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Elizabeth Kenny: Manual Therapy Innovator

by Debra Curties ’84

It is almost impossible for us to imagine the dread and panic caused by the recurring polio epidemics in the first half of the 20th century. They appeared randomly in the summer/fall, sometimes returning to the same locations, sometimes not. There was no understanding of the vector, no vaccine or cure, and no effective treatment. Children and young adults fell ill, some dying, some recovering well, many left with significant permanent disability.

Working with Pat Benjamin to edit her wonderful book, *The Emergence of the Massage Therapy Profession in North America: A History in Archetypes*, refocused me from history-indifferent to recognizing how important it is for a profession to engage with its evolution story and the key themes that underlie its role and sense of purpose. One of the fascinating memes in manual therapy is the undertrained hands-on genius with a difficult personality who emerges in a moment of great need to challenge the prevailing medical approach and inspire real progress. Elizabeth Kenny is such a person.

Kenny’s Formative Years

Elizabeth Kenny (1880-1952) was born on her family’s farm in an outback area of Queensland, Australia. She was reportedly an independent, tomboyish child who meandered the bush country on foot and horseback. She received a limited education from homeschooling and small rural schools.

As a teenager she fractured her wrist in a fall from her horse and was treated by a regional doctor in Toowoomba; she seems to have stayed at or near his clinic for some weeks as she recovered. This was the beginning of a long mentoring relationship with Dr. Aeneas McDonnell.

Kenny later wrote that she became interested in how muscles work while rehabilitating her arm. She began independent reading of anatomy and medical texts, as well as volunteer apprenticeships with the area midwife, doctors, and nurses, including learning bedside at a small local hospital.

Before the age of 20, she was travelling her home counties as a “bush nurse” delivering babies, treating farming and back-country injuries and common ailments, and triaging situations that needed to be taken to hospital. She worked without pay or for barter. She also opened a small cottage hospital for postnatal and convalescent patients.

In 1911 Kenny encountered her first case of polio in a local girl, and soon had five more. She had no idea what it was. She got some information telegraphically from Dr. McDonnell, who basically told her there was no treatment available in her area and to use basic principles: “treat them according to the symptoms as they present themselves” and “do the best you can” was his advice in a nutshell

Her patients recovered much better than was typical of the current medical protocols, causing such amazement in Dr. McDonnell and his regional colleagues that they encouraged her to show them and their staff her methods.

Kenny’s bush nurse practice and developing ideas about working with polio patients were interrupted by WWI. Australia entered the war in 1914 along with Great Britain and Canada. Determined to do her part, Kenny applied to join the Australian Army Nursing Service. Despite her lack of formal credentials, her recommendations from Dr. McDonnell and others got her into the service on one month’s probation. She performed with distinction on “dark ships” which ran with lights off carrying wounded from Europe back to Australia and fresh troops back to the war. These were dangerous and grueling missions and Kenny did 16-17 round trips. In 1917 she was promoted to “nursing sister” – a status equivalent to lieutenant.

Sister Elizabeth Kenny

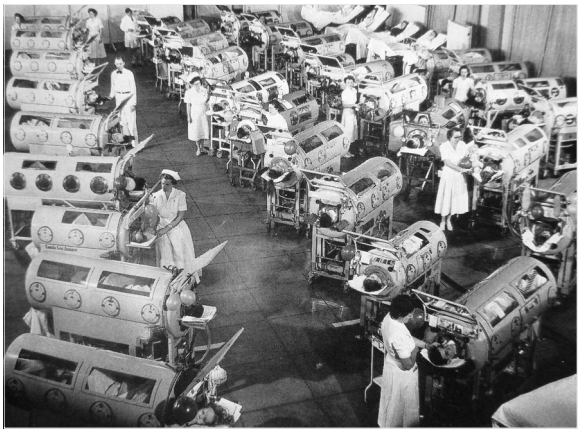
In addition to wounds and injuries at various stages, Kenny’s war work brought her into contact with a number of meningitis cases, where she saw the value of movement (passive and active exercise) and warm moist heat for affected muscles and joints. When she returned to country nursing she worked closely with a friend’s daughter who had been born with cerebral palsy. These experiences added to her thinking and repertoire of polio therapies.

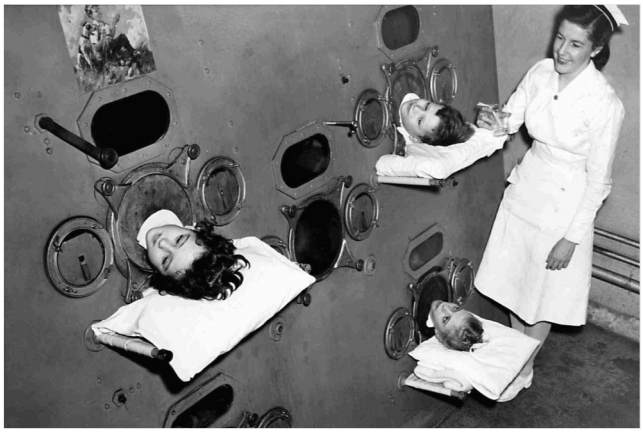
In 1927, Kenny patented the Sylvia stretcher, designed to reduce shock to injured bodies during ambulance transport. Worldwide sales helped bolster her financially for some years as she continued her eclectic style of learning and practicing. She next encountered a polio case in 1931. After 18 months in Kenny’s care, the teenager was able to walk and resume normal life. This was written up locally as a kind of miracle cure. In 1932 there was a polio epidemic in Queensland, the beginning of several recurrences over the next few years. Kenny became known for “bringing life into limbs of polio victims.”

While she had physician supporters like Dr. McDonnell and others who had their own direct knowledge of her results, Kenny began to draw outraged criticism from Australian doctors. This was the beginning of a lifelong pattern: success always came mixed with aggressive negativity from the medical establishment, especially in her home country.

Medical Treatment at the Time

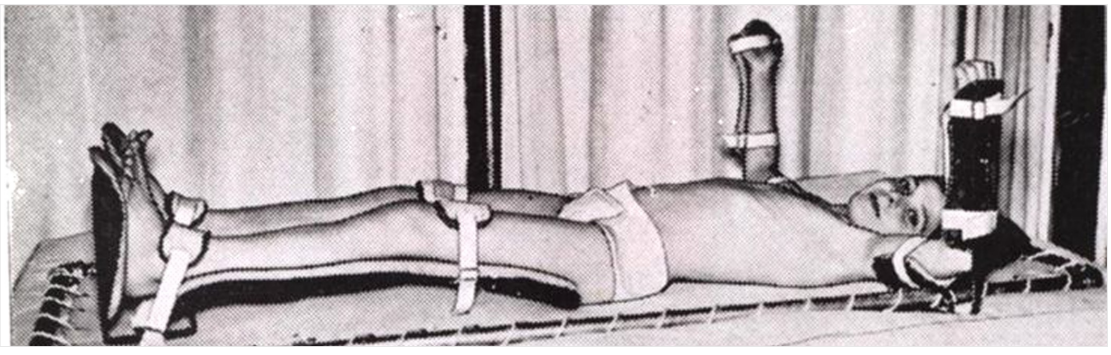
There was no field of physical medicine in those days, and rehabilitation medicine was yet to develop as a comprehensive treatment approach. Largely by default, treatment of polio patients was given to orthopedists. The prevailing view was that the polio virus, in damaging the motor neurons in the anterior horn, quickly killed off the affected muscle cells. What was left to do was minimize the extent to which the unopposed pull of the unaffected muscles caused structural and postural defects, to prevent asymmetric contracture that produced deformity.





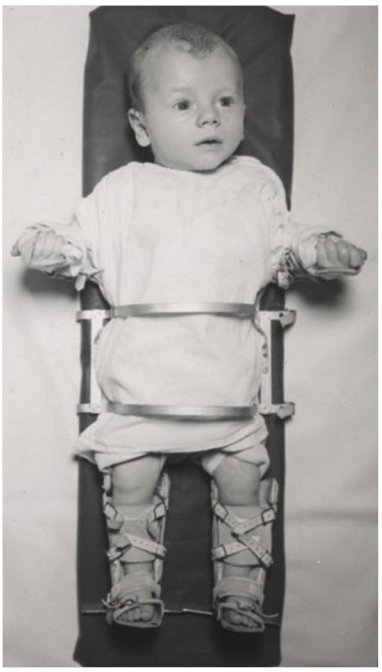
Interpreted through the orthopedic viewpoint, this led to a standard treatment protocol:

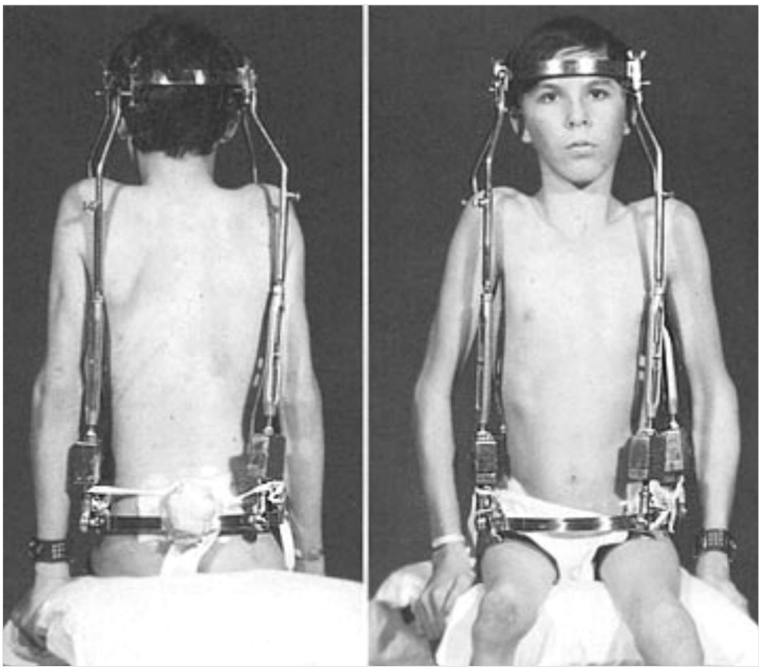
- no acute stage treatment except basic comforts; isolate and immobilize
- rest and joint restriction – weightbearing, movement, and exercise all seen as dangerous to the affected tissues and likely to promote gross distortions
- patients whose diaphragm/thorax function was affected placed in iron lung machines (above)
- where deemed necessary, surgeries to transplant tendons and release contracture
- plaster casting of the limbs and fixation of the body using apparatus like the Bradford frame for 6-9 months average, often 12-24 months, before ambulation allowed
- once allowed to be mobile, fitting with an array of splints and braces, including of the spine and thorax if needed, to be worn during rehabilitation exercises and normal life activities



The Bradford Frame

The result of this approach was loss of any nerve and muscle capacity that could have been rehabilitated, pronounced wasting atrophy, and, ironically, distorted limb postures, scoliosis, and pronounced disability. The patients were often in a lot of pain throughout the protocol, and the emotional effects, although not focused on, were undoubtedly major.





In 1941, JR McCarroll and CH Crego published study results assessing clinical outcomes of variations of this protocol in the *Journal of Bone and Joint Surgery*. Physiotherapy had begun to be added by some practitioners by 1941 and was included. There were a total of 160 patients with 325 affected extremities: Group 1 with initial plaster immobilization for 1-3 months followed by no physiotherapy; Group 2 with 1-3 months of immobilization followed by 3-6 months of daily 20-minute therapy sessions; Group 3 with 4-18 months immobilization followed by no physio; Group 4 with 3-12 months of immobilization followed by continued immobilization plus undescribed physio; and Group 5 with delayed immobilization (6 months post-onset) without physiotherapy. Group 6 consisted of patients in remote communities without orthopedists or physiotherapists who typically stayed in bed only while acutely ill and were encouraged to walk and exercise as soon as they were able. The authors somewhat sheepishly reported that the highest percentage of satisfactory outcomes occurred in Group 6, and that none of the Group 1-5 options offered significant benefits. Despite the authors' awareness of Kenny's methods, the study did not include any patients treated using them.[1]

The Kenny Method

When she first encountered polio, Kenny was unfamiliar with the disease and the established medical protocol for treating it. Encouraged to address the symptoms and do what seemed best, she put together what common sense led her to think should work. Her range of patient exposures from 1911 through 1930 helped her consolidate her thoughts about the best polio treatment approach by the time the Queensland epidemics hit. Her methods were not only physical ones. She also strongly believed that, regardless of age, the patient's will, agency, and sense of optimism were essential to optimal recovery.

Kenny's early observations led her to perceive that the affected muscles were irritable and overly toned (she called it spasm) in the acute phase of the disease. Their circulation suffered, they were painful, and her immediate reaction was to get the fibres relaxed and better perfused. Her instinct was also to move the body parts as much as they could tolerate – first passively, then actively. In cases where she had full control of the treatment plan, she would immediately discontinue use of any immobilization. It is not clear how intentionally she undertook neural pathway re-training, since she was very muscle-focused, but that was the inherent process.

Compared to the medical protocol, her methods were therapeutically aggressive but fundamentally simple, back-to-basics approaches. They were premised on thorough clinical observation and labour-intensive therapies.

Applying compresses in an acute case

The Kenny Method, as it came to be called, consisted of:

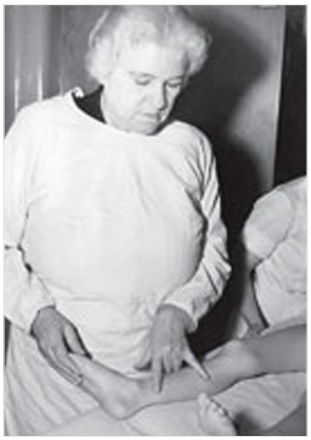
1. In the acute phase:
    - start therapy immediately
    - wrap affected muscles in 3-layer hot compresses – inner two of fomentation cloths made from wool army blankets, outer waterproof – joints left uncovered
    - compresses left in place for 15 mins to 2 hrs, and re-applied continuously for up to 12 hrs a day – purpose was to achieve normalized tone and rosy pink "healthy" colour in what began as stiff, pale limbs
    - passive limb movement in painfree range several times a day without overstretching or fatiguing the muscles

- if no trace of active recruitment was noted despite calmed tone, slight stretch reflex stimulation by placing the muscle at a slight stretch and moving the joint to flex and extend, or by gently vibrating on or tapping the tendon
- add hot baths and medicated lotions as tolerated
- massage was not included in this phase because it was seen to irritate the muscles

Kenny often related an anecdote from one of her earliest outback patient cases, where the young girl said to her, "Please, I want them rags that well my legs."[5]

2. After the acute phase:

- heat and cold applications, massage, and full-range passive movements
- regular pool therapy when available
- mobility of the weakened muscles multiple times per day – the therapist would do a specific passive movement twice, then ask the patient to recreate it actively, adding stroking of the muscle to its attachment point to increase "mental awareness" – if muscle substitution occurred the movement would be discontinued for that session
- active free movements, then strengthening, in very precise case-based sequences
- weightbearing and ambulation as soon as possible without equipment or braces (Kenny believed they created bad gait habits)
- train mother or other caregiver to do the specific exercise protocol once the patient went home



For patients with respiratory insufficiency, Kenny followed the same basic approach for the diaphragm and thoracic muscles. She shocked several medical personnel during training sessions by removing patients from iron lungs.

Kenny also focused purposefully on support and tough-love encouragement of patient optimism and determination, on self-responsibility for outcomes, and on incentives to return to normal life and be functionally capable. She advocated keeping the patient's best life and functional outcome as the goal, discussing this often with even very young patients.

Staff training session focused on specific muscle activation

In a similar vein, perceiving the risk of disembodiment responses (which she referred to as “mehta alienation”), Kenny included engagement techniques such as teaching the children the correct names and actions of their muscles and making them call them out during therapy, as well as helping them track specific muscle progress.

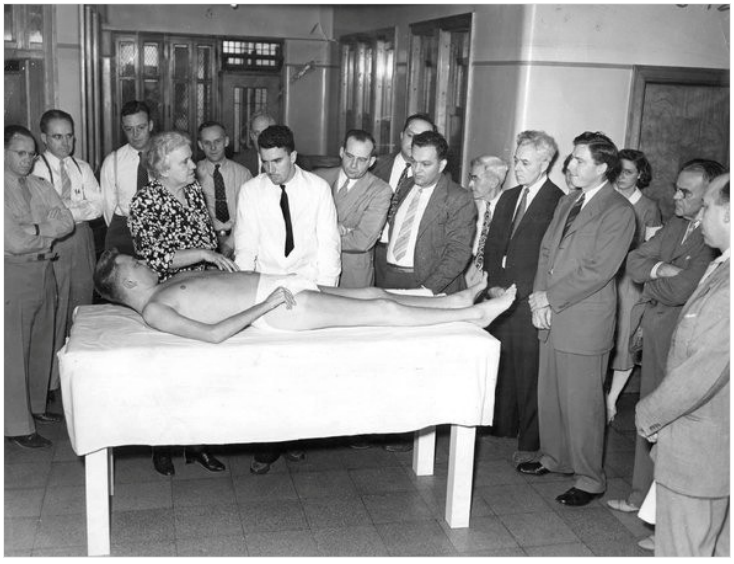
Kenny’s protocol probably also had good compliance because the children were, within a few days, in much less pain.

Kenny and the Medical Profession

Kenny’s clinical results led her to be very popular with parents, grandparents, local officials, and community members. In Australia, and later in North America, she was lauded and supported by the public, which often added to tensions with the medical establishment.

Her approach caused outraged medical reactions too, since it flew in the face of current scientific belief (“dead muscles don’t spasm”) and was embarrassingly effective. In that era, her inclusion of techniques like tendon vibration/tapping was seen as laughable, as was her use of terms like “muscle re-education” to describe her work. She was accused of hypnotizing her patients. It was also true, however, that like many instinctive therapists with informal training, she espoused ideas about polio and descriptions of how her techniques worked that were demonstrably unscientific. Kenny was also often abrasive and egotistical in her interactions with medical skeptics, and enjoyed deriding them and exaggerating her successes in the press.

When medical professionals were open-minded (or desperate) enough to look past her initial presentation and strange, sometimes non-scientific explanations – to observe her work and see her treatment results – they often became supporters and trainees.



One of numerous physician training sessions Kenny conducted in the U.S. – this one at the Minneapolis General Hospital

Robert Bingham, MD, wrote in a 1943 article comparing Kenny’s method with the medical protocol published in *Journal of Bone and Joint Surgery,* "Patients receiving the Kenny treatment are more comfortable, have better general health and nutrition, are more receptive to muscle training, have a superior morale, require a shorter period of bed rest and hospital care, and seem to have less residual paralysis and deformity than patients treated by older conventional methods. The Kenny treatment is the method of choice for the acute stage of infantile paralysis." [9]

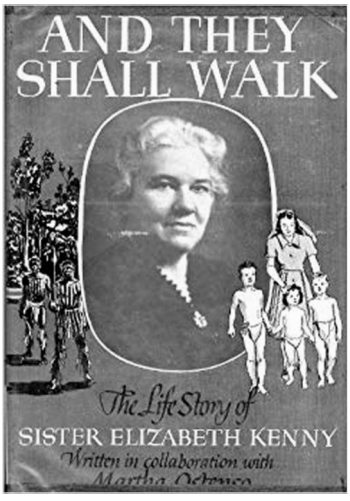
Dr. Frank Ober, then President of the American Orthopedic Association, who had changed from hard-core skeptic to supporter, wrote in JAMA in 1942, "Many surgeons believe in prolonged rest and immobilization. Prolonged fixation in one position causes stiffness in muscles and joints, and delays recovery. Sister Kenny has demonstrated that…when her ideas are applied, splinting is not necessary. Sister Kenny's treatment is superb nursing and common sense."[1]

This type of mixed-bag medical reaction occurred throughout her career. Although she was supported to open clinics and train staff, the combination of her success, her abrasiveness, and her sex seemed to breed perpetual sniping and harsh scrutiny in Australia, and in England when she tried to establish herself there.

Kenny in North America

Kenny on the North American lecture circuit
(she was rather famous for her hats)

Kenny's Australian supporters thought she should travel to the United States to present her polio treatment approach. Arriving in 1940, she met with a cool reception in New York and Chicago. Discouraged, and on the verge of returning home, she was put in contact with Dr. Frank Krusen at the Mayo Clinic. Krusen was a brilliant medical innovator who is generally considered the "father of physical medicine" and was one of the driving forces behind the formation of the American Society of Physical Therapy Physicians. Over two days he talked with Kenny face-to face, listened to her lecture, and observed her work. At the time there were a number of polio cases in Minneapolis, and Krusen referred Kenny to his colleagues at the University of Minnesota at Minneapolis: Miland Knapp, Wallace Cole, and John Pohl (who it is said had "grown tired of hearing the cries of children encased in plaster"). They took a chance on her as that summer's epidemic got underway.



Soon Kenny was treating patients and training nurses, physiotherapists and doctors, including international ones, in Minneapolis and on tours throughout North America. She stayed in Minneapolis for 11 years. In addition to her hospital work, she established a foundation to promote the two-year training program she developed. She also collaborated with Pohl on a book about her treatment methods and with Martha Ostenso on her autobiography, *And They Shall Walk*, published in 1943.

Kenny's ascendance was meteoric: she received awards and multiple honorary degrees; she met with Franklin Delano Roosevelt to talk about polio treatment; in one year's Gallup poll she was voted most admired woman in America, edging out Eleanor Roosevelt. A Hollywood movie, *Sister Kenny*, was made about her life starring Rosalind Russell, who was nominated for an Academy Award for her performance.

Throughout her career, Kenny always worked within medicine and saw it as the right context for her therapy methods. She was very dedicated and hardworking, and her results were better than the original medical protocol, absolutely. But she was stubborn and combative, and didn't update her views on the science or become better at diplomacy. Her superstardom was offputting to the (already sexist) medical establishment, especially since her hubris increased as well. Her star began to wane, and quite quickly she became a has-been as the polio treatment world absorbed her ideas and moved forward without her. She returned to Australia and died a few years before the Salk vaccine became available in 1955.

Kenny did make her mark, though, in the nascent field of physical medicine and rehabilitation (PM&R), which had an interwoven relationship with massage therapy as the world headed into WW2. According to Dr. Bruce Becker, writing in the American Academy of Physical Medicine & Rehabilitation's journal, her contributions included understanding the value of early intervention, the use of physiatric techniques for muscle spasm and pain, the importance of early and regular joint movement, and a focus on ADL functions, independence and ambulation. "Without the ongoing polio epidemics, Kenny's intense media coverage, and her symbiotic relationship with some of PM&R's early pioneers, our field would have had a slower start."[1]

And, of course, there were the almost 8,000 patients she treated and the many, many more who benefitted from her work, including several in the public eye. Actors Alan Alda and Martin Sheen, who were childhood polio victims, both credit being treated by her methods for restoring full use of their legs.

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