

Title of Presentation:

Electromyography based functional neuromuscular diagnosis and biofeedback-training in musicians' health

Rationale:

Biomechanical analyses are capable of capturing and evaluating human motions. In addition to the major biomechanical fields of kinetics and kinematics, electromyography (EMG) provides a reliable way to analyse neuromuscular activities, e.g. inter- and intramuscular coordination, fatigue behavior or timing. Based on these parameters it is possible to conclude to clinically relevant parameters such as motor control, muscular coordination or compensation strategies with different loads. In addition to this, EMG can be used in treatment itself, e.g. biofeedback-training with an EMG is an effective and evidenced based tool to improve neuromuscular control.

Purpose:

To show the importance of EMG in musicians' health and to demonstrate additional therapy and diagnostic options.

Educational Objectives:

At the end of the workshop, the participants will be able to...

1. understand and describe the basic principles of EMG
2. understand and describe the importance of EMG in the context of musicians' health, physical therapy and the clinical reasoning process
3. use EMG on musicians in the performance process

Content of Presentation:

This workshop briefly introduces the theoretical principles of EMG and the clinical applications in the context of musicians' health. It explains why EMG provides an additional value in the clinical reasoning process and supports the therapist, but decision making in the clinical reasoning process should never be based on EMG solely.

In the further course of the workshop the use of EMG in diagnostics and therapy (biofeedback) with musicians is practically demonstrated and discussed with the participants.

Approach of Presentation:

1. Short presentation: introduction and understanding of EMG (educational objective 1)
2. Short case presentation of a musician to introduce EMG in the field of musicians' health and the clinical reasoning process (educational objective 2)
3. Interactive practical demonstration (diagnosis and biofeedback-training) as the central part of the workshop. Questions and comments will be discussed directly throughout the group (educational objective 3)

Clinical Significance:

EMG based functional neuromuscular diagnostics and biofeedback-training provides both the therapist as well as the musician with additional value in their clinical work.