Arthroscopic procedures have been daily routine in orthopedics and emergency surgery for decades. As a rule, it takes surgeons many years to be able to carry out the complex manual tasks in a dependable, efficient and reliable way. Acquiring the expertise for these arthroscopic surgical procedures requires a smooth interplay of spatial orientation, manual skills and arthroscopic know-how. The eye-hand coordination that is required for the triangulation of the camera and instruments from different perspectives within certain joint spaces presents a crucial and major challenge in the training of arthroscopic surgeons.

Usually these basics are taught in classes and workshops with the help of models or cadavers. Over recent years, complex and expensive simulators have also been used for study purposes in order to prepare future arthroscopic surgeons for their responsible task of treating patients. For financial and logistical reasons, classes on models and cadavers as well as practical training with virtual simulators usually allow students to spend only a limited amount of time on their individual training.

During their arthroscopy fellowship in Canada in 2012, the two young surgeons Dr. Samy Bouaicha and Dr. Will McCormick came up with the idea of developing a simple and affordable arthroscopy training tool, called ArthroBox. In doing so, the main objective was not to have a detailed image of joint anatomy, but to create an abstract tool in the form of a box the size of a knee or shoulder joint with exchangeable modules (skill plugs). The intention with this box was to have the opportunity to do basic arthroscopy training at any time and any place, without limitation. After returning to Switzerland, Dr. Bouaicha continued developing the first prototype of the ArthroBox as well as the skill plugs and found the ideal partner to finalize and launch this innovative tool in Arthrex. The mobility of the ArthroBox, the “plug & play” principle, as well as the affordability improve the flexibility for trainees to commence their arthroscopic skills.

The ArthroBox is a valuable contribution to the mission “Helping Surgeons Treat Their Patients Better.”
Assembly

The sidewalls can be put together using press-fit technology. The big chamfers are inward-facing and the small chamfers are outward-facing. Begin by pressing two of the walls together and connecting them both to the base. Before adding the top piece, place the desired skill plugs in the center of the base. Install the camera, start the software on your computer that was downloaded from the ArthroBox website, and you’re ready to go.
The basic equipment to learn triangulation consists of two skill plugs, one hook probe and the USB camera. On the 4-Pin skill plug, try to put the rubber bands on the pins, stack them above and below each other or make different shapes. The choice of holes used will affect the trainee’s ability to complete each task.
Configurations

Before starting the training, align the camera horizontally. Each exercise can be performed in many different ways. To begin practicing, insert the camera and the hook from the same side. Once mastered, the level of difficulty can be increased by changing where the camera and hook probe are inserted. The illustrations refer to right-handed persons.
Website

Different triangulation training techniques may be found on the ArthroBox website at www.arthrobox.com.

Arthrex Website / Products

For more information about Arthrex, its products and its people, please visit us at our website at www.arthrex.com.

Software

The ArthroBox video software enables ArthroBox triangulation training system users to visualize the video stream of the integrated USB camera contained in each ArthroBox. Please note: The ArthroBox and the ArthroBox video software are intended only for training purposes.

The video software is available for download from www.arthrobox.com. A Windows version as well as a Mac version are available.

System Requirements

Windows 7/8 (32- or 64-bit)
At least 1 GHz 32-bit (x86) or 64-bit (x64) processor
1 GB RAM (32-bit) or 2 GB RAM (64-bit)

Apple Devices
OS X 10.9 or higher
2008 Mac or newer
At least 2 GB memory

Requirements for Apple devices with USB:
Use of QuickTime® with OS X® version 10.6.8 or higher

Warning

Teaching tool! Not a toy! Read the quick guide.
Be careful, sharp instruments inside.