

IN MEMORIAM

## Rolf Fränkel, 1908-2001

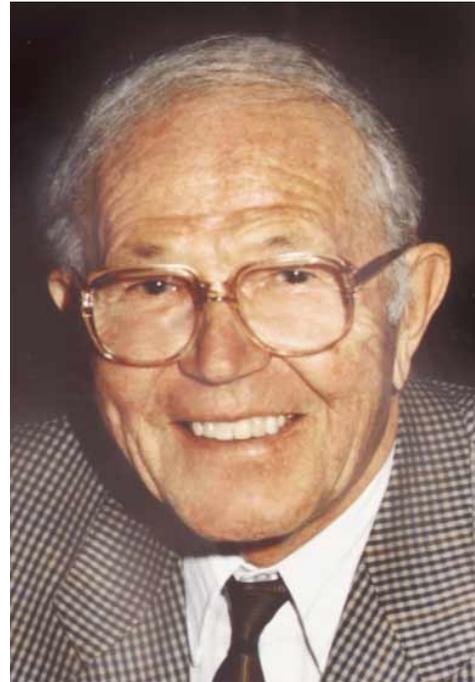
On September 9, 2001, orthodontics and craniofacial biology lost a true pioneer and innovator. Professor Dr Rolf Fränkel died in Zwickau, Germany, at the age of 93 years, after a long and productive career in an environment in which others would have faltered. His many contributions to our specialty will be long lasting.

Rolf Fränkel was born in Leipzig on March 29, 1908. He studied dental medicine in Leipzig and Marburg from 1927 to 1930 and began treating orthodontic patients with Angle's E-arch as early as 1928. He was a member of the staff of the oral and maxillofacial surgery department at a hospital in Essen for the next 2 years and then was engaged in private practice in Zwickau from 1933 though 1942. During the latter part of World War II, he was drafted to treat patients in the largest hospital for jaw and facial injuries in the country.

After the war, he returned to private practice in Zwickau, which had become part of the German Democratic Republic (East Germany), isolating him from colleagues in the West. Rolf had become proficient in the use of functional jaw orthopedics, particularly activators, and had experienced both successes and failures with this popular European therapy. From this extensive experience by means of so-called functional appliances, he recognized that the stability of a treatment outcome can be expected to occur only if the structural and functional deviations of the muscular capsule could be corrected. He evolved a unique approach to functional appliance therapy that incorporated the maxillary and mandibular vestibules as an operational base to reestablish an adequate size and shape of the orofacial capsule.

The function regulator (FR) appliances that he developed, including the FR-2 and FR-3 appliances that are used worldwide today, are orthopedic exercise devices that aid in the maturation, training, and "reprogramming" of the orofacial neuromusculature. This appliance system was devised by Fränkel according to the basic "functional orthopedic" principles of Roux that have been applied clinically in general orthopedics for many years. In his numerous articles, lectures, and courses on his treatment techniques, Fränkel stressed the importance of the soft tissue environment, maintaining that aberrant postural behavior of the orofacial musculature played a primary role in the development of skeletal and dentoalveolar deformities.

Fränkel based his treatment philosophy on the concept that the capacity to regulate growth resides in the soft tissue



environment and that adequate space must be available for the proper development of the hard tissues. Thus, in contrast to most other removable appliances, and certainly all fixed appliances, which place forces directly on the hard tissues, treatment with the function regulator focused primarily on the spatial inadequacy of the circumoral capsule as a major factor in restricting the displacement of the mandible and the maxilla, and thus its enlargement. Therefore, early intervention with the FR appliance offers the opportunity to eliminate this restrictive effect, permitting normal displacement of the teeth and the facial bones.

Fränkel stated that the change in the postural position of the mandible produced by the FR-2 appliance resulted in many positive treatment effects, with the displacement of the mandible the most important factor in the spontaneous development of that structure. His 70 published papers also illustrated that a chief effect of FR therapy typically was expansion of the dental arches. Fränkel maintained that the vestibular shields acted directly on the circumoral capsule and only indirectly on the dentition, producing the typical broad arch forms that result from FR treatment. He stressed, however, that the FR appliances were not true orthodontic appliances used to correct dental irregularities. If the precise alignment of teeth is desired, treatment with fixed appliances is necessary.

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Fränkel introduced his functional orthopedic approach in 1966 in a paper published in the transactions of the European Orthodontic Society. I met him for the first time at the Third International Orthodontic Congress, in London in 1973, after he had presented a major lecture on his treatment approach. This meeting was pivotal for my career; Rolf opened my eyes to the possibilities of influencing the growth of the craniofacial complex by altering the form-function relationship clinically.

In 1961, Rolf Fränkel was named head of the Heinrich-Braun Regional Hospital in Zwickau, a position he held until his official retirement in 1978. It is very difficult for younger orthodontists to appreciate how difficult it was for Rolf to practice orthodontics in East Germany under a communist-socialist regime. He and his staff worked in a dilapidated private residence near the local hospital, not in a building constructed specifically for patient care. His clinic had extremely limited resources, and he was encumbered by governmental bureaucracy at every turn. For instance, he needed governmental permission to travel to the West, but it was often refused at the last minute. He could travel only if his family remained at home. In spite of the roadblocks, he created a clinical facility that produced high-quality orthodontic treatment. Ultimately, the clinic was granted university status to train orthodontic residents.

His success for so many years in the German Democratic Republic is remarkable for another reason as well—he never joined the Communist Party, in spite of many entreaties to do so. His life was a paradox in many ways. For example, in 1975, the East German government awarded him a national prize for his contributions to the health of its citizens. At the same time, he was being investigated for treason by local authorities because he had given several sets of study models with samples of his FR appliances to a visitor from the West.

Rolf received many honors and awards for his intellectual and practical contributions to our specialty. He was named Professor of Medicine at the University of Erfurt in 1973, and he also received an honorary doctorate from Humboldt University in Berlin in 1990. He was elected to fellowship in the Royal College of Surgeons of England in 1992 and received the highest honor in American orthodontics—the Albert H. Ketcham Memorial Award given by the American Board of Orthodontics in 1995, which he considered his greatest personal achievement.

Aside from his professional contributions to our specialty, Rolf the person must also be remembered. He taught

himself to speak English during the fifth decade of his life and actively maintained correspondence with orthodontists around the world. He also had a complex set of emotions, as illustrated by his first visit to Ann Arbor in 1974. Rolf arrived at the Detroit Metropolitan airport, accompanied by a colleague unknown to me. We had planned to have Rolf come to our apartment for dinner, and I decided to extend an invitation to his colleague as well. Rolf took me aside and told me not to invite him, because his companion was sent by the Communist Party to monitor his activities. We went home, and my wife Charlene prepared dinner. The 3 of us became involved in a deep discussion (as we often did in subsequent years), and the dinner burned in the oven. Charlene came into the living room and told Rolf and me of her predicament. She led Rolf by the hand into the kitchen and opened the oven, revealing the burnt meal. Rolf looked, turned to her, and said straight-faced, “It must be a Communist plot” (a very common American expression in those Cold War years). His sense of humor, in spite of the situation, was one of his most endearing characteristics. He was an engaging conversationalist and a warm, loving person who affected the lives of many. His energy level throughout his life was incredible, even into his tenth decade. In fact, the last time I saw Rolf was in Leipzig in 1999—he gave a 2-day course at age 91.

His death leaves a void in many hearts. His understanding of the role of function in normal and abnormal craniofacial growth is a legacy that must not be forgotten by practicing clinicians, especially in the current era of sophisticated technology. Remembering Rolf Fränkel’s contributions is to keep in mind some of the most basic principles of the form-function interaction and the search for optimal ways to manage patients with complex neuromuscular and structural problems. Remembering Rolf also means recalling images of him playing tennis and skiing, motivating his patients to wear his appliance, and paying attention to the many “little things,” as he called them, that proved to be so important in providing excellent treatment to his patients in trying circumstances.

Rolf Fränkel is survived by his wife Else, and his daughters Dr med Christine Fränkel and Sibylle Fränkel Adbelatif. Christine continues in her father’s footsteps, practicing orthodontics and dentofacial orthopedics in Zwickau and lecturing and giving courses on the use of FRs, further elucidating the underlying biologic principles so eloquently espoused by her father.

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