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Correlations in Acquiring Musician's Dystonia Amongst Professional Musicians: Annotated Bibliography

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Abstract

Dystonia happens at a remarkable rate amongst musicians. The definition of acquired dystonia are types of dystonia that develop from other factors that cause damage or degenerate to the body the brain. Dystonia is a disease that is not fully understood by science and requires more research to uncover the disease's abundance in professional musicians. Many medical studies have been done in regards to dystonia in the general population but there is still large questions about why dystonia is a crisis in the musical world. It is a topic misunderstood by most musicians and largely mysterious to the majority of musicians. As musicians we are prone to acquired dystonia and for that reason it is relevant in the musical community.

- 1 McGonigal, Eileen A. "Focal Hand Dystonia in Musicians." Order No. 28022217, The Florida
theses/focal-hand-dystonia-musicians/docview/2446544516/se-2?

This document analyzes the evidence supporting the potential contribution of the emotional brain systems in the etiology of dystonia in musicians. Essentially how emotional responses trigger dystonia rather than physical issues. In addition, the psychological findings from a large descriptive study comparing healthy musicians, musicians with dystonia, and musicians with chronic pain. Eileen McGonigal is Assistant Professor of Music and Director of Instrumental Music Central College in Queensland, Brisbane.

- 2 Altemüller, Eckart, Stanley Finger, and François Boller. Music, Neurology, and Neuroscience: Evolution, the Musical Brain, Medical Conditions, and Therapies. Progress in Brain Research. Vol. 217, 2015. This work explores new research involved in the arts and neurology. Over time there is more and more advances being found between music and brain which directly relates to dystonia. The essay starts with a broader view on the relationships between music and our brain with the new research in this field. By the second half of the essay it is more concentration on specifically dystonia amongst professional musicians. This article is important for my research for the sole reason it provides newer research and techniques. Most of the articles are post 2015 and provide older knowledge on the topic but these studies are cutting edge neurologists on the topic. Altemüller is a German physician and musician and one of the leading researchers in the field of neurophysiology and neuropsychology of musicians.

- 3 Altemüller, Eckart. "Robert Schumann's Focal Dystonia." In Neurological Disorders in Famous Artists, 2005. <https://doi.org/10.1159/000085633>.

Robert Schumann most certainly developed focal dystonia from extensive piano playing throughout his entire life. Eckart traces all the accounts of Schumann's onset of the disease and how it affected his career and life. This article is a historical document digging through journals and diary entries of Schumann to uncover his various health complications. This article gives a glimpse into a more personal realm of dystonia; the emotional and physical impact the disease has on legendary musical figures we all know and love. Altemüller is a German physician and musician and one of the leading researchers in the field of neurophysiology and neuropsychology of musicians.

- 4 Altenmüller, Eckart, and Hans Christian Jabusch. "Focal Dystonia in Musicians: Phenomenology, Pathophysiology, Triggering Factors, and Treatment." *Medical Problems of Performing Artists*, 2010. <https://doi.org/10.21091/mppa.2010.1002>.
The article explores a model that tries to answer the question of the extremely high rate of dystonia amongst musicians. The model in the article looks for relations between a predominantly genetically determined predisposition and intrinsic and extrinsic triggering factors amongst said musicians. Hans-Christian Jabusch is head of the Institute of Musicians' Medicine (IMM) at Dresden University of Music Carl Maria von Weber. Altenmüller is a German physician and musician and one of the leading researchers in the field of neurophysiology and neuropsychology of musicians.
- 6 Frucht, Steven J. "Embouchure Dystonia - Portrait of a Task-Specific Cranial Dystonia." *Movement Disorders* 24, no. 12 (2009). <https://doi.org/10.1002/mds.22550>.
Embouchure dystonia is one of many types of musician's dystonia but one of the most common and potentially devastating. This article goes into depth on this specific topic and the strain brain players exert with the instrument against their lips and the pressure used. My article is encompassing all types of musicians dystonia so understanding embouchure dystonia is one of the most important forms of musicians dystonia. NYU Langone neurologist Dr. Steven Frucht treats people who have movement disorders including Parkinson's disease, dystonia, and myoclonus.
- 7 Jabusch, Hans Christian, Sandra V. Müller, and Eckart Altenmüller. "Anxiety in Musicians with Focal Dystonia and Those with Chronic Pain." *Movement Disorders* 19, no. 10 (2004). <https://doi.org/10.1002/mds.20110>.
Psychological conditions were studied in musicians with focal dystonia and compared with musicians with chronic pain and healthy musicians using the Freiburg Personality Inventory and the Questionnaire for Competence and Control Orientations. The psychological conditions of musicians is vital in distinguishing between a physical condition (Dystonia) and psychosocial trauma and its effect on the performer. Sometimes both are affecting a player. Hans-Christian Jabusch is head of the Institute of Musicians' Medicine (IMM) at Dresden University of Music Carl Maria von Weber. Sandra Verena Müller is a graduate psychologist and professor for rehabilitation and participation at the Ostfalia University of Applied Sciences. Eckart Altenmüller is a German physician and musician and one of the leading researchers in the field of neurophysiology and neuropsychology of musicians.
- 8 Jabusch, Hans Christian, Dorothea Zschucke, Alexander Schmidt, Stephan Schuele, and Eckart Altenmüller. "Focal Dystonia in Musicians: Treatment Strategies and Long-Term Outcome in 144 Patients." *Movement Disorders* 20, no. 12 (2005). <https://doi.org/10.1002/mds.20631>.
- 9 Kojovic, Maja, Isabel Pareés, Anna Sadnicka, Panagiotis Kassavetis, Ignacio Rubio-Agusti, Tabish A. Saifee, Matteo Bologna, John C. Rothwell, Mark J. Edwards, and Kailash P. Bhatia. "The Brighter Side of Music in Dystonia." *Archives of Neurology* 69, no. 7 (2012). <https://doi.org/10.1001/archneurol.2012.33>.
A case study on one pianist patient with dystonia of the hands. Genetic analysis revealed

904_906delGAG in the *TOR1A* gene associated with musicians dystonia (A leading influence recently uncovered in dystonia cases). This case study focuses on this particular gene being a major factor in developing musicians dystonia. Maja Kojovic. Neurology Clinic, University of Ljubljana. Isabel Parees, Sobell Department of Motor Neuroscience and Movement Disorders, UCL Institute for Neurology, Queen Square, London. Anna Sadnicka, St George's University of London. Prof. Kailash Bhatia is a Professor of Clinical Neurology at the Clinical and Movement Neuroscience Department at the UCL Queen Square Institute of Neurology, London and an Honorary Consultant Neurologist at the affiliated National Hospital for Neurology (NHNN), Queen Square.

- 10 Moura, Rita C., Aguiar, Graziela Bortz, and Henrique Ballalai Ferraz. "Clinical and Epidemiological Correlates of Task-Specific Dystonia in a Large Cohort of Brazilian Music Players." *Frontiers in Neurology* 8, no. MAR (2017). <https://doi.org/10.3389/fneur.2017.00073>. This journal is a large scale study into musicians of all levels and experiences with dystonia. The study covers professionals, students, various orchestras, soloists. The study visited 51 orchestras and music schools in 19 Brazilian cities between March 2013 and March 2015. They collected 2,232 questionnaires, and 72 subjects with suspicion of dystonia with evaluated regarding motor impairment. This study is a huge study with many moving parts that can be correlated to my research. Most focal dystonia patients were uncovered to be male. Aguiar, Graziela Bortz is a member of the Department of Music, Institute of Arts, Sao Paulo State University. SAO PAULO, Brazil. Henrique Ballalai Ferraz Dept. Neurology - Escola Paulista de Medicina - UNIFESP - Brazil.
- 11 Newmark, Jonathan. "Neurological Problems of Famous Musicians: The Classical Genre." *Journal of Child Neurology* 24, no. 8 (2009). <https://doi.org/10.1177/0883073809332764>. Neurological histories of great musicians article focused on a closer look at music physiology. Some musicians included are Shostakovich, Brahms and Schumann. This article is focused on famous musicians relationship to Dystonia. I believe a direct link between musicians we know and love is important to gaining perspective to the disease. Dr. Jonathan Newmark is a neurologist in Washington, District of Columbia.
- 12 Schmidt, Alexander, Hans Christian Jabusch, Eckart Altenmüller, Meike Kasten, and Christine Klein. "Challenges of Making Music: What Causes Musician's Dystonia?" *JAMA Neurology* 70, no. 11 (2013). <https://doi.org/10.1001/jamaneurol.2013.3931>. The article examines environmental factors associated with musician's dystonia in combination with genetic susceptibility. The research confirms genetics play a key role in the disease. Furthermore the article references several key musicians struggles with the disease and the role it played in their careers and health. Alexander Schmidt is a Associate Professor at Vanderbilt University. Hans-Christian Jabusch is head of the Institute of Musicians' Medicine at the University of Music Dresden, Germany. Altenmüller is a German physician and musician and one of the leading researchers in the field of neurophysiology and neuropsychology of musicians.

- 13 Oestreich, James R. 2012. "A Disorder That Stops the Music." *The New York Times*, March 13, 2012, sec. Arts. This article covers the performance side of the disease; what musicians feel, how they change on an emotional level from the various forms of dystonia. It provides personal insights into personal contacts the writer developed and interviews them on. An interesting insight into one on one cases rather than medical study. James Oestreich is an award-winning, reliable, and versatile writer, I cover a wide array of climate, wildlife and pet care, health, social justice, and lifestyle topics.
- 14 Albanese, Alberto, Kailash Bhatia, Susan B. Bressman, Mahlon R. DeLong, Stanley Fahn, Victor SC Fung, Mark Hallett et al. "Phenomenology and classification of dystonia: a consensus update." *Movement disorders* 28, no. 7 (2013): 863-873. This article shows a consensus outcome of an international panel consisting of investigators with years of experience in this field that reviewed the definition and classification of dystonia. Alberto Albanese is the Neurology Unit Director at Humanitas Research Hospital. Kailash Bhatia is a Professor of Clinical Neurology at the Clinical and Movement Neuroscience Department at the UCL Queen Square Institute of Neurology. Susan B. Bressman, MD, holds the Mirken Family Chair and is a Professor of Neurology at the Icahn School of Medicine. Mahlon R. DeLong is an American neurologist and professor at the Medical School of Emory University. Stanley Fahn, MD is the H. Houston Merritt Professor of Neurology and Director of the Center for Parkinson's Disease and Other Movement Disorders at Columbia university. Victor S. C. Fung PhD, FRACP. Director, Movement Disorders Unit & Head, Department of Neurology, Westmead Hospital. Mark Hallett, M.D.. NIH Distinguished Investigator. Human Motor Control Section. NINDS.