

### MSK-I01

#### Advanced Ultrasound Imaging of Fingers

Carlo Martinoli, MD<sup>1,2</sup>

<sup>1</sup>Department of Health Sciences (DISSAL),  
Università di Genova, - Genova, Italy

<sup>2</sup>IRCCS Ospedale Policlinico San Martino - Genova,  
Italy

The latest generation of ultrasound devices, equipped with linear array transducers operating at very high frequency bands (up to 24MHz), alongside advanced pulse shaping, sophisticated image denoising algorithms, dynamic focusing, matrix technology, and intelligent filtering, are opening new horizons in imaging superficial tissues. These advancements allow for an exquisite depiction of submillimeter structures and their abnormalities with remarkable detail. The very high spatial and contrast resolution offered by these advanced imaging platforms enhances diagnostic confidence and creates new possibilities and fields of study within ultrasound imaging. At the same time, the wealth of details revealed - many of which have yet to be fully described - necessitates a renewed focus on anatomical knowledge. This introduces a new form of sonoanatomy, which is more complex and differs somewhat from what is traditionally learned through MRI or conventional ultrasound probes. These considerations are particularly evident when examining the fingers, where real-time scanning makes ultrasound an ideal tool for both static and dynamic assessment of various structures, including the flexor digitorum tendons and their sheaths, the extensor hood and its components, annular pulleys and cruciform bands, osteochondral surfaces, recesses, palmar plates, and collateral ligaments of the finger joints. The aim of this presentation is to review the fine sonoanatomy of the fingers and the most common pathological conditions affecting them using ultra high-resolution ultrasound transducers.

Wei-Ting Wu

Adjunct lecturer and attending physician,  
Department of Physical Medicine and  
Rehabilitation, National Taiwan University Hospital,  
Bei-Hu Branch, Taipei, Taiwan; Department of  
Physical Medicine and Rehabilitation, National  
Taiwan University Hospital, Taipei, Taiwan;  
National Taiwan University College of Medicine,  
Taipei, Taiwan

The topic will focus on the sonoanatomy and ultrasound-guided injection of the ligaments of dorsal and palmar wrist, including the intrinsic and extrinsic ligaments and triangular fibrocartilage complex.

### MSK-02

#### Common Surgical Procedure for Hand/Fingers

Jung-Hsien Hsieh

Plastic division of Surgery Department, National  
Taiwan University Hospital

There are various diseases affecting the hand, including injuries to nerves, tendons, and blood vessels, nerve compressions, benign and malignant nerve tumors, infections, tendinitis, various types of wounds, and congenital hand deformities in children.

In daily life and work, hands are frequently used. Hand function and comfort are factors that hand surgery needs to consider

For optimal surgical outcomes, a correct diagnosis is essential prior to surgery. Ultrasound provides non-invasive, dynamic diagnostic capabilities, which greatly assist in hand surgery. We will introduce common hand surgeries to facilitate better collaboration between hand surgery and ultrasound practices.

### MSK-01

#### Advanced US Imaging of Wrist

### MSK-03

### **Regenerative Therapy and Ultrasound-guided Interventions for Hand and Fingers**

*Daniel Chiung Jui Su*

*Department of PM&R, Chi-Mei Medical Center,  
Tainan, Taiwan*

The hand and fingers are some of the most complex anatomic structures physicians encounter. Hand and finger injuries are frequently related to their usage in job-related contexts. With the advancement of ultrasound technology, we can visualize these structures in detail, enabling us to diagnose and, most importantly, treat them

effectively. Regenerative therapy in this region requires physicians not only to apply regenerative agents to the lesion site but also to identify the underlying compromised biotensegrity behind the apparent lesions. Dr. Su, who serves as a physiatrist and a performing arts medicine specialist, treats approximately 200 musicians each year—individuals who utilize their hand dexterity to the extreme. In this lecture, we will explore a range of common to uncommon treatments for lesions in the hand and finger regions, all in the pursuit of restoring the patient's quality of life and daily activities.