

fim

freiburger institut für
musikmedizin
an der hochschule für musik freiburg

Claudia Spahn, Bernhard Richter,
Johannes Pöppe, Matthias Echternach

*Physiological Insights for
Players of Wind Instruments*

Deutscher Text siehe Backcover

Helbling

CONTENTS OF THE DVD-ROM

What actually happens inside the body while someone is playing a wind instrument?

Over the past several years, a group of authors from the **Freiburg Institute of Musicians' Medicine (FIM)**, making use of their dual qualifications as professional wind players and singers and Doctors of Musicians' Medicine, have succeeded, with the aid of the state-of-the-art examination techniques offered by high-tech medicine, in showing what happens inside the body while someone is playing a wind instrument. They have produced extensive film material which shows the movements of the lips, tongue, larynx and respiratory system during tone production and breathing while playing different wind instruments. This DVD contains 125 short film clips showing the blowing processes on six different wind instruments. Additional films and animations explain the most important organs involved in breathing and blowing and examine the basic physiological processes involved in wind instrument playing.

HOW IS THE DVD ORGANIZED?

The DVD-ROM contains three chapters:

“BASICS”

“INSTRUMENTS”

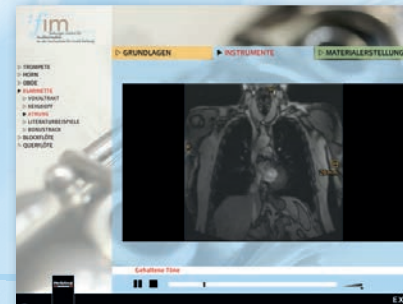
“PRODUCTION THE FILMS”

In the chapter **Basics**, the structure and functioning of the organs involved in tone production is demonstrated and clearly explained by the use of images and videos. The viewer is given information about the lips, the vocal tract, the larynx and the breathing system.

The chapter **Instruments** contains clips of the trumpet, horn, oboe, clarinet, recorder and flute, filmed using dynamic magnetic resonance tomography and endoscopy. About 20 clips are shown for each instru-

ment, during which important playing techniques are seen and heard, including tone production (for example sustained notes, high and low notes, piano and forte, crescendo and decrescendo), articulation (single and double tongue, flutter tongue) and breathing (sustained notes, dynamics, vibrato, and circular breathing). In each case the processes can be observed in the vocal tract (tongue), the larynx and the breathing system (diaphragm).

The chapter **Producing the Films** shows how the film clips for the various instruments were produced and the methods that were used. To enable a better understanding of the films in the Instruments chapter, this chapter explains how the vocal tract, larynx and breathing system can be recorded using dynamic magnetic resonance tomography, and how the movement of the vocal folds in the larynx can be made visible by the use of endoscopic techniques.



WHAT INSIGHTS DOES THE DVD PROVIDE?

This DVD-ROM is an innovative medium for teaching the playing of wind instruments. In designing it, the authors dealt intensively with the question of instrumental pedagogy and multimedia learning and worked together with soloists, wind instrument educators, professors and music students.

Visual learning, which the film clips on this DVD make possible, opens up new means of accessing the practice of wind instrument playing using modern didactics. Knowledge of the correlations between the processes occurring within the body and the physiology of breathing leads to a deepened understanding of one's own instrumental practice. Two statements represent the wealth of knowledge contained within these films:

“In teaching didactics at the University, it is important for me as a person to know how the whole system functions and to be able to really see it. For me as an educator, such material is extremely valuable. I expect every teacher and in fact every professional, too, to know how their body functions. The more one can look inside the body and see things that are not visible from the outside – and for us wind players, almost all the processes involved are not visible from the outside – the more interesting it is. Even at such an early stage of their careers, my students at the Music School will certainly at some point be confronted with such material in the form of a seminar. For professionals it's a must.”

(Stefan Ruf, hornist, City of Basel Music Academy)

“When I was able to observe the movement of the diaphragm for the first time in the film, I finally understood what “support” meant and could immediately apply it in my playing. At my next lesson, my teacher congratulated me on my remarkable progress in breathing technique.”

(Elisabeth Strake, music student majoring in Trumpet)

At the same time, however, it is important to prevent any misunderstandings. The purpose of these film clips is not to present “correct” or “incorrect” playing techniques, but rather to show interested wind players by means of separate individual examples the movements involved in playing that are not visible from the outside. The films on the DVD were recorded exclusively by professional wind players who have mastered their instruments and play with great expertise. However, since these are all individuals, each with their own individual characteristics, the details of the physiological processes cannot be taken as universally valid or as applicable in identical form to everybody else.

Thus, even though the films allow us to recognize basic general principles, it would not be correct to draw concrete doctrines or hard and fast convictions from specific detailed processes. Our intention is instead to show how different physiological processes involved in playing a wind instrument intertwine.



HOW TO USE THE DVD

The DVD-ROM has been designed as an educational medium on didactic principles. To enable a better understanding of the medical techniques shown in the film clips, these are accompanied by spoken commentaries.

The DVD can be used interactively and without prior knowledge of medicine in instrumental music classes, in classes in technical methodology and in music lessons in secondary schools. It is also equally suitable for use in self-study.

The DVD also offers unprecedented insights even for specialists with medical training in the areas of Music Physiology and Musicians' Medicine. The films can also be used as innovative instructional material in Music Physiology classes at university level.

In order to obtain maximum benefit from the films, we recommend viewers to first familiarize themselves with the contents of the **Basics** chapter. This chapter provides an understanding of the structure and function of the organs

involved in playing a wind instrument, and therefore enables viewers to draw the greatest possible advantage from the instrumental clips.

The same applies to the chapter **Producing the Films**. Here you will learn how the films were produced and so be better able to appreciate their quality and be more prepared to overlook certain technical limitations, such as, for example, the sound quality.

In the **Instruments** chapter it is advisable to watch the films of other instruments as well, as the similarities and differences can provide additional insights. Particularly in the area of breathing, it is fascinating to compare the different instrumentalists. Because of the differing anatomy of the musicians, some of the structures, for examples the vocal folds in the endoscopic videos of different instruments, are less easy to see than others.



ABOUT THE AUTHORS

Prof. Dr. Claudia Spahn (born 1963) studied music (recorder) and medicine, and with a PhD and Professorship in Musicians' Medicine and a degree in Music Pedagogy has been head of the Freiburg Institute of Musicians' Medicine (FIM) since 2005, together with **Prof. Dr. Bernhard Richter** (born 1962), who is a state-certified singer, and likewise holds a PhD and Professorship in Musicians' Medicine. **Johannes Pöppe** (born 1982) studied music (horn) and medicine. As a musician he has a "*Diplom*" and a Master's degree and has played the horn with the Duisburg Philharmonic Orchestra, among others. He will complete his medical studies in 2014 and this project is part of his thesis in medicine. **Dr. Matthias Echternach** (born 1973) works as a senior physician at the FIM and qualified for a Professorship in 2010 with a thesis on voice physiology in which dynamic magnetic resonance tomography was used as an important examination technique.



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Folgende Bläser haben sich für die Filmaufnahmen zur Verfügung gestellt:

Stefan Albrecht (Lehrer für Fachdidaktik und Methodik am Peter-Cornelius-Konservatorium Mainz)

Agnes Dorwarth (Professorin für Blockflöte an der Hochschule für Musik Freiburg)

Reinhold Friedrich (Professor für Trompete an der Hochschule für Musik Karlsruhe)

Christian Hommel (Professor für Oboe an der Hochschule für Künste Bremen, Musikschule Luzern)

Anton Hollich (Klarinette SWR Sinfonieorchester Baden-Baden und Freiburg)

Johannes Pöppe (Horn)

Bruno Schneider (Professor für Horn an der Hochschule für Musik Freiburg)

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Martin Spangenberg (Professor für Klarinette an der Hochschule für Musik Weimar)

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Die kernspintomographischen Filme konnten in der Abteilung Neuroradiologie, Universitätsklinikum Freiburg, in kollegialer Zusammenarbeit mit Herrn **Prof. Dr. Martin Schumacher**, em. Ärztlicher Direktor der Klinik für Neuroradiologie, und seinem Mitarbeiter **Hansjörg Mast** erstellt werden.

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Die Realisation der DVD in der vorliegenden Form wäre ohne das besondere Engagement von **Kerem Unterberger** und **Johannes Pöppe** beim Filmschnitt nicht möglich gewesen. **Patrick Blank** hat den Filmen seine deutsche Stimme verliehen. Die Verwendung von Filmmaterial zur Kernspintomographie erfolgte mit freundlicher Genehmigung der Firma **Siemens**. **Tracey Webb-Kolbinger** und **Michael Burdumy** haben die deutschen Texte ins Englische übertragen.

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Autoren / *Authors:*

Prof. Dr. Claudia Spahn
Prof. Dr. Bernhard Richter
Johannes Pöppe
PD Dr. Matthias Echternach

Redaktion / *Editor:*

Alwin Wollinger

Sprecher / *Speakers:*

Patrick Blank, Daniel Richards

Schnitt / *Cutting:*

Kerem Unterberger

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Michael Kolesnik

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