professional help and moral support all the problems can be overcome.

"My main objective when visiting a new patient is to show them someone who has had the same surgery and who can carry on quite normally. I want them to go into it with the attitude that it is not the end of the world, that they can do it too. If I have any philosophy to pass on to anyone, it is to think positive but be sure to know your limitations."

Neurology and neurosurgery

Working on VGH's neurological wards is generally acknowledged to be stressful. The case load ranges from patients with acute head injuries to those undergoing tumour removal, from nervous system infections to a whole host of neuro-medical conditions that need stabilizing.

Physiotherapist Maureen Desborough has worked with these patients for six years. Her goal is to normalize any abnormal patterns of movement that appear; ranging from incredibly complex contractures in a long-term trauma patient, to temporary loss of balance and coordination in someone following surgery.

Head injuries are a major part of her workload. They require constant attention and creativity in management. After keeping patients' airways clear during the acute phase of illness, PT's attempt to maintain mobility, inhibit primitive movements and prevent contraction and deformity. They also work to maintain the circulation and prevent thrombosis. PT's play an important role in caring for skin and preventing pressure sores by exercise and positioning. They stimulate the patient to achieve communication, increased activity and early discharge or transfer.

One tool is sensory-motor integration, a set of neuro-developmental techniques devised to give patients the feel of normal movement so that they can reproduce it. Much can be achieved while a patient is unconscious; or conscious, but not communicating verbally, said Desborough. Regular rolling, correct positioning and proper

handling can cut down on physical complications. The work is tiring, difficult and requires a detailed understanding of each patient's condition.

Many activities must be taught again. Sitting. Rolling. Turning. Raising the head. Lifting the leg. It is laborious for everyone involved, as recovery can often be slow. Communication may come through eye movement, finger movement, use of alphabet boards . . . anything the therapists can dream up, said Desborough.

The patient may be willing inside, but the shell does not yield. PT's talk firmly and directly to their patients as if they can hear. And they often can. They treat the whole body, not just a part. Recovery depends on how well all the muscles develop and work.

Once communication is established, exercising is stepped up. "We can treat without communicating verbally but it is limited. Limbs only regain function when they are under voluntary control. When patients begin to understand they can participate in their treatment. This gives more scope for activity and sensory stimulation."

Speech pathologists are called in when neurological patients are alert and beginning to make eye contact. It is very important to establish the patient's ability to comprehend both written and spoken language. They try to establish some form of communication — eye blinks or finger movements, and then, as the patient is able to increase head control, nods for yes and no.

For a patient unable to speak they use some form of picture, word or alphabet board. If he or she cannot point, a pointer attached to the head may help.

"Ability to communicate boosts morale because it gives a person a sense of control over his life and environment," said Ita Kelly. "If a patient is unable to produce voice we

work to shape involuntary groans and coughing into voice sounds. As tongue mobility and articulation improve, this can become words."

In addition to those with head injuries the neuro team works with patients recovering from surgery to remove a spinal cord tumour. This carries with it potential complications, and much depends on knowledgeable physiotherapy. A lot of PT's work is supportive, helping patients accept their disability, and setting them on the road to rehabilitation. PT's also get patients going again after implantation of thalamic stimulators — electrical devices put into the thalamus to combat chronic pain. The same support is needed for patients recovering from surgery following brain hemorrhages.

Neuro-medical cases cover the spectrum from vasculitis, lymphoma, Joseph's Disease, Parkinson's and Guillain Barré. Therapists assess the damage, the patient's level of function, progress and future outlook. Desborough works closely with the rehabilitation centres in the Lower Mainland, and community resource agencies which can provide additional help to get patients actively back into the community.

"Sometimes a patient comes in for the first time, suffering from decreased movement in the lower limbs because of multiple sclerosis. They don't have any idea what the future holds for them and we teach them to take every day as it comes. If they can learn techniques to deal with their situation a little better, it gives them a feeling that they are more in control. Control over one's life is terribly important."

Occupational therapists play an active role in treating neurological patients. Theresa Mackie gets involved early in the case of head injuries, making splints to prevent contractures and ensuring correct positioning in bed and wheelchair. These precautions

greatly reduce physical complications in the later rehabilitation. She plays a big role in early feeding, assessing oral functions such as swallowing and tongue movements. Special techniques are used to enhance return of normal eating ability. It's the kind of work that requires enormous patience.

She helps families of accident victims by encouraging them to participate in the patient's care. "Family support often makes a great difference in the recovery of the patient. I get to know what the person was like before this happened, I encourage the family to bring in pictures of loved ones, clothes, familiar things that mean a lot, get families to touch and talk to an unconscious patient, tell him what's happening in the world. I'm convinced that this multi-sensory stimulation is extremely valuable for the head injury patient," said Mackie.

"Working on the neuro ward is a great challenge and very rewarding. I still get excited at the first swallow or the first word. I really feel that we're getting somewhere when we show people that they can cope and function independently when they didn't think they could."

Burn unit

VGH's Burn Unit can perform miracles, or so say some of its former patients. Adults and children, often burned very severely, manage to survive the long, painful healing process to return to their work, home and family life.

An important part of the tight-knit team are the physiotherapists and occupational therapists who are involved with patients from the moment of admission. Senior PT Sylvia Giles says this can happen either in the Intensive Care Unit or up on the Burn

Unit when patients need early chest physiotherapy to help keep the lungs and airways free of secretions following inhalation injuries.

Occupational therapist Dinah Montgomery prepares splints for patients as soon as possible after admission, prior to grafting, and in the later stages to prevent contractures. Therapists are also concerned with positioning patients to maintain correct joint alignment.

Exercising the injured limbs is important from the start, said Giles. "We put them through as much movement as possible, as the better they move before grafting, the better the end result. During the early stages we do this when the patient is having a burn bath as it is a time when he or she is free of all dressings. Later on, splints have to be removed every four hours for range of motion, which is essential for a good recovery."


Another major OT role is measuring the fitting of Jobst garments, the skin-tight pressure garments put on as soon as skin has healed. They must be worn 23 out of 24 hours and must fit perfectly if they are to do their job and prevent hypertrophic scarring and contracture. Thanks to compression garments, hypertrophic scars no longer need be accepted as a natural course following burns.

Occupational therapists encourage patients to help themselves in their daily activities as soon as possible. They adapt equipment to their special needs and assist them greatly during the rehabilitation stage.

Those who work with burn patients tend to take their work home. As Giles says: "My mind often turns to a patient and I start thinking, what can I do to solve this problem? There is good follow-up in this field and the whole team sees the patient after discharge at the burn clinic. To see a former patient doing well is rewarding. You really feel you are doing something important."

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Boning up on Orthopedics

