



REHAB / RECOVERY / PHYSIOTHERAPY

## **Paradoxical Terminology: The "Successfully Failed" Rehabilitation of FDR**

A LESSON IN CLINICAL GOAL-SETTING THAT CHANGED THE WORLD

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In a world that is already too complex, it can be distressing to remove more of the barriers that bolster our beliefs. For example, one might believe that success and failure are distinct opposites. However, here is an example in which the terms become confused, even paradoxical.

It is now common knowledge that President Franklin Delano Roosevelt was a wheelchair-bound paraplegic during his entire 13 years in office. Many are aware of the fact that he was struck down by polio years before he ran for the presidency, but few people today are aware of the events that led to this leader's ascent to high office. Furthermore, a surprisingly small number of people in that era truly understood his level of handicap, especially at a time when the populace might arguably have been considered less understanding of disabled individuals than today. In retrospect, much can be learned from the strategies that led to these events, which might allow for our own clinical, and indeed personal, growth.

## FDR: A Brief Biography

Franklin Roosevelt held a lifelong dream: to become president of the United States as had his first cousin Theodore. An upbringing and education reserved for the privileged of the day, a powerfully influential family, and the Roosevelt name were certainly favorable factors in attaining his quest. A Harvard undergraduate and Columbia law degree, good looks, natural charm and quick wit also were of immense help. Election to the New York state Senate at age 28 and an appointment as Assistant Secretary of the Navy at age 31 further confirmed the fact that Franklin was a man with a great future. A failed attempt to be elected vice president in 1920 only meant that his turn was approaching.



A very hearty and ambulatory FDR campaigns in Dayton, Ohio for Vice President with running mate James Cox in 1920.

Then disaster struck. Franklin was stricken with polio in 1921 at the age of 39. So severe was the condition that he was left with residual weakness of the torso and upper extremities and complete paralysis from the waist down.

Because of the disastrous residuals, Franklin spent the next several years focused on one goal: to rehabilitate himself to the point of strengthening his torso and arms and, more importantly, to once again becoming bipedal. Most people would consider the focused restoration of one's legs a logical priority for obvious quality of life reasons. For Franklin, however, his goal of returning to bipedal status was also focused on another reality: he felt certain that the people of the United States would not elect a wheelchair-bound man, a "cripple," if you will, as their president. Unfortunately, despite several attempts at leading rehabilitation institutions, he remained paralyzed and appeared generally weak and frail. It was a low point in his life. He was out of politics.

In 1923, he was informed of a little-known spa in Georgia known as Warm Springs. It was suggested that the opportunity to swim, drink and exercise year-round in these sulfur-containing natural hot springs indeed might help his condition. In desperation, Franklin decided to give Warm Springs a try.



FDR sitting poolside at Warm Springs, Georgia in 1923. Notice the muscular bulk of the torso and upper extremities compared to the atrophied lower extremities.

A determined Franklin drove down to Georgia in a custom-designed car that allowed him to control it using just his hands. Miraculously, he found that swimming and exercising in the warm water truly seemed to rejuvenate him. He gradually gained weight, strength and stamina to his torso and upper extremities. His charisma also returned, and he once again felt like the charming, self-confident Franklin of old.

As he drove back and forth to Georgia, another transformation took place. Roosevelt would stop along the back roads of the southern states to visit and talk with the simple country people. These were common people, generally poorly educated and barely making ends meet. They were very different from the people with whom he had spent his life, yet he was touched by their honesty, sincerity and generosity in sharing what little they had. There was no wealth, privilege or opportunity and little real future hope for this group. Ironically, this rich, wheelchair-bound man may have found kindred spirits in the good-hearted, yet poor people of the region, united by an emotional bridge of frustration and helplessness.

The despair and plight of the growing lower class of the Great Depression deeply affected Franklin years later. In fact, the famous "forgotten man" campaign speech, in 1932 which focused on those at the bottom of the economic pyramid, is considered by many to have pushed him toward victory and his first presidential term. Many believe it was these trips through the South that allowed Franklin to understand and later relate to the needs of the poor during the years of his presidency.



FDR with a farmer on the way to Warm Springs in 1932. He employs the "semi-seated in a convertible" technique for the camera to appear tall and vigorous. Visits like these helped him to bond with the "common man."

Despite the positive gains and growth occurring in Franklin during this rehabilitative period, there

remained one major obstacle in his life: he was still unable to control his lifeless legs. The strength had indeed returned to his upper body, but his legs remained functionally useless. The apparently vital initial goal of returning to ambulatory bipedal status was blocking his ultimate goal of the presidency.

Determined not to let his presidential aspirations fade away, a plan was devised with the assistance of the therapists at Warm Springs. It was based on the following simple premise: if Franklin could not be elected to office because of an inability to walk, then he must be made to appear to walk!

This plan was later coined "the great deception." The "deception" was based on four elements:

1. Franklin would use orthopedic leg irons to brace his legs rigidly straight. Such braces could be hidden under his trousers, although they weighed more than 20 pounds.

2. When standing on his two braced legs, Franklin would hold onto the arm of one of his sons with one hand and a cane or support railing with the other hand. He would essentially transfer his weight from the arm holding his son to the other arm as he walked. Although he was unable to control his legs at all, he had recovered the strength and stamina of his torso and upper extremity musculature.

Therefore, he was able to use some of these muscles to lift each iron-laden leg as he pulled himself forward using his arms. (The biomechanical aspects of Franklin's movement are a key aspect of this paper and will be discussed later.)



FDR with son James and others in Atlanta, GA in 1932. Notice one hand on the cane and the other holding on to James's arm. Also notice the other gentlemen holding canes to reduce the emphasis of FDR's dependence on his cane.

3. The plan was to make the whole endeavor appear effortless on the part of Franklin and his assisting son. They practiced and exercised for months in order to have the timing, strength, stamina and effortless appearance of a loving son assisting his smiling, slightly 'gimpy' father along as he walked. They were certain to always be engaged in an overly animated conversation, as this activity distracted one away from Franklin's awkward movement and instead toward their smiling faces. Instead of evoking a sympathetic and sad situation that one might feel in watching a wheelchair-bound person move along, there was a lovely, positive feeling of a warm family intimacy between father and son.

4. The final part of the plan was to hide Franklin's true disability from the public. They would never allow his paralysis to be an issue of focus or discussion in any public manner. This element was heavily dependent on the good will of the press, clearly a remnant of a bygone era. They were specifically asked not to photograph Franklin in a wheelchair. Instead, he would be photographed while seated in a chair or in the back of a convertible, leaning against some support such as a cane or family member. Fortunately for Franklin, the potentially devastating effects of television were little problem for him in those days.

The plan worked! The public accepted and elected a poorly ambulating official. Franklin was subsequently elected governor of New York and ultimately as president, and the rest, as they say, is history.

#### Biomechanical Basis of "The Great Deception"

What was the biomechanical mechanism that allowed FDR to appear to be able to walk? There were four key aspects that were required to make his ambulation possible. These aspects included weight-bearing and balance of the upper extremities and scapular stabilizers, with unilateral rotation and elevation of the pelvis by the torso musculature. For the sake of brevity, I will focus on the most important muscles and their unique application regarding this article.

The muscles of the upper extremities and upper torso were utilized in his compromised ambulation. The key torso muscles utilized for lifting his leg irons were:

- the quadratus lumborum (QL);
- the latissimus dorsi (lat); and
- the abdominal external obliques.

The QL's primary function is that of ipsilateral lumbar flexion and lowering of the lower ribs when unilaterally activated in the bipedal, weight-bearing individual. When both QLs are co-contracted in a bipedal, weight-bearing stance, increased lumbar bracing is accomplished. However, the QL can also act as a unilateral pelvic/hip elevator when the weight-bearing and stability comes from cephalward (or above), such as when FDR would prop himself up on his upper extremities.

Furthermore, while the primary function of the lat is depression and internal rotation of the ipsilateral humerus, it can also act as a powerful pelvic/hip elevator when weight-bearing is transferred to the upper extremities and the shoulder girdle bracing musculature is activated. Because the insertion point at the proximal humerus is anterior to its origin at the iliac crest, unilateral contraction of the lat from the previously described braced shoulder girdle would necessarily shift the iliac crest somewhat anteriorly as it is elevated.

The external oblique musculature acts as a myotatic synergist to the lat in that it shares a common

insertion point at the iliac crest. It also serves as a stronger anterior mover of the iliac crest because of its more anterior origin at the lateral and anterior lower ribs.

By bearing and balancing the body's weight on the upper extremities and bracing the upper torso, FDR was able to co-contract these three muscles and successfully cause ipsilateral elevation and anterior translation of the pelvis and its ipsilateral embraced lower extremity. This forward swinging of the leg allowed him to appear to take a step forward!

#### Lessons to Be Learned



FDR, FDR Jr. and Winston Churchill at their Atlantic Conference in 1941. Well into his third term, he was less concerned about public sentiment regarding his paralysis. Hence, the cane appears in the photo in the "son holding" left hand.

The history of Franklin Delano Roosevelt is a lesson in personal determination, pragmatism and courage that should serve as a model and inspiration to every reader. Few would disagree that Franklin's dream of the presidency seemed an impossibility. Most would understand if he had simply resigned himself to his seeming fate as a wheelchair-bound gentleman. He could have easily returned to his Hyde Park mansion and lived his remaining days in real comfort.

This biography may inspire the clinician to be prepared to resort to different tactics when an initial plan or goal fails to attain the intended results. Remaining clinically adaptable yet determined and pragmatic is indeed a worthy goal.

We can also appreciate the benefit of understanding primary, secondary and tertiary functions of muscles and muscle groups. Such kinesiological understanding can come in handy as we seek ways to better direct our patients toward optimal function and quality of life.

Finally, perhaps the greatest lesson for us involves goal setting. In this instance, Franklin's short-term goals were to regain the use of his legs. The middle-term goal was to get elected to office, with the long-term goal of attaining the presidency. If FDR and his Warm Springs therapists had remained fixated on the short-term goal of restoring his ability to walk, he would surely never have reached his long-term goal of the White House. Therefore, doctor, never allow actions that cannot be accomplished to hinder those that can be accomplished.

Short-term goal setting is one of the key strategies in rehabilitation. These are most practical when the ultimate goal appears difficult, distant and/or impossible. A practical example of the positive effect of short-term goal setting is noted in the saying, "the longest journey begins with the first step." Short-term goals, however, must never be allowed to become a barrier to the long-term goal. If at all possible, the problematic short-term goal must be sidestepped or replaced so that progress toward the end goal is attained.

Franklin Delanor Roosevelt was elected to the presidency of the United States a record four times. He was a leader who engendered strong feelings of like or dislike, but is generally considered to have been a very popular president. There are those who still have negative feelings about some of his policies. No one, however, can deny he assumed the reins of a demoralized, financially devastated country at the beginning of his first term and left us with the wealthiest, most confident, most powerful country in the world at the time of his death. I'll leave it to you to determine if this is the story of success, failure, or the paradoxical blend of both!

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