

Israeli Advocates Win Compensation

Jacob Surany, Ramat Gan, Israel

The major polio epidemics in Israel were in the early 1950s. At that time, three to seven years after Israel was established, many immigrants came to our country.

Sanitary conditions were poor, especially in the main cities of Haifa, Jerusalem and Tel Aviv; and the number of the polio cases was relatively high (69 per 100,000 in 1951).

Knowledge of polio and the respective treatments were not well known to the physicians, and care was not adequate. For example, survivors had surgeries on their knees, which consequently were counterproductive. In the late '50s, some children received the wrong vaccination.

Today, with many polio survivors reporting problems with post-polio effects, the Polio Association in Israel asked the government for compensation and for future treatments not covered by the National Health Scheme.

After two years of negotiations with the Knesset Health Committee, a new law of polio was passed in March 2007 by a majority (83 members).

First of all, the law explains the procedures the Health Committee uses to decide permanent disability (PD).

The almost 2,500 polio survivors in Israel will receive a one-time payment based on their percentage of PD.

Up to 75% of PD:
NIS* 50,000 (USD** 12,000)

75%-94% of PD:
NIS 100,000 (USD 24,000)

More than 94% of PD:
NIS 120,000 (USD 28,800)

Some survivors will also be eligible for lifetime monthly payments.

The polio survivors with more than 20% of PD will receive lifetime monthly payments of 50% of the Average Monthly Salary (Today: NIS 7,700). For example, a person with 100% of PD will receive NIS 3,850 (USD 915) per month; individuals with 50% of PD will receive NIS 1925 (USD 458) per month.

Individuals with 20% of PD will receive, instead of lifetime monthly payments, a one-time payment equal to 70 times the monthly payment of those with 100% of PD (NIS 3,850) multiplied by the PD percentage. For example, someone with 15% of PD will receive a one-time payment of NIS 40,425 (USD 9,608). This will be in addition to the one-time payment mentioned above.

The Government will continue to cover the medical treatments and devices needed for the polio survivors, which are not covered under the National Health Scheme. ▲

*NIS – New Israeli Shekel

**USD – United States Dollars

To learn more about the successful advocacy efforts of the Polio Association in Israel, chaired by Mr. Yehuda Doron, contact Jacob Surany, PO Box 130, Ramat Gan, Israel, +972 35755660. The entire law in Hebrew is available at www.post-polio.org/ipn/pph23-2heblaw.html.

*PHI's mission is to enhance the lives
and independence of polio survivors
and home mechanical ventilator
users through education, advocacy,
research and networking.*

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Inside this Issue ...

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The many post-polio associations around the world are actively advocating for the survivors in their countries. Jacob Surany reports the results of Israeli advocacy, and associations in Europe are invited to Brussels in late October.

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Nancy Baldwin Carter, Founder, Nebraska Polio Survivors Association (NPSA), uses her researching and writing talents to revisit carpal tunnel syndrome (CTS).

Pages 6, 7 and 9

Our Members tell us they are most interested in maintaining independence. Polio survivor Richard Hall of the Chicago area continues our "From Our Members" series with a description of his success with myofascial release therapy. Koval, also from Illinois, continues our series about accessibility barriers.

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If you were intrigued by the earlier reports of Ivlg (intravenous immunoglobulin) uses for post-polio syndrome, read a summary of the latest research by the lead author from Norway.

Watch for These Changes

Our Website. We're improving our website, making it easier for visitors to navigate and adding new features including a Members Only section. Watch for it in mid-summer 2007!

Memberships. Our rates have remained the same for four years, but costs for printing and postage have not. A modest realignment of membership rates coming this summer will allow us to provide the service our Members expect. The new rates will also enable PHI to continue our commitment to making our services and publications available to those who cannot afford even basic membership. Your generosity is crucial to our mission of education, advocacy, research and networking.

As always, we welcome your comments ...

—Joan L. Headley, Executive Director of PHI

Carpal Tunnel Syndrome

Nancy Baldwin Carter, Omaha, Nebraska, n.carter@cox.net

Doctors have been dealing with carpal tunnel symptoms for over a hundred years. The carpal (wrist) tunnel (see diagram on page 4) is a narrow corridor formed by bones and ligament on the palm side of the wrist. Its job is to protect the median nerve, which runs through it to carry feeling and movement to the thumb and all fingers except the little finger. When pressure is placed on that nerve, the result is the numbness, pain and weakness known as CTS.

CAUSES

What causes this condition is the question. Median nerve compression is attributed to swelling or thickening in the carpal tunnel, which for years was blamed by some on repetitive use of the hand and wrist. Dozens of occupations (and even hobbies) require forceful and awkward hand-intensive movements, and it was thought that overuse in this manner could bring on CTS.

A recent study by doctors in Boston takes a second look at this thinking. Although much is still unknown about the cause of increased median nerve pressure, this study suggests there is strong evidence to believe it has little to do with activity.

Data used to determine the cause of CTS was evaluated according to Bradford Hill-based criteria, a well-established method for demonstrating causal relationships. Average scores for such factors as genetics, race, age and other biological components were double those of occupational factors, which involve repetitive and vibrating hand use and other such elements. Furthermore, the average strength of a cause-and-effect association was about three times as strong for biological factors as it was for occupational ones.

The strongest risk factors for CTS were genetic. Many in the medical

community now contend there is a genetic predisposition to CTS. They say there never was strong scientific evidence linking repetitive stress to CTS. Indeed, a Mayo Clinic study in 2001 found heavy computer use did not increase the chances for developing CTS.

Clearly, not everyone who does a particular action has carpal tunnel problems. How do we account for the fact that two similar polio survivors could continually use the same hand/wrist motion in the same forceful way to propel their manual chairs for the same period of time each day – and yet one of them might get CTS related to this activity, but not the other one? Is the incidence of CTS higher among polio survivors using manual chairs than for the general population?

OTHER PREDISPOSING FACTORS

Not all carpal tunnel swelling is related to repetitive hand/wrist use. Certain physical conditions such as diabetes, arthritis, hypothyroidism, uremia, obesity, high blood pressure, pregnancy, menopause and other disorders that may be associated with swelling are sometimes linked to CTS and could place one at higher risk. Or, some people simply have a much narrower carpal tunnel. Or, others may have injured their wrists.

continued, page 4

Not long ago, if the topic of carpal tunnel syndrome (CTS) came up, someone would likely say, “Oh yeah, that’s what people get when they sit at their computers typing too long. You know – all that repetitious activity that causes big problems in the wrist and hand.”

Since a Boston research team presented their study findings at the 74th Annual Meeting of the American Academy of Orthopaedic Surgeons in February, however, people are beginning to think differently about CTS.

There is even the suggestion that individuals with “a generalized nerve problem” may be susceptible to developing CTS. Could this group include those who had polio? Could polio be considered a predisposition that adds up to CTS when triggered in certain polio survivors by, for example, repeated flexing of the wrist as we force weight onto our canes/crutches?

INCIDENCE

The US National Institutes of Health reports that three times more women than men develop CTS. The condition occurs most often in people between the ages of 30 and 60, seldom in children.

SYMPTOMS

Symptoms often occur in the night (or upon awakening) or when using the hands in a certain way over a period of time, like grasping a steering wheel or a newspaper when reading it. They generally begin mildly, perhaps with aching, tingling and numbness in the palm and all fingers except the little finger. Pain can extend from the wrist on the palm side to the fingers or up the arm. Weakness may make it difficult to grip objects or to continue certain hand/wrist activities, and reflexes may become impaired. In untreated cases, muscles at the base of the thumb may atrophy or people may lose the ability to feel the difference between hot and cold.

DIAGNOSIS

A variety of methods are used to test for carpal tunnel problems:

- ◆ **A physical exam** – checking hands, arms, shoulders and neck to determine their condition and to rule out carpal tunnel mimics. Checking wrists for

tenderness, swelling, warmth and discoloration; fingers and hands for sensation, strength and deterioration. Lab tests and x-rays can show such problems as fractures, arthritis, diabetes and other conditions.

- ◆ **Tinel test** – used to see if tingling in the fingers occurs when a doctor presses on the median nerve.

- ◆ **Phalen test** – a wrist-flexion test used to see if various symptoms appear when the hands and fingers are held in a certain position for a length of time.

- ◆ **Electrodiagnostic tests** – an electromyogram checks for muscle damage when a needle is inserted into a muscle to record electrical activity in that muscle at rest and when contracted. A nerve conduction study uses electrodes taped on the hand and wrist to measure the speed at which electrical impulses are transmitted in the carpal tunnel. Ultrasound can show impaired movement in the median nerve.

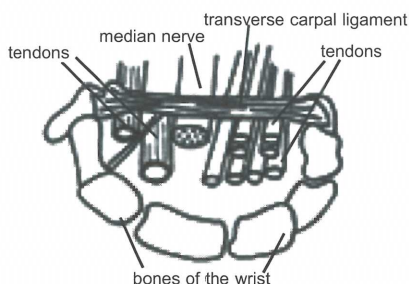
- ◆ **NC-stat** – a controversial automated device supposedly used by over 12,000 physicians, often general practitioners, to check patients for nerve disease and help diagnose such conditions as CTS.

TREATMENT

Methods of treatment vary, depending on the severity of the problem. Any underlying conditions will be treated first.

Nonsurgical treatments – Mild to moderate cases may be helped by wearing a wrist splint. Nonsteroidal anti-inflammatory drugs (NSAIDs such as aspirin or ibuprofen) may help if an inflammatory condition is present. Corticosteroids (such as prednisone) or the drug lidocaine

Diagram of the Carpal Tunnel



can be administered to ease swelling and pain. A therapist may help with stretching and strengthening exercises. Pain reduction and improved grip strength have been accomplished through yoga.

Surgery – The ligament pressing on the nerve is cut, usually either endoscopically (from which one may recover function faster) or by traditional open release surgery. Local anesthesia can be used for both. Although most patients recover fully with only rare reoccurrence of CTS, it may take months to regain full use of the hand and wrist, often with the help of a therapist. Most do better if they don't smoke or take more than two alcoholic drinks a day, and if they avoid repetitive, forceful activity.

WHAT WE CAN DO

Pay attention. Keep the wrist at a relaxed middle position, without bending it completely up or down. Use a relaxed grip. Use less hand and finger force when performing tasks. Strive for good posture so that neck and shoulder muscles don't compress nerves in the neck, which affects the wrists and hands.

Take a break. Rest, stretch and bend hands and wrists about every 20 minutes. Alternate tasks. Change work position frequently. Watch for headaches, fatigue and muscle pain – and if they come on, switch activities. NSAIDs may help.

Wear the right thing. Keep hands and wrists warm and flexible by wearing fingerless gloves. A splint can keep wrists straight; some suggest wearing it at night, others say to try it while on the job.

Find assistance. CTS support groups can provide information and understanding. Relaxation techniques such as those found in yoga can help reduce stress and pain. Water therapy, heat and massage might be useful in relieving symptoms.

Check out ergonomics. Design the workplace so it meets needs efficiently and effectively. A huge variety of equipment is available to ensure correct posture and good wrist position, including many styles of keyboards, pointing devices (even hands-free mousing), wrist and forearm supports, splints and braces, work surfaces, chairs and other innovative devices. Take care to adjust equipment to avoid stress from awkward body positioning and wrist angles.

FINALLY

The US Bureau of Labor reports that repetitive motion results in the longest absences from work. Some say that the new research findings will affect disability, workers' compensation, and personal injury claims. While carpal tunnel syndrome isn't usually considered a serious condition, it can be painful and frustrating.

It's inconvenient not to be able to carry out ordinary tasks, and when this interferes with such things as driving a car or doing the job at work, it can even become depressing. Taking steps to prevent the problem in the first place (just in case one is in the "predisposed" category) seems the best solution. ▲

A list of the twelve resources used in writing this article are online at www.post-polio.org/ipn/pph23-2ctsresources.html

From Our Members

Myofascial Release Therapy

Richard W. Hall, BSc, JD, BCFE, MG, Park Forest, Illinois

In 1926, my acute illness from infantile paralysis left me with an atrophied left leg that had been forcefully extended and curled toes, which made walking difficult. A triple arthrodesis operation in 1933 fused my left heel into an upright position to my anklebone. This helped to minimize the shortening of my left leg and released the tension on my toes giving me an increased ability to walk.

Prior to a right knee replacement and removal of an encapsulated lung cancer in 1986, I had been hyperactive and involved in many athletic events, including more than 20 canoe trips to the Boundary Waters in Canada. Following these surgeries, I noticed an increased breakdown of my built-up left shoe. Walking x-rays revealed a latent twist in my walk, which related back to walking on my heel before the arthrodesis operation, was causing the breakdown.

Additionally, I experienced weakened musculature in the swallowing area causing me to swallow food unevenly. In November of 1998, I began having a loss of vocal projection, and a biopsy confirmed there was atrophied muscle tissue on one side of my voice box. The diagnosis made at that time was post-polio syndrome.

After experiencing unaccustomed fatigue and new muscular pain in my legs and lower back, and onset of occasional incontinence, my primary care physician referred me to physical therapy to help with ongoing pain to my right knee joint and general stiffness on the right side. Eight sessions of physical therapy gave me no improvement and left me wearing a metallic right knee brace.

Because of discomfort caused by the brace, I traveled to Bakersfield, California, to consult with the manufacturer of the brace. While on the California trip, I was given one session of myofascial release (MFR) therapy in Los Gatos with very positive results.

Upon returning to Chicago, I obtained a referral to Irwin Siegel, MD, a polio specialist at Rush Presbyterian Hospital, who gave me a prescription for myofascial relief therapy. I took the prescription to Karlene Cantrell, a specialist in MFR with 20 years of experience in the field of physical therapy and 13 years specializing in MFR with the prominent John F. Barnes, PT.

For the past six years, this team of a polio specialist and MFR therapist working together has kept me mobile, using my cane, rollator or scooter. I am able to fulfill my assignments of hearing mandatory arbitration cases in the circuit courts of Cook and Will counties in Illinois. Occasionally, I use a voice amplifier.

Although I must travel 45 miles round trip for my myofascial release treatment, I find these services so valuable to my health that I make the trip no matter what the weather and without regard to mileage.

Do you have a special device or trick that helps you live independently?
Have you located a talented shoemaker, back brace or corset maker, or other specialist? Send your solutions to editor@post-polio.org or to PHI, 4207 Lindell Blvd., #110, Saint Louis, MO 63108-2930 USA.

Each MFR session begins with an evaluation of current symptoms, description of areas of stress or pain, measurements of capable movements, some mild exercises, and checking of stress points. Generally, I experience lessening of my symptoms if not at the end of the session, then the day following treatment.

My goal is to maintain stability to avoid falls. In 2002 and 2003, my primary care physician urged me to try physical therapy as an alternative to MFR sessions. During these alter-

native sessions, I experienced instability, which led to a fall down some stairs in my greenhouse, as well as a severe fall while walking in a restaurant that caused a large hematoma above my left eye and some cracked teeth. Thereafter, MFR sessions were resumed and have been ongoing to the present time.

I personally feel that I have been very fortunate and blessed to be under the care of my excellent polio team. I wouldn't know what to do without them. ▲

What is Myofascial Release?

Myofascial release is a hands-on technique that provides sustained pressure into myofascial restrictions to eliminate pain and restore motion.

Fascia is very densely woven tissue that covers and interpenetrates every muscle, bone, nerve, artery and vein, as well as all of our internal organs including the heart, lungs, brain and spinal cord. The most interesting aspect of the fascia is that it is not just a system of separate coverings, but is actually one structure that exists from head to foot without interruption.

Fascia also plays an important role in the support of our bodies, since it surrounds and attaches to all structures. These structures would not be able to provide the stability without the constant pull of the fascial system.

In the normal healthy state, the fascia is relaxed and wavy in configuration. It has the ability to stretch and move

without restriction. When we experience physical trauma, scarring or inflammation, however, the fascia loses its pliability. It becomes tight, restricted and a source of tension to the rest of the body. ▲

Source: www.myofascialrelease.com, the website of John F. Barnes, PT, developer of this technique.

There are four Myofascial Release Treatment Centers in the USA (Paoli, Pennsylvania; Sedona, Arizona; Boulder, Colorado; and San Francisco, California.)

The website www.myofascialrelease.com contains a listing of individuals trained in myofascial release. Each is rated as *Novice*, *Intermediate*, *Advanced-Intermediate* or *Advanced*. Look for the Therapist Directory.

More about Ivlg

The January 2007 *European Journal of Neurology* (Volume 14, Issue 1, pp. 60-65) published an article by a group of researchers from Norway. Elisabeth Farbu, MD, Department of Neurology, Haukeland, Bergen, is the lead author of the study that concludes a single dose of Ivlg in patients with post-polio syndrome had a clinical effect on pain, but there was no significant effect upon motor strength and fatigue, and that the results are promising but not conclusive because of the low number of patients (20).

In *Post-polio syndrome patients treated with intravenous immunoglobulin: a double-blinded randomized controlled pilot study* (E. Farbu, T. Rekand, E. Vik-Mo, H. Lygren, N.E. Gilhus, J.A. Aarli), the researchers describe the patients as ambulatory. Several criteria, including, but not exclusively, cardiac disease, diabetes, previous Ivlg treatment or an ongoing autoimmune disease excluded polio survivors from the study.

The polio survivors who participated in the study were evaluated four times, with a full physical and neurological examination; muscle strength measurement with a dynamometer; the Fatigue Severity Scale (FSS); the Visual Analogue Scale (VAS) and the Pain Drawing Instrument; various blood tests and a cerebrospinal fluid (CSF) tap.

The twenty participants (13 women and 7 men) were randomly selected to receive either the Ivlg or placebo (saline). Headaches were frequently reported and attributed to the lumbar puncture and CSF tap. Seven recipients of the Ivlg and one of the placebo reported chills and/or fever during and after the infusion.

It is important to note that the positive effect on pain disappeared during the second three months and after six months, no significant difference was found.

Why try Ivlg? It is tried in polio survivors because researchers suggest that some of the post-polio symptoms are caused by an immunological activation that can be recognized by the increase of proinflammatory cytokines, such as tumour necrosis factor- α (TNF- α), interferon- γ (IFN- γ), interleukin (IL)-10 and IL 4 mRNA. Ivlg has broad immunosuppressive effects and when given to polio survivors with post-polio syndrome it is hypothesized Ivlg would improve fatigue, pain and muscle strength. ▲

To read the complete article, go to www.blackwell-synergy.com/loi/ENE

Coming in June on CBC Radio One

Ideas, hosted by Paul Kennedy on CBC Radio One (Canadian Broadcasting Corporation), will feature a two-part series, "Remembering Polio," on June 18 and 25 at 9 pm. For details about this series, presented by Maria Meindl, visit www.cbc.ca/ideas/schedule1.html. ▲

All Iowa Reads about Polio

The 2007 All Iowa Reads selection is *Splendid Solution: Jonas Salk and the Conquest of Polio* by Jeffrey Kluger. As part of the program, the Iowa Center for the Book is collecting stories from Iowans about what they remember of the impact of polio and the development of the polio vaccine. Log on to www.iowapoliostories.org to contribute your story. ▲

Veteran Receives Back Benefits

A 76-year-old veteran, who has requested to be unnamed, of the Korean War and Hurricane Katrina has been granted a \$1.7 million claim by the Department of Veterans Affairs (VA).

In late 2005, while at Memphis VA Medical Center's Spinal Cord Injury Center, he met a Paralyzed Veterans' national service officer (NSO) who realized that the veteran might have a claim to benefits – even after five decades. It needed to be determined that he had developed polio during his service or in the year immediately after leaving the service 55 years ago.

Paralyzed Veterans' local and national offices reviewed the case and pushed the veteran's claim to VA and succeeded. For more information contact the Paralyzed Veterans of America at www.pva.org. ▲

A Front Row Seat: Improvement Needed for Wheelchair Accessibility

Joseph Koval, Mokena, Illinois, jgtak@aol.com

Have you ever wondered if you would be able to work, shop, eat out and travel, if you used a wheelchair? Unless you know someone in this situation, the idea may have never crossed your mind. Using a wheelchair for the last ten years has made me realize how difficult, and sometimes impossible, it is to accomplish basic tasks.

Most people are unaware that a building designated as "Wheelchair Accessible," only means that a person who uses a wheelchair has the capability of entering a building and using the inside facilities. It does not mean that you can function without the aid of others or

that you can even use the public restroom. The Americans with Disabilities Act requires existing buildings, such as retail stores and restaurants, to remove architectural barriers, only when it is readily achievable, i.e., it can be done without much difficulty or expense. The construction of new buildings has mandatory requirements, but they seldom provide easy access to all places inside.

Frequently, shopping centers do not have enough accessible parking. Ramps from the lot to the stores are limited in number, causing dangerous manipulating in the street or parking area.

Maneuvering in, out and through doors, represents another major barrier. Very few public buildings have automatic door openers. Opening and holding a heavy door is difficult while navigating a wheelchair through at the same time. If the door sill has a "lip," you may have to enter backwards, as your manual wheelchair's smaller wheels in front can easily cause the entire chair to tip over.

Many public restrooms, even those with the accessible sign on the door, have done little more than widen the door opening and put a grab bar in one of the stalls, which has not been

widened to accommodate the entire wheelchair. Consequently, unless you can stand up and walk to the toilet, you will not be able to use it. Imagine having to leave a restaurant in the middle of dinner to find another bathroom.

Hotel stays can be very challenging for the wheelchair user. Often, there are no accessible rooms on the ground floor. I am always a little nervous staying in an upper floor room for fear that there will be a fire or other emergency that will force me to exit the building.

Accessible hotel rooms should have automatic door openers and closets with poles and shelves at wheelchair height. Bathrooms should have roll-in showers or accessible bathtubs as well as grab bars, higher toilets and enough room to navigate.

Accessibility laws should be revised to provide the opportunity for independence for all wheelchair individuals. This can be accomplished by hiring people with disabilities to advise, instruct and educate legislators, contractors and owners of buildings on improvements needed to update existing buildings and new construction. We deserve nothing less! ▲

Joseph Koval had polio at the age of two and was paralyzed from the neck down for six months.

Ten years ago, he broke his leg and was unable to recover the strength needed to walk again on his own. Today, he works fulltime and uses a manual wheelchair.

"Although many people who use a wheelchair have the desire and potential to be self-sufficient, the stereotype is that wheelchair users require the assistance of others to perform business and daily activities."

The National Fire Protection Association (NFPA) recently released the "Emergency Evacuation Planning Guide" for People with Disabilities, which is available for download at no cost from NFPA's website, www.nfpa.org/evacuationguide.

European Polio Union (EPU) Meets in Como, Italy

Representatives of nine countries met in Como, Italy, in March 2007, following two days of medical and scientific presentations.

The members of the European Polio Union (EPU) discussed ways to improve communication and cooperation among themselves and to improve the dialogue between the continent's medical community and post-polio associations. They agreed that all written correspondence would be in English and accepted PHI's offer to assist in translating major documents into other languages.

The major goal of the group is to obtain recognition of post-polio syndrome by the European Union (EU). Representatives from Spain reported that the EU advised that each country should work on this recognition, because there is not enough general interest to pursue it at the Union level. After discussion, the group created a plan to contact all of their Members of the European Parliament asking for support of the EPU's goals and to invite them to meet in Brussels, Belgium, in late October 2007. The tentative date is October 17.

It was decided to ask representatives of the medical community to attend this meeting, and the group agreed to raise concerns about the importance of polio immunization programs, because of the continued cases of acute poliomyelitis.

Associations from Belgium, France, Hungary, Ireland, Italy, The Netherlands, Spain, Switzerland and the United Kingdom were represented at the Como meeting and are planning a major press event in Brussels when they meet next fall. ▲

To learn more or to join the EPU's efforts, contact:

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A website is under construction.

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PPH23/2

THE ORTHOPAEDIC ASPECTS OF POLIOMYELITIS

Wallace H. Cole, M.D.
St. Paul, Minnesota

Polio History

Excerpt from Rocky Mountain Conference on Infantile Paralysis, December 16 and 17, 1946, Denver, Colorado. Sponsored by The University of Colorado School of Medicine and Hospitals and The National Foundation for Infantile Paralysis, Inc.

Reconstructive measures to overcome shortening should be considered as soon as it is evident that the conservative treatment is no longer sufficient. Manipulation of the feet under anesthesia to stretch the calf structures is probably the most common procedure, with fixation in plaster afterward until the reaction has subsided. If the contractures are old, careful open lengthening of the aponeurosis of the calf or of the Achilles' tendon must be done with concentrated physiotherapy and muscle reeducation started again as soon as feasible. Treatment does not stop when the ultimate in recovery of muscle function has been reached but must be continued until the patient has learned to coordinate what is left of muscle power to the fullest. When this is faithfully carried out, the number of mechanical appliances or braces needed in any specific group is reduced to a minimum, and the indications for orthopaedic operations become much fewer than formerly.

There probably always will be a small residual group of cases (small as compared to the total number in any epidemic) who will require operative treatment in the end to lessen their functional disability, regardless of the excellence of the early therapy. The procedures to be used on this group are almost innumerable, and the specific nature of the operations is a purely orthopaedic problem in which you are not particularly interested.

When the end result in any case can be accepted as probably final, the individual must be helped as much as possible to resume a normal life within the limits of the remaining disability and should have all emphasis removed from the fact that he is or has been a cripple. Two of my old patients who had had feet stabilized by operation some years before for residual paralysis below the knee went through active service in the late war (one of them was wounded) without any apparent disability. They certainly pay little attention to their handicaps.

In summarizing the Orthopaedic Aspects of Poliomyelitis I believe it is evident that this disease emphasizes as much, if not more than any other condition, the basic principles of our specialty which lay so much stress on the preservation of function and the prevention of deformity. We aim first, to prevent shortening of muscles and contractures, and as a corollary, keep deformities to a minimum; secondly, to reeducate remaining muscle power by meticulous attention to muscle action and coordination; and thirdly, by mechanical or operative measures, to better the function of the extremities, where possible, beyond that obtained by conservative means. I believe that by following the Kenny concept of treatment during the acute and convalescent stages fewer cases will require mechanical or operative treatment in the end, always accepting the fact that flaccid paralysis is not directly influenced by this treatment.

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