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Vladimir Janda, MD, DSc

Tribute to a Master of Rehabilitation

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The purpose of this presentation is to pay tribute to the life's work of Professor Vladimir Janda, a key figure in the 20th Century rehabilitation movement. An accomplished neurologist, he founded the rehabilitation department at Charles University Hospital in Prague, Czechoslovakia. He was one of the seminal members of the Prague school of manual medicine and rehabilitation that expanded its influence throughout Central and Eastern Europe. His observations regarding muscle imbalances, faulty posture and gait, and their association with chronic pain syndromes, etiologically, diagnostically, and therapeutically, influenced the rehabilitation world. The authors comprise a multinational, multiprofessional group representative of rehabilitation specialists around the world who would like to pay tribute and give a final word of thanks to this innovative educator, clinician, and author.

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Professor Vladimir Janda passed away on November 25, 2002 in his native Prague, Czech Republic (Figure 1). An internationally renowned scholar, researcher, instructor, and clinician, his passing marked the beginning of a new era in the rehabilitation world. Defining the "post-Janda era" requires a brief review of this great man's life, message, and impact, which also may provide a glimpse into his vision for the future.

Background

Trained as a neurologist at Charles University, Janda's passion for rehabilitation was forged in his teenage years when he contracted poliomyelitis. Although he overcame the initial quadriplegia and being subsequently wheelchair-bound for 3 years, he was left with a significant impairment. Still, it seemed to many observers that he was never disabled and instead empowered by this lifelong challenge. His understanding of rehabilitation was based on the function of what he called the "sensorymotor" system, which placed greater emphasis on dynamic neurologic control, or "motor control," than the commonly used term of the "neuromusculoskeletal system." He integrated the inspirational work of his predecessors such as Sherrington, Pavlov, Still, Palmer, Kabat, Kenny, J.B. Mennell, and Mitchell, Sr, along with Czech contemporaries such as Lewit, Jirout, Vele, Cihak, and Vojta. He paid special tribute to his mentor in Prague, Professor Henner.

Never restricted by linguistic barriers, Janda integrated the writings of various European language researchers into his knowledge base. Already an established researcher in his own right, he honed his neurologic research skills when he traveled to Canada in the 1960s to become the first postdoctoral student of Professor John Basmajian, considered the "father of EMG biofeedback therapy." Basmajian wondered, in the end, who taught whom more, the supposed teacher or the pupil. Ultimately, he acknowledged that Janda became a world leader in the rational therapy of musculoskeletal conditions and of manual medicine.[1] In addition to collaborative research with Basmajian,[2] Janda subsequently integrated his acquired skills of neurophysiological testing into his research work in Czechoslovakia (Figure 2).

A review of Janda's published works demonstrates the breadth of his clinical interest and influence. His published papers varied greatly in their focus: from pediatrics[3] to geriatrics,[4] in addition to the effects of pediatric conditions on the adult,[5] from the latest in neurodiagnostic testing[6] to the latest on rehabilitation and manual medicine standards,[7,8] from postural[9,10] to neurologic disorders,[5,11] and from ankle conditions[12] to obscure facial pain.[13] In addition to publishing several texts in Czech, Janda subsequently published his books in German and English.[14,15]

Regional Accomplishments

Professor Janda was the Founding Director of the Department of Rehabilitation Medicine and the Director of the School of Physiotherapy at the Charles University, Third School of Medicine. A clinician extraordinaire, he supervised the management of conditions ranging from

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Figure 1. Vladimir Janda, MD, DSc 1928–2002.

macro-traumatic quadriplegias to degenerative neurologic disorders to the micro-traumatic chronic pain syndromes so common in the industrialized world. Along with his Czech colleagues, known as "The Prague School," they established new standards in manual medicine and rehabilitation throughout the Soviet Union and Central Europe. Based on a deep understanding of research-based neurophysiology, this complex yet practical approach spawned an explosion of new research and clinical methods. As the depth of his understanding and message expanded, his reputation grew to create a great deal of interest beyond the borders of the "Iron Curtain."

International Growth and Influence

The 1960s and 70s brought Janda invitations to attend international conferences on rehabilitation and manual medicine. His continued multilingual, multinational writing and lectures brought greater acclaim, along with a broader scope of interaction among the world's foremost experts in the field. He became a consultant to the World Health Organization, establishing rehabilitation hospitals in third world countries around the globe. He was an editorial staff member of numerous international journals and the editor in chief of the Czech Journal, *Rehabilitation and Physical Medicine*, until his death.

During the past two decades, Professor Janda taught both undergraduate and postgraduate groups at medical, physiotherapy, osteopathic, and chiropractic schools and conferences around the world on a regular basis. He was a leader in the formation and growth of the International Federation of Manual Medicine. In all venues, his depth of knowledge, charismatic personality, and clinical skills and insights inspired researchers, instructors, clinicians, and students alike to accept a deeper appreciation of the neurophysiologic aspect of locomotor function, the etiology of its dysfunction, and the utilization of strategies, based on such knowledge, to overcome such dysfunction.

Attending one of Professor Janda's courses was a memorable experience. A prodigious reader of the literature with a gifted memory, he routinely recalled supporting literature when challenged, which varied from

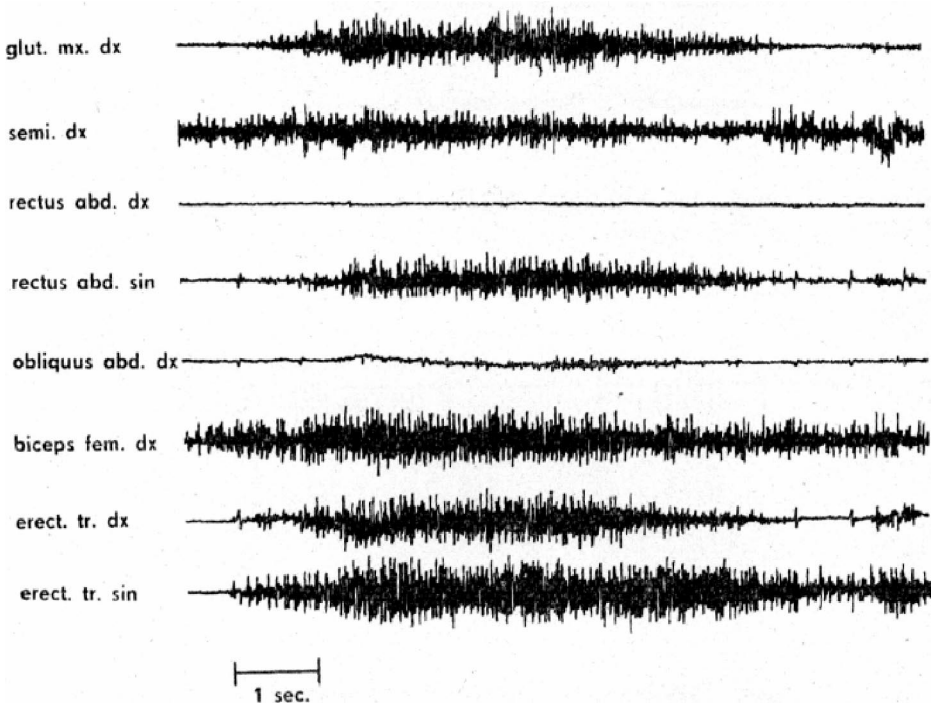

Figure 2. EMG results of a prone patient from Janda's 1960s research illustrate his interest in motor control. In this instance, he demonstrated hip extension activity. (Reproduced from Janda V. *Pokroky v rehabilitaci* [Advances in Rehabilitation]. Prague: Statni zdravotnicke nakladatelstvi, 1968, with permission.)

the most obscure, decades-old citation to very recent papers, often providing a personal comment about the author of the paper or international conference at which it was presented.

Professor Janda inspired a plethora of research and was frequently consulted to assist in ongoing research projects. Over the ensuing decades, his continuing lectures, writings, and demonstrations filtered down through a myriad of multigenerational protégés. The breadth and scope of his influence ultimately infiltrated the entire rehabilitation world.

Janda's Message

It was in the 1960s that Professor Janda first proposed that motor function must be considered with respect to the three interdependent neuro-musculo-articular systems. Instead of emphasizing musculoskeletal mobility and strength, his message focused on neuromotor control and locomotor system functional stability.[15–17] He continued offering this message and highlighting its implications for clinical assessment and practice throughout his career.

Janda's thesis was that dysfunction of the joints, muscles, or nervous system would be reflected in the quality of function of the others, not only at a local level but also globally.

This process of dissipation of effect was broadly described as "vertical and horizontal generalization" of motor dysfunction.

Janda emphasized the importance of the clinical integration of anatomy and kinesiology, what he described as functional anatomy (See Figure 3). A firm grasp of this association allowed him to better understand dysfunction in the locomotor system, which frequently occurred in a predictable manner. He described characteristic patterns of muscle hyper- and hypo-activity, called muscle imbalances, which initially manifest around the pelvis and/or the shoulder girdles. He also demonstrated stereotypical alterations in motor control, or incoordination, of muscle firing patterns present that would lead to expected postural and gait disturbances and pain syndromes. These observations led to the establishment of "Janda's Postural syndromes," which included the "Upper Crossed Syndrome" (Figure 4), the "Lower Crossed

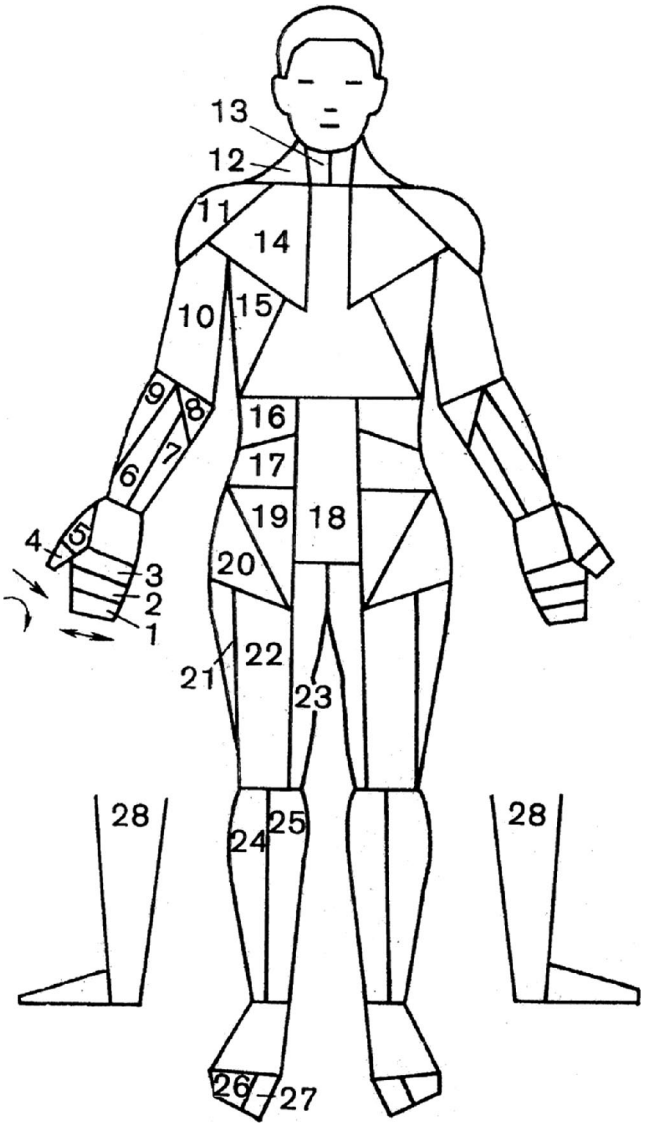

Figure 3. This illustration depicts Janda's emphasis on functional anatomy in his explanation of the etiology of locomotor system dysfunction and pain syndromes. (Reproduced from Janda V. *Vysetrovani hybnosti* [Examination of the Movements]. Prague: Avicenum zdravotnicke nakladatelstvi, 1972:19, with permission.)

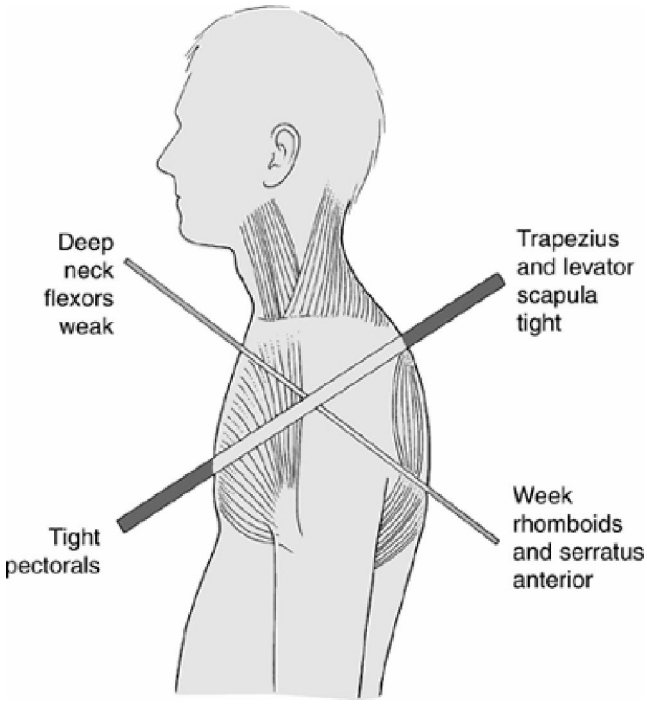

Figure 4. Illustration of Janda's Upper (aka proximal) Crossed Syndrome. From the lateral view, this postural syndrome explains how antagonistic muscles become imbalanced, resulting in compromised posture. Janda explained that this left the patient with altered spinal and shoulder region biomechanics and increased the risk of associate pain syndromes. (Reproduced from Chaitow L. *Muscle Energy Techniques*, 2nd ed. London: Elsevier, 1996, with permission.)

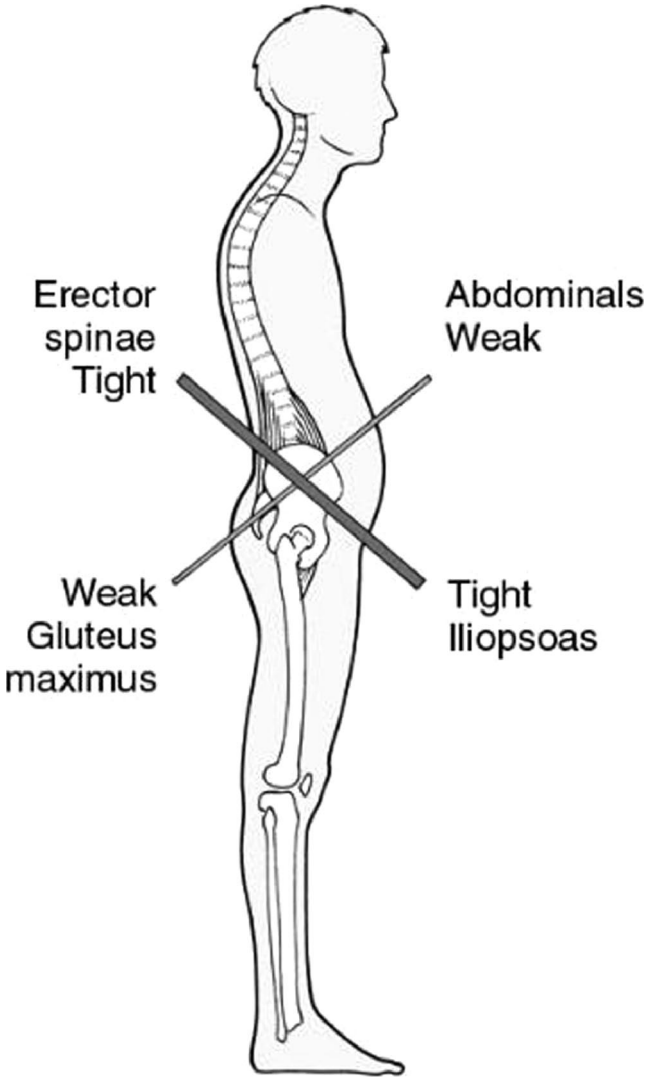

Figure 5. A depiction of Janda's Lower (aka Distal) Crossed Syndrome. Note that one line of the cross demonstrates hypertrophic (tight) muscle, while the other demonstrates hypotrophic (weak) muscle. (Reproduced from Chaitow L. *Muscle Energy Techniques*, 2nd ed. London: Elsevier, 1996, with permission.)

Syndrome" (Figure 5), and the "Layer Syndrome." Recent studies and books have helped to support and strengthen the basis of Janda's observations.[18–22]

Janda's approach to assessment stressed the need to address dysfunction in all three systems, and he extended a profoundly rational approach to the management of different clinical presentations. He stressed the importance of postural and gait assessment as part of a complete locomotor system evaluation, noting that observation of stereotypical postures (Figure 6) could be used as clinical shortcuts or for confirmatory purposes. He demonstrated methods to log these findings quickly (Figure 7), while also reminding clinicians to avoid overreliance on such findings.[23]

For chronic pain syndromes, Janda highlighted the importance of first reducing any joint dysfunction or nociception in order to improve the local afferentation. Muscle imbalances could then be normalized with manual techniques and muscle firing patterns improved *via* sensorimotor training. Once this was accomplished, specific therapeutic exercises designed to neutralize the chronic dysfunction and improve endurance and strength could be appropriately introduced.[24,25] Clini-

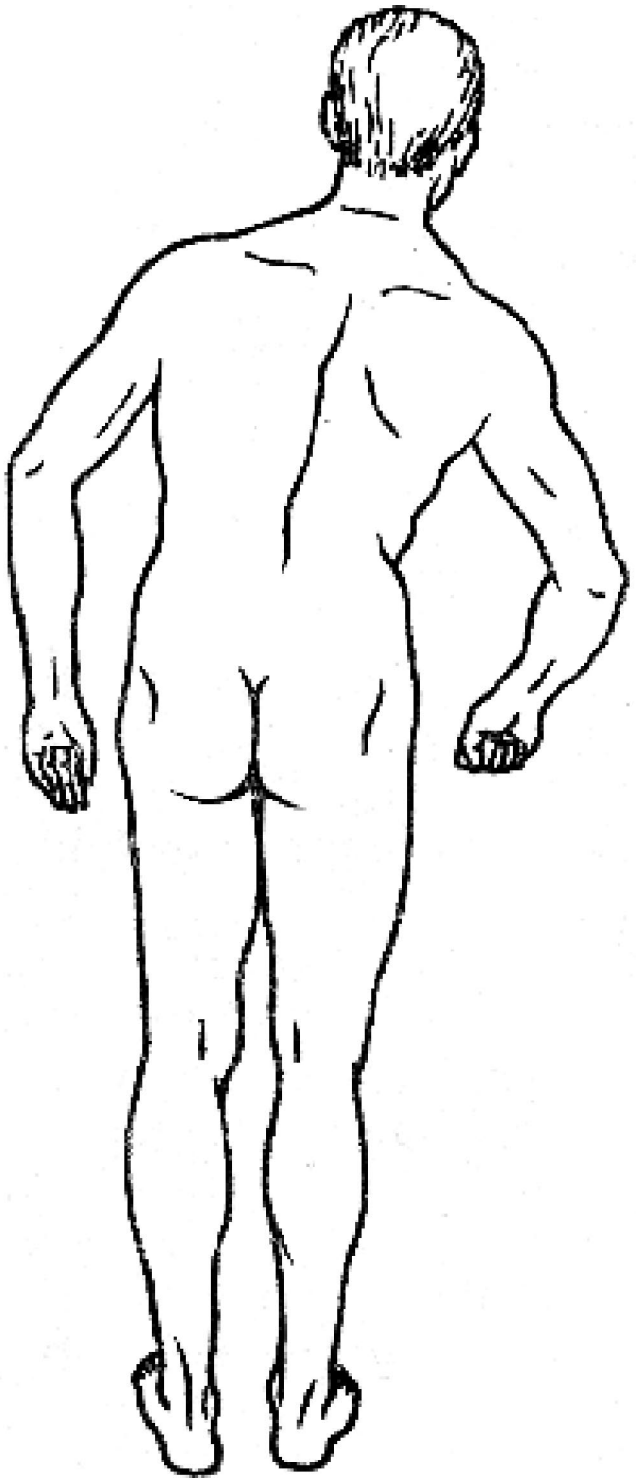

Figure 6. Janda emphasized the importance of postural and gait assessment as a clinical shortcut and confirmatory clinical modality. Here he describes the stereotypical "Antalgesic Posture." (Reproduced from Janda V, Kraus J. *Neurologie pro rehabilitacni pracovniky* [Neurology for Physiotherapists]. Prague: Avicenum zdravotnicke nakladatelstvi, 1987:126, with permission.)

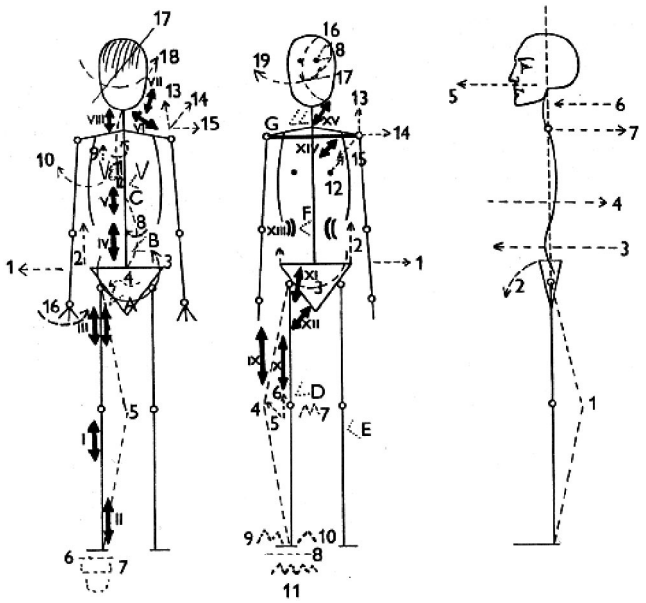

Figure 7. One of Janda's drawings demonstrating postural assessment. He emphasized the local and global assessment as part of a complete examination, teaching methods that allowed the examiner to quickly log his or her findings. (Reproduced from Janda V. Dokumentace analyzy stoje [How to record stance analysis]. *Rehabilitace a Fyzikalni lekarstvi* 1994:4–5, with permission.)

cians from around the world have come to understand and use these fundamental approaches to treatment, perhaps only a percentage of these appreciating from whom this approach originated.

Professor Janda considered his most profound finding involved the central nervous system and congenital risk factors for chronic pain syndromes. At an influential New York conference in the 1970s, he proposed that the pediatric syndrome of minimal brain dysfunction might indeed persist into adulthood. His seminal summary of his research later appeared in English.[26] While these findings have become routinely applied in Central Europe for years, validation of this complex topic will be necessary before universal acceptance and clinical integration occurs. In the light of growing interest in biopsychosocial factors of chronic pain and disability, Janda envisioned a significant clinical impact of minimal brain dysfunction as further research leads to a more comprehensive understanding of the topic.

A New Era

With his passing, the rehabilitation world is only now coming to fully appreciate the accomplishments of Professor Janda. The contributors of this tribute exemplify the unifying nature of his multilingual, multinational, multiprofessional influence and, in his honor, challenge the ensuing generations to further prove and expand on his tenets. As a group, we thank him for helping us to open our eyes. In his native Czech Republic, he was posthumously entitled the "Father of Czech Rehabilitation." Professor Vladimir Janda did indeed provide a unique breadth, depth, and scope of clinical influence throughout the world. As such, history will memorialize him as being one of the true giants of the 20th Century rehabilitation movement.

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