

## Christoph Wagner (1931–2013)

### Father of Music Physiology and Musicians' Medicine in Germany

It was 1964 when Christoph Wagner convinced the directors of the German universities of music and the director of the Max Planck Institute for Occupational Physiology Dortmund to support systematic research in the field of skilled music performance and music physiology.<sup>1</sup> Today, more than half a century later, we know Christoph Wagner as the “father of Music Physiology and Musicians' Medicine” in Germany.<sup>2</sup>

After 10 years of basic research in Dortmund, in 1974 he was appointed as professor at the Hanover University of Music and Drama. By founding the Institute of Experimental Music Pedagogy, which he renamed the Institute of Music Physiology in 1979, he succeeded for the first time in establishing music-physiological research and teachings in a European university of music. In his almost 20 years there, Hanover became an international reference centre and the starting point of today's landscape of music physiology and musicians' medicine in Germany. In 1994, Christoph Wagner, together with Jochen Blum, founded the German Association for Music Physiology and Musicians' Medicine (DGfMM). In 2001, he was appointed as honorary member.

#### Musicians' Hands

Christoph Wagner's worldwide singular research on the biomechanical individuality of the musician's hand provides data from professional pianists, piano professors, string players of the Berliner Philharmoniker, participants of the ARD International Music Competition, and students of nearly all classical instruments in up to 40 hand characteristics: all 10 hand spans, wrist abduction, hyperextension of the metacarpophalangeal joints, supination, and pronation—active and passive.<sup>3,4</sup> Individual hand profiles help to understand causes of PRMD (also focal dystonia<sup>5</sup>) and give scientifically based advice on individual solutions for healthy playing technique, fingerings, repertoire, and ergonomic adaptations.<sup>6,7</sup> Measuring sheets show at a glance the enormous range of individuality among musicians, which may still be underestimated today. Since 2009, the Biomechanical Hand Measurement (BHM) is being continued and extended at the Zurich Centre for Musicians' Hands (ZZM) under the direction of Horst Hildebrandt.

#### Skilled Music Performance

Christoph Wagner's concept of experimental research in music pedagogy was based on two poles: (pre-)conditions of experts (like manual liberty) on the one hand and skills of experts on the other. Because of this, his lifework also included studies on selected parameters of musical excellence such as rhythmic precision (patterns, scales,<sup>8</sup> excerpts of piano literature) and tempo modification (study with Herbert von Karajan). As early as 1968, he showed audible and even slighter differences in the rhythmic precision of professional pianists and amateurs with a measuring accuracy of 1.25 mil-

liseconds.<sup>9</sup> Later, he widened the focus through pilot studies on dynamics and touch intensity.

Born on 20 May 1931 in Marburg, Germany, Christoph Wagner grew up playing piano. In 1958, after finishing his studies in medicine and subsequent doctoral work, he followed his dream to study music. As he recognized the lack of objective knowledge in professional practicing and teaching, and as he noticed the spread of overuse syndromes, he decided to combine the two fields and to go new ways with scientific methods.

His guiding principle was always science *for* musicians, not *on* musicians. Christoph Wagner died on 30 August 2013 at the age of 82 in Isernhagen, Germany. His research concepts and his life's work point still to the future.



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