

Hands across the Water: Clinical Observations of Hand Therapy Practices in Great Britain and Norway



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The Evelyn Mackin Traveling Hand Therapist Award is a new award established in 2004 by the American Hand Therapy Foundation. This award was named in honor of Evelyn Mackin, a distinguished leader in hand therapy rehabilitation. Ms. Mackin enthusiastically endorses worldwide networking among hand therapists.

The application process for the Evelyn Mackin Traveling Hand Therapist Award requires creation of a proposal for the purpose of the travel. My proposal focused on an area of treatment that I am particularly passionate about, rehabilitation following tendon transfer surgery. In addition, I planned to discuss hand therapy topics, splinting and activity ideas, and study hand therapy clinic design. I chose to visit hand therapy facilities in London and Norway (Figure 1).

I prepared two PowerPoint presentations for my trip. Days of Our Lives (a title inspired by the classic television soap opera) highlights the typical caseload of my American hand therapy clinic. Enhanced

ABSTRACT: The Evelyn Mackin Traveling Hand Therapist Award is a new award established in 2004 by the American Hand Therapy Foundation. This award was named in honor of Evelyn Mackin, a distinguished leader in hand therapy rehabilitation. Ms. Mackin enthusiastically endorses worldwide networking among hand therapists. She strongly believes in the value of sharing knowledge and technical skills. This award enables members of the ASHT to travel, learn new concepts or skills, and share them with the American hand therapy community. Visits to clinics in Great Britain and Norway revealed similarities and differences between European and American hand therapy practice. Clinical observations explore tendon transfer rehabilitation, cold sensitivity, sensory desensitization and re-education, Dupuytren's contracture, and clinic design. Other highlighted topics include delivery of health care services, hand therapist certification, and the unique contributions of Occupational Therapy and Physiotherapy to the practice of hand therapy. A hand therapy practice survey focuses on treatment and practice issues, continuing education, and challenges facing hand therapist colleagues abroad.

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Function following Tendon Transfer Surgery emphasizes the importance of preoperative and postoperative therapeutic intervention for patients undergoing tendon transfer surgery. I also prepared a short hand therapy survey to learn more about hand therapy practices abroad.

CLINICAL OBSERVATIONS

Tendon Transfer Surgery and Rehabilitation

Tendon transfer surgery and rehabilitation was the main topic of my presentations. Therapists in both Norway and London were eager to discuss facilitation of donor muscles following tendon transfer surgery. Specific strategies for facilitation are outlined in a recent article in the *British Journal of Hand Therapy*.¹

Different techniques and activities are demonstrated through video clips and pictures. Therapists working strictly in hand therapy clinics were not as familiar with the biceps-to-triceps tendon transfer for patients with tetraplegia.² Elbow extension is critical for independent transfers, reaching for objects while supine, and pressure relief. The protocols for this and other tendon transfers were reviewed including timing of mobilization, splinting concerns, and activities for regaining function.³

In Trondheim, Norway, therapists working with cerebral palsy were extremely interested in the

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Oslo, Norway	Tone Vaksvik	Rikshospitalet
Trondheim, Norway	Tone Boysen Lurie	St. Olav's Hospital

FIGURE 1. *Itinerary.*

therapeutic management following surgery for enhanced wrist extension. They expressed concern regarding treatment of the adducted thumb, a problem common in children with cerebral palsy. In Norway, children as young as two years of age are receiving Botox injections into the thumb adductor muscles to lessen the adduction posturing with good results.⁴ Splinting ideas for the pediatric thumb and creative ways to encourage wide abduction were shared. Neoprene, Orfit (Orfit Industries, Wijnegem, Belgium), and other similar splinting products are used both in Norway and in London.

Cold Sensitivity

Norwegians live with extreme cold weather conditions, especially in the winter. Cold sensitivity is a common symptom that can result after an injury to the upper extremity and can severely impact functional ability and the quality of life.⁵ "Trauma induced cold associated symptoms" is the new terminology recently proposed for this condition.

Norwegian therapists have a very unique way of dealing with this issue. Patients are measured and fitted with custom-made, battery-operated, cable-heated gloves. These special cabled gloves are then worn underneath regular thermal gloves or mittens. The cable-heated gloves can be custom fit around finger amputations and/or reconstructed hands. The battery pack is worn in a small case at the hip and can last for several hours. These special gloves are extremely expensive, costing several thousand dollars for custom fabrication. However, the Norwegian government will pay for the gloves if the patient has the cold sensitivity problem for more than two years after a hand injury. There is a Norwegian company (www.minitech.no), specializing in production of these gloves, in addition to socks, collars, and other heating devices to keep consumers warm. The company is presently working on an English translation of their Web site.

Alternatively, patients can carry lighted coal in a specially designed metal box insulated in a fabric wrap. This can be kept in the pockets, and patients can warm their hands periodically while working outdoors.

Therapists in Norway use a cold sensitivity scale to self-report on the severity of their symptoms while holding or touching objects of different temperatures.⁶ Research in Scandinavia is currently being conducted on treatment for cold sensitivity in injured hands. The treatment is based on the Pavlovian conditioning principle. Patients spend repeated periods in a cool room and at the same time keep their hands in a container of heated water. The sessions are repeated several times per day for a period of several weeks. The concept is that a Pavlovian reflex is set up associating whole body cold exposure with warm hands. Only a pilot study has been conducted so far, but preliminary results indicate that this type of training may be quite effective in severe cases.⁷

Sensory Desensitization and Re-education

Sensory re-education is an important part of hand therapy in Norway. Therapists use many different tools and training strategies in their sensory re-education programs.

Patients are encouraged to use all of the senses to help retrain the fingers, as the senses normally work in unison normally. Bilateral hand use is encouraged for this purpose as well. After examining an object by touching and looking, the patient examines the object without vision. A small cloth screen that stands up on the table is used for practice work. The patient reaches through the screen with the involved hand to manipulate objects without visual input. The patient is asked to identify the object by remarking on shape, texture, size, weight, and anything else that might clue him or her to the object's specific identity.

Norwegian therapists are using the Form Shape/Texture Identification test (Form STI)⁸ in their sensory evaluations. This test evaluates tactile gnosis, the ability of the hand to recognize the shape, structure, and texture of objects without vision.

The mirror concept was introduced by Ramachandran in 1995 for use in the treatment of phantom pain in amputees.⁹ Several therapists in Norway commented on its benefits to hand therapy treatment, both in sensory re-education programs and with tendon transfer patients during the facilitation of donor muscle. A vertical mirror is placed on a table in front of the patient to reflect the noninjured hand in place of the injured hand, creating an illusion. This method is based on the idea that body image can change rapidly and possibly be tricked by the visual system. Stimulating the noninjured hand in front of the mirror might activate the somatosensory cortex and help create the illusion of touch and sensation and/or movement of the injured hand.⁹

The sensitivity retraining or tactile glove created by Rosen et al. from Sweden is in its early phase of development.¹⁰ The glove, a prototype of which was available in Trondheim, Norway, fits snugly on the

hand with tiny microphones in each of the fingers. The microphones transmit minuscule “sounds of touch.” The patient wears headphones that allow him or her to listen to what his or her fingers are feeling. Thus, the somatosensory cortex receives sensory input while waiting for further regeneration of nerve fibers. The prescribed protocol states that many hours a day should be devoted to wear and practice with the glove. Currently, a prospective randomized controlled study on patients using the tactile glove is under way in Sweden.

Dupuytren’s Contracture

In Norway, and other countries in Europe, Dupuytren’s contracture is referred to as the “Scandinavian disease.” All of the centers that I visited in Norway treat Dupuytren’s patients after surgery. Our clinic follows the guidelines suggested by the no tension protocol with hand-based dorsal splinting advocated by Evans et al.¹¹ However, each therapist in Norway follows different protocols for patients after Dupuytren’s release, depending on the preferences of the surgeon.

In London, Dupuytren’s patients typically wear a volar-based extension splint at night following surgery. In cases of limited digital extension, the splint would be worn full time with removal for hourly active range of motion (AROM) exercises. The Hand Therapy Department monitors wound healing, AROM, and scar maturation. Patients with limitations in motion and/or function attend hand therapy sessions as needed.

CLINIC DESIGN AND EQUIPMENT

Each clinic in Great Britain and Norway is well suited to hand therapy needs. Ample counter space allows for fabrication of splints, and built-in storage units above and below the counters house splinting materials and supplies. Most of the hospital departments have multiple rooms designated for hand therapy use. Often, one room is for the occupational therapists and one room is for the physiotherapists. Several clinics have dry erase boards near the door so patients can sign in upon their arrival.

The Biometrics E-LINK Upper Limb Exerciser is an extremely popular computer program in both Great Britain and Norway. There is at least one computer workstation set up in every clinic. This interactive system of exercise programs treats deficits in upper extremity range of motion, decreased resistance, and decreased fine motor coordination, and is produced by a company in the United Kingdom (www.biometrics.com). Several clinics in London own the BTE Simulator or Primus RS unit (BTE Technologies, Hanover, MD) as well. The innovative use of storage

carts on wheels that carry everything from ultrasound units, wound care supplies, home programs, and evaluation tools is especially appealing.

One interesting tool used in Norway for assessment of grip force and endurance is not necessarily new, but not as well known in the United States. The Grippit instrument (AB Detektor, Goteborg, Sweden) measures isometric grip force in newtons, a more sensitive scale than pounds or kilograms of force. The Grippit is an electronic unit and has an LED display for showing the maximum value, the average value, and the final value for any grip or pinch strength test.¹²

DELIVERY OF HEALTH CARE SERVICES IN NORWAY

Although Norway is a large country, its population has a low density. Health care to all citizens is provided by the National Health Service (NHS). The country is divided into regions, with the major hospitals serving specific areas. Many of the attending hand doctors are plastic surgeons. Physiotherapists and occupational therapists customarily live and work near the central hospitals in the major cities; there are few therapy services available in the rural villages and small towns.

When a patient suffers a traumatic hand injury, he or she might be admitted to one of the regional hospitals for acute care. Initially the patient might attend hand therapy two or three times a day until discharge. He or she would receive an extensive home therapy program and be expected to comply with the exercises. Norway’s fjords and mountains make it difficult for patients to commute regularly for treatment. Many patients seeking care at Norway’s hospitals are actually too healthy to be inpatients. The Patient Hotel offers patients a place to stay near the hospital, with access to clinical care. The hotel is also suitable for patients who need day surgery and live far from the hospital. The government pays for the hotel and hospital stay as well as for therapy needs. Hand therapy appointments are usually scheduled every two to three weeks for follow-up visits.

Norway’s national health system ensures that everyone receives the same health benefits and care, regardless of whether they were injured in a car accident, on the job, or at home. The government will pay up to one year’s full salary while a patient undergoes medical treatment and rehabilitation following an injury. The government also provides vocational training to those who are injured, and, as a result of their injuries, cannot return to their previous place of employment.

In Norway, there are no paper charts for patient care review and note writing. Many of Norway’s hospitals have switched to an impressive computerized charting system called “paperless charting.” The

therapists can look up all the relevant patient information, including surgical, nursing, and past therapy notes, by way of computer. However, patient scheduling is still done by appointment books.

DELIVERY OF HEALTH CARE SERVICES IN THE UNITED KINGDOM

Great Britain, like Norway, has an NHS, which provides government-funded medical care to all citizens. The NHS supports large regional hospitals and medical services for designated areas. Patients must access their local primary care physician for referrals to specialists or seek hand specialists following emergency care. Patients may need to wait a long time for specific diagnostic testing and/or elective surgeries. For example, a woman presented to the clinic with a swollen, painful hand following a fall in May. Her x-rays were normal, but her pain and swelling persisted. She was then scheduled for magnetic resonance imaging in October. In the meantime, she was attending hand therapy treatments but was not making progress.

New to the London area are private hospitals and clinics. Patients pay for these services through private insurance companies or out of pocket. This greatly cuts down on the waiting time for special medical tests and elective surgeries. The therapists working in private hand therapy clinics are acutely aware that the patients are paying for their services. There is no overlapping of patients on the schedule. As in the United States, certain private insurance companies will pay for durable medical equipment, such as splints. If they won't, it becomes the patient's responsibility.

The NHS system has national rankings or gradings for therapists according to experience and background training. It controls salaries, hours of work per week, and vacation time. Advancement is through a career ladder system. I noted a shortage of hand therapists in London and openings for staff in every hand therapy clinic. Many therapists working there are actually from Australia, New Zealand, and South Africa. Hospitals in England may even offer living accommodations for medical staff as they try to fill positions.

OCCUPATIONAL THERAPY VERSUS PHYSIOTHERAPY

There is a clear division of duties and responsibilities between physiotherapists and occupational therapists in both Great Britain and Norway. This may be true of most inpatient and outpatient settings in the United States as well, but is less obvious in American hand therapy clinics. The physiotherapists train the patient in active and passive exercises. The

occupational therapists make the splints, modify them as needed, and help their patients practice functional skills. Nowhere was this more evident than in Bergen, Norway. I followed one patient as he spent his 20 minutes of physical therapy, reviewing his exercises for active motion of his fingers. He then went across the hall to Occupational Therapy for some wrist splint modifications and fabrication of a new web spacer. The occupational therapist also observed the patient preparing a light meal using his injured arm. After eating it, the patient next rushed off to the nursing department for wound care and the changing of his dressings.

Therapy appointments last on average 20–30 minutes, and involve mostly instruction and review of home exercise programs. Modalities are used infrequently. Treatments are very private and conducted one on one with the therapist, often in a small room.

HAND THERAPY CERTIFICATION

There is no hand therapy certification in Norway. However, specialization opportunities exist in nearby Sweden, and Norwegian therapists take advantage of the master's level studies there. Membership in the Norwegian Hand Therapy Association (Norsk forening for håndterapi) numbers around 80 individuals who are interested in hand therapy and pay membership dues annually. The Norwegian Hand Therapy Association hosts a Web site (<http://www.haandterapi.org/>) and sponsors an annual seminar with a broad range of topics covered. This year, Oslo is the host city and the topics include splinting workshops, Dupuytren's contracture, Anatomy Reviews, and other "Back to Basics" subjects for the many new therapists in the field.

On the other hand, the British Association of Hand Therapy (BAHT) has a very structured and rigorous process where occupational therapists and physiotherapists work through three levels of coursework in hand rehabilitation topics to gain accreditation in hand therapy. Therapists accumulate points toward becoming an Accredited Hand Therapist by attending validated hand therapy courses in Level I and Level II. Therapists can then submit work-based projects, literature searches, or research for Level III points. Twelve points are required in total to achieve this qualification. A therapist must submit proof of points, a curriculum vitae, and a signed clinical log showing a minimum of 4,000 clinical hours in the field of hand therapy. Currently there are about ten Accredited Hand Therapists in Great Britain, with many more actively participating in the accreditation process.

BAHT supports a Web site (<http://www.handtherapy.co.uk/>), continuing education courses, and regional networking groups. It also publishes the *British Journal of Hand Therapy* quarterly. This journal

Date _____
Name (optional) _____
City/ Country _____

Please answer the following questions:

1. I am an:

Occupational Therapist _____

Physical Therapist _____

Hand Therapist _____

Other _____

2. How many years of experience?

1–4 years _____

5–8 years _____

9–15 years _____

Over 15 years _____

3. Do you have special certification in hand therapy?

Yes _____ No _____

If yes, how did you get certified in hand therapy?

4. Where do you work?

Inpatient hospital _____

Outpatient hospital _____

Hand clinic _____

Other _____

5. Did you specialize in hand therapy?

Yes _____ No _____

6. On average, how many patients do you see per day? _____

7. How many hours a week do you work? _____

8. What are your two favorite diagnoses to work with?

Continuing Education

9. Do you attend hand therapy conferences on a regular basis?

Yes _____ how often? _____
No _____

10. Do you read a hand therapy journal or articles on hand therapy on a regular basis?

Yes _____ which one? _____
No _____

11. Does your department meet regularly to discuss protocols for treatment?

Yes _____ how often _____

No _____

Challenges Facing Hand Therapy

12. What are the two most important challenges facing hand therapy today in your country?

13. What are the two most important challenges facing hand therapy today in your work setting?

14. Is hand therapy a well regarded profession in your circle of friends? _____

15. Do most people in your community know what hand therapy is? _____

Treatment and Practice

16. Do you use any of the following modalities in your treatment sessions? (Check all that apply)

Moist heat packs _____

Cold packs _____

Paraffin _____

Fluidotherapy _____

Contrast baths _____

Ultrasound _____

Iontophoresis _____

17. Which functional tests do you use with your patients? (Check all that apply)

Jebsen _____

Sollerman _____

COPM _____

Purdue pegboard _____

Valpar _____

Functional Capacity Evaluations _____ (which one?) _____

Other _____

18. Does your clinic use a standardized evaluation form? _____

Decision-Making Practices

19. Who determines the number of therapy visits per week for each patient?

Doctor / therapist / patient _____

20. Who determines when a patient is finished with therapy?

Doctor / therapist / patient _____

21. Who determines the goals of treatment for each patient?

Doctor / therapist / patient _____

FIGURE 2. A short questionnaire.

is also the official journal of the European Federation of Societies for Hand Therapy.

RESULTS OF SURVEY

A hand therapy practice survey focuses on the experiences and working conditions of hand therapists abroad (Figure 2). Forty-eight therapists from Great Britain and Norway responded: 64% (31) were occupational therapists and 35% (17) were physiotherapists. Fifty-two percent stated that they specialize in hand therapy. Only eight therapists reported being certified as hand therapists (one from New Zealand, four from Great Britain, and three from Sweden), while four therapists reported being in the process of BAHT accreditation as Accredited Hand Therapists.

The majority of therapists working with hand injured patients are employed at hospitals, serving inpatient (83%) and outpatient departments (91%). Only 27% work in specific hand centers. Therapists

tend to prefer working with challenging patient caseloads. When asked to list a favorite diagnosis, 60% responded that they enjoyed working with tendon lacerations and repairs; 20% of the therapists like working with fractures, and 26% responded that they enjoyed the challenge of Complex Regional Pain Syndrome, trauma patients, and/or hand replantations.

CONTINUING EDUCATION

Fifty-two percent of the therapists acknowledged attending professional conferences one to two times per year. Sixty-four percent of the therapists reported reading journal articles on hand therapy topics regularly. They subscribe to the *British Journal of Hand Therapy*, the *Journal of Hand Therapy*, and/or the *Scandinavian Journal of Hand Therapy*. Seventy-seven percent of the therapists report attending staff meetings on a regular basis to discuss protocols and patient care issues.

CHALLENGES FACING HAND THERAPY

In response to questions concerning challenges facing the hand therapy profession in their country, therapists in Great Britain and Norway responded with the following issues: staffing shortages, lack of hand therapy research, lack of recognition of hand therapy as a profession by colleagues, decreased funding, and lack of skilled and experienced therapists. In response to questions concerning challenges facing the hand therapist in the workplace, the therapists noted the following problems: lack of recognition of hand therapy versus other professions, time management difficulties, too many patients, lack of skilled staff, lack of adequate space and equipment, and lack of outcome measures and assessment tools.

TREATMENT AND PRACTICE

Therapists answered treatment-oriented questions regarding modality use and functional testing. Therapists in Great Britain and Norway were not familiar with fluidotherapy treatment units where patients immerse their extremities into small particles that are heated and circulated. Therapists in both countries also stated that they do not use iontophoresis treatments for any diagnosis. Ultrasound is used occasionally. Therapists in general, use modalities much less often than their American colleagues. They do prescribe moist heat and cold packs for home programs. Contrast bath use is very popular in Great Britain and Norway, although there was no specific protocol being followed regarding immersion times and water temperatures.

The functional test most familiar to this representative group of therapists is the Sollerman test of hand grip.¹³ This test incorporates performing 20 different hand tasks using seven distinct hand grip patterns in a specific time frame. Nearly 45% of the therapists queried reported that they use it in their assessments. The Canadian Occupational Performance Measure is also well known, with 29% of the therapists reporting on its inclusion in their hand therapy assessments. The Disabilities of the Arm, Shoulder, and Hand (20%), Purdue pegboard (20%), and Jebsen (13%) tests are less commonly used. Several therapists commented that they use the Grippit tool and two-point discrimination as functional tests as well, while others mentioned performing observations of fine motor activities to assess functional ability.

DECISION-MAKING PRACTICES

The survey included questions about decision-making practices regarding frequency of therapy visits, who decides when to terminate therapeutic

services, and determination of patient goals. Eighty percent of the therapists reported that they decide on the frequency of therapy visits for their patients. Eighty-three percent of the therapists make the decision to terminate therapy services when appropriate, sometimes with input from the doctor and sometimes with input from the patient. Eighty-five percent of the therapists stated that they help determine the goals of therapeutic treatment, most of the time with the patient as a partner in the process.

KEY FINDINGS

Occupational therapists and physiotherapists in Great Britain and Norway work within National Health Systems where health care costs for the citizens of the country are covered by the government. They can provide equipment to their patients without worrying about insurance coverage, yet they have to deal with a large number of patients needing services. Therefore, appointment times tend to be shorter; there are often waiting lists for patients to be seen and therapy visits are scheduled less frequently. Staff shortages and lack of skilled and experienced therapists also hinder delivery of therapy services.

Managed care impacts greatly on American hand therapy practice and often dictates how long patients can be followed or how often they can be seen for therapy. The manner of payment for therapeutic services in Great Britain, Norway, and the United States has influence over our treatment options with our patients, yet in different ways.

Therapists in Great Britain and Norway share very similar concerns regarding the hand therapy profession with their American colleagues. Adequate funding for services, lack of evidence-based practice, and the growing need for clinical research studies top the list. Recognition of hand therapy as a specialty of rehabilitation remains a challenge. Management expectations to treat an increasing caseload of patients and expanding documentation requirements threaten the quality of care. Equipment costs and the ability to maintain appropriate treatment facilities are significant financial concerns. Yet all the therapists I met are highly motivated and dedicated to their profession. They seek out opportunities to learn by going to conferences, reading journals of hand therapy, and attending guest lectures. Their enthusiasm and honesty in discussing hand therapy issues and their eagerness to listen were impressive.

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