Bioengineering Assessment of Acupuncture - From Computer-Controlled Systems to Teleacupuncture between China and Europe

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Basic, bioengineering translational and clinical research on modernization of acupuncture has been performed at the Traditional Chinese Medicine (TCM) Research Center at the Medical University of Graz since 1997 [1-11]. The goal of this lecture is to focus on new innovative acupuncture stimulation methods such as laser acupuncture as well as on computer-assisted electrical ear acupuncture.

In addition innovative systems of bioengineering assessment of acupuncture using high-tech methods will be presented in respect to single and double blind, controlled randomized crossover studies. Besides the investigation of peripheral effects of acupuncture using thermal imaging, laser Doppler flowmetry and laser Doppler imaging special emphasis is given to investigations of the central nervous system using multidirectional transcranial ultrasonic Doppler sonography, cerebral near infrared spectroscopy, functional magnetic resonance imaging and bioelectrical methods like EEG entropy. New methods of computer-based analysis of heart rate variability complete the methodological spectrum.

Modernization of acupuncture, computer-controlled stimulation, computer-assisted recording of effects of acupuncture in the brain and also teleacupuncture are no longer future visions. In cooperation with China, research on this topic has already become reality and is proceeding with full speed at the Medical University of Graz.

References


Self 1997 年以来格拉茨医科大学的传统中医药学 (TCM) 研究中心致力于推动针灸现代和的生物工程转型和临床基础研究 [1-11]。本次讲座的目标是介绍新的创新性模拟针灸方法，如激光针灸以及连续电针等。

介绍有关单盲和双盲、随机对照交叉实验的基于高科技方法的针灸生物工程评估系统。除介绍针灸热成像的外围效应外，特别强调激光多普勒血流计、激光多普勒成像等研究，用多方位的逐层超声多普勒，近红外光谱功能磁共振成像，和分子生物方法（如脑电图等），用基于计算机的参数异变性分析的新方法完善诊断方法。

针灸现代化，计算机控制的模拟，电脑辅助记录大脑中的针灸影响，电子针灸疗法已不再是未来的愿景，通过与中国的合作。这一课题的研究已经成为现实，已经在格拉茨医科大学全速开展。

Gerhard LITSCHER 教授，理学硕⼠，博士，医学博士，格拉茨医科大学麻醉和重症监护生物医学研究所、传统中医药研究中心主任。多次作国际学术报告，发表了约 550 篇学术论文，部分为基础针刺研究，11 本著作的作者和 / 或编辑，现为 23 份国际学术杂志的主编和 / 或编委会成员（如：the Int. J. of Alternative Medicine (IJAM) 杂志主编，Europe of Medical Acupuncture 杂志副主编，J. of Acupuncture and Meridian Studies (JAMS) 高级编辑，Evidence-based Complementary Medicine (eCAM 杂志编辑之一)。EMLA 成员和代表。LITSCHER 教授的主要研究领域是基于计算机的神经监测和高科技针刺研究。

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