

IESS[®] STEP BY STEP



WHAT IS NEEDED?

1. Operating theatre with:

- Sheets
- Drugs
- Contrast agent
- Saline (*more than 200ml*)
- C-Arm with monitor
- Arthroscopic surgery endoscopy column with:
 - ✓ Light cable (*sterilised if it's possible*)
 - ✓ Video cable (*sterilised if it's possible*)

2. Flexible Storz Mini-Endoscope (*Gas-Plasma sterilization up to a maximum temperature of 134°C*)

3. Kit for IESS:

- Resascope – Video Guided Catheter
- Resaloon – Balloon Catheter
- SK-ST-10 Kit
- Ultimium 10F introducer

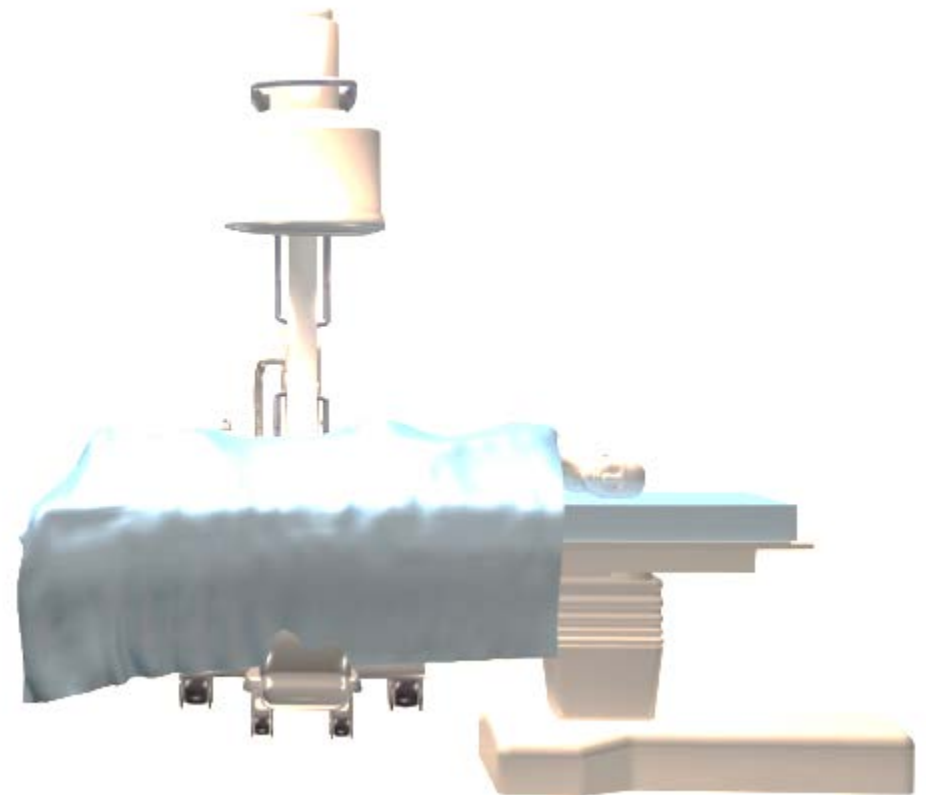
4. Resaflex probe (if it's required)

5. Resablator (generator for Resaflex)

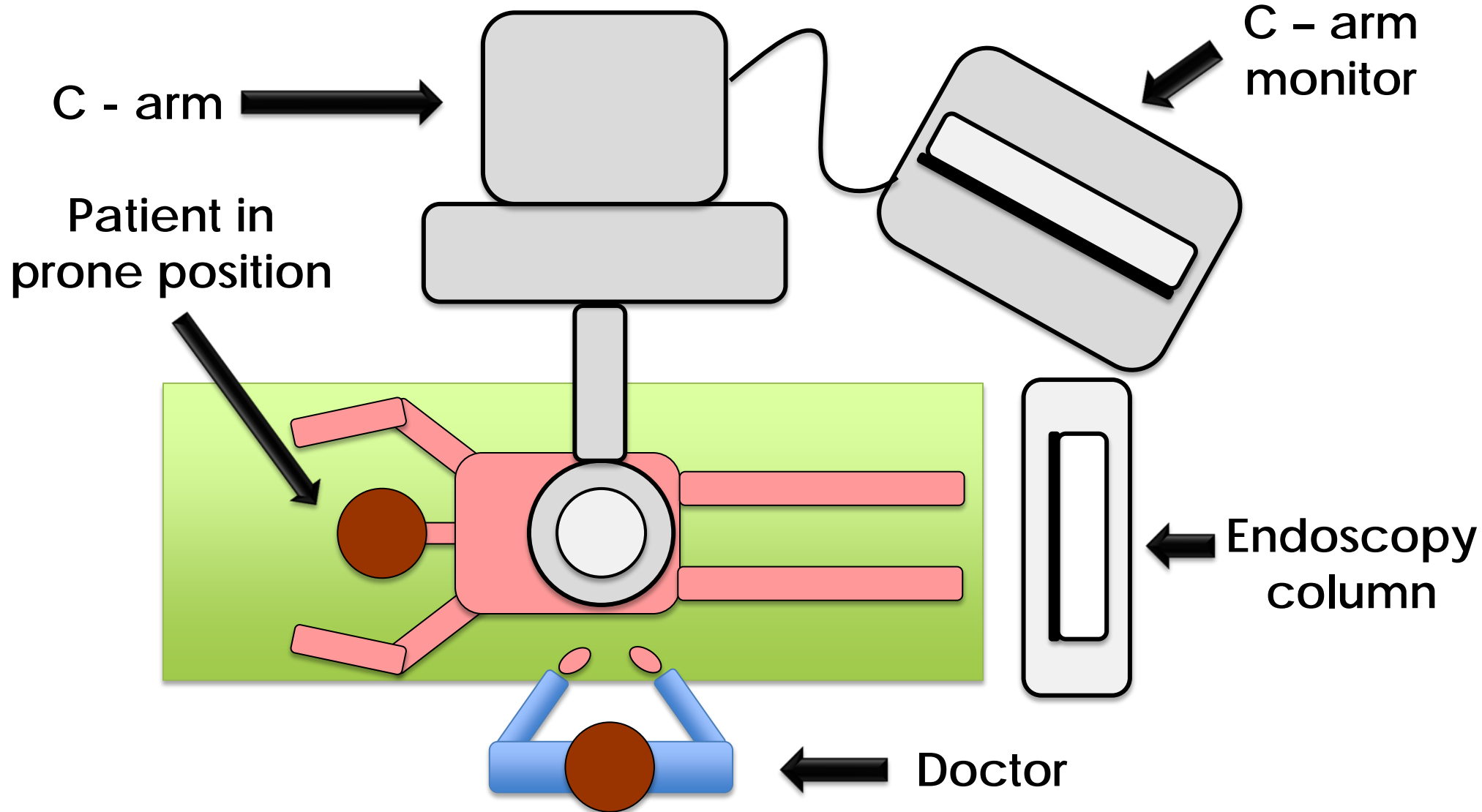


STEP 1 – Patient position

- The patient is **prone**, in **spontaneous ventilation**
- Put a cushion under the abdomen to **align the spinal column**
- C-arm starts in lateral view to see the Hiatus Sacralis access
- C-arm returns in A-P position when the insertion of Resascope is completed



STEP 2 – Operating Theatre disposition

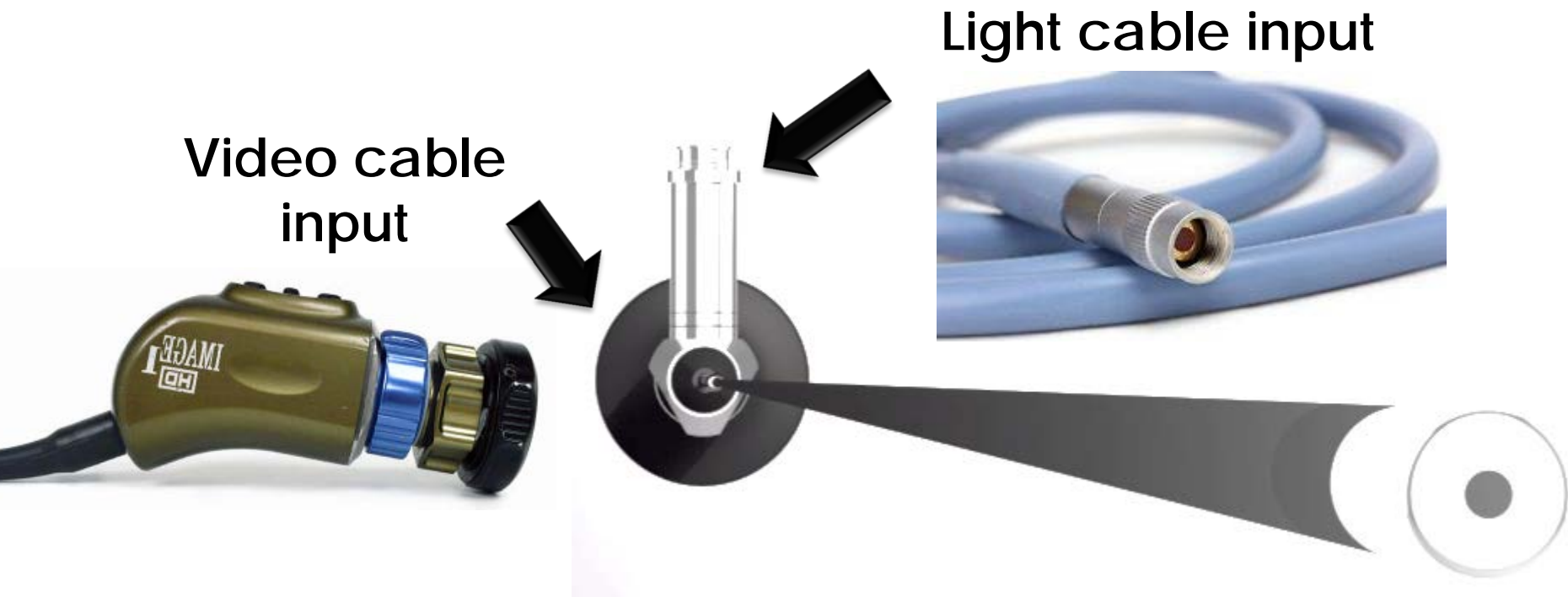


STEP 3 – Preparation of surgical field

- Create a surgical squared field around the Hiatus Sacralis area
- Open the SK-ST-10 kit:
 - ✓ Fill the blue container with Betadine solution
 - ✓ Fill the plastic graduated bowl with saline (200ml)
 - ✓ Fill the **2 syringe 20ml** with saline wich is essential for the quality of images during the procedure
 - ✓ Fill the **syringe 10ml** with local anesthetic drug
 - ✓ Fill the **syringe 5ml** with contrast agent (if it's necessary)
- Cover the C-arm with a banded bag
- Cover the video-cable and light-cable (if not sterilised) with banded bags

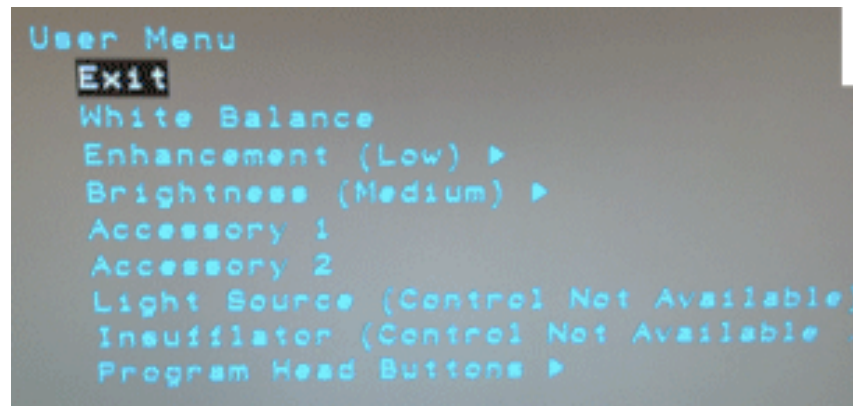
STEP 4 – Mini-endoscope setting

- Connect the video-cable with its input
- Connect the light cable with its input
- Connect these 2 cables with the endoscopy column



STEP 4 – Mini-endoscope setting

- Choose **White Balance** option in User Menu



- Optimize the quality of image using the **ferrules** on camera head

Ferrules

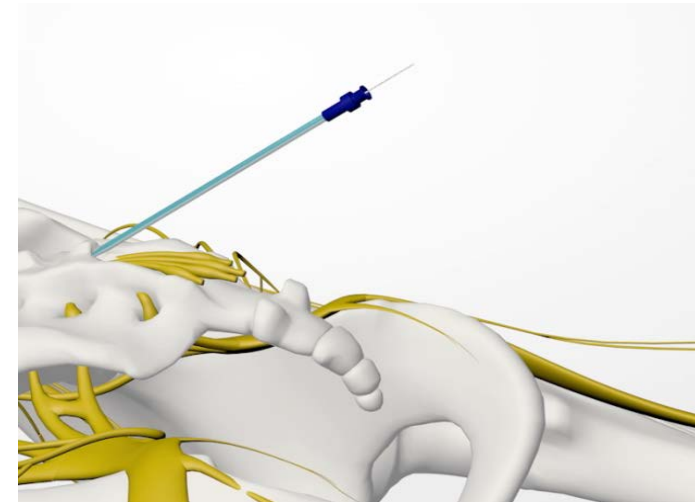
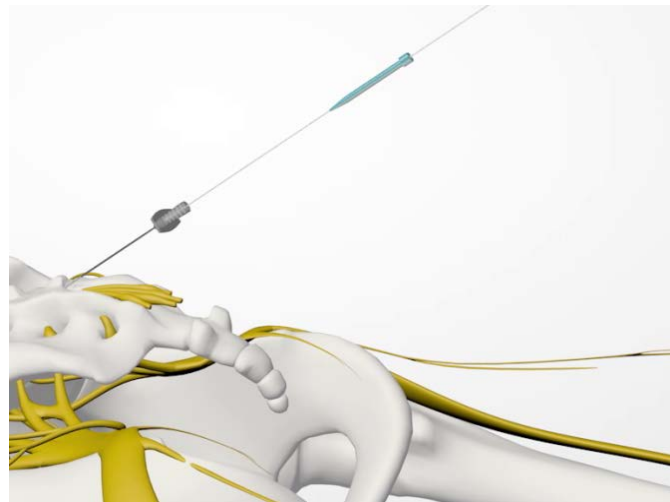
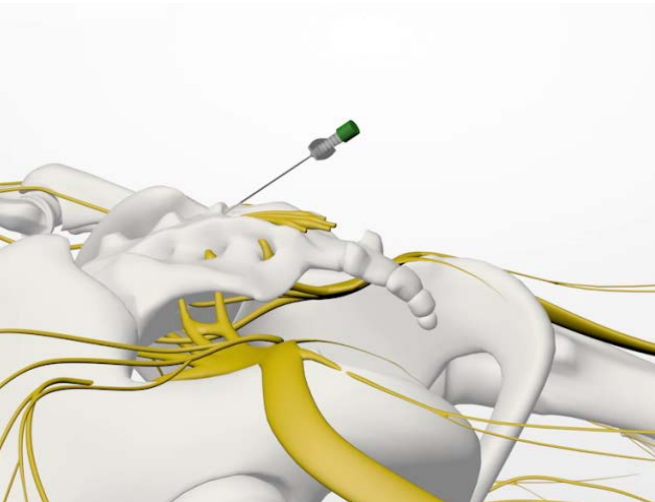


STEP 5 – Sacral Hiatus access by Seldinger technique

Using the 17G Tuohy needle, locate hiatus

Insert the guidewire through the Tuohy needle

Small scalpel incision and insert the 12F Dilator to dilate the tissues

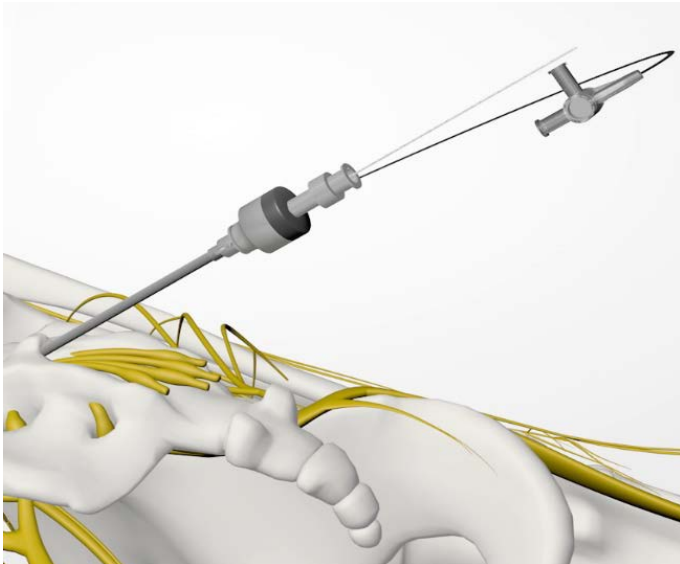


STEP 5 – Sacral Hiatus access by Seldinger technique

Remove the Dilator, leaving the guidewire in place. Through this one, insert the 10F valved introducer

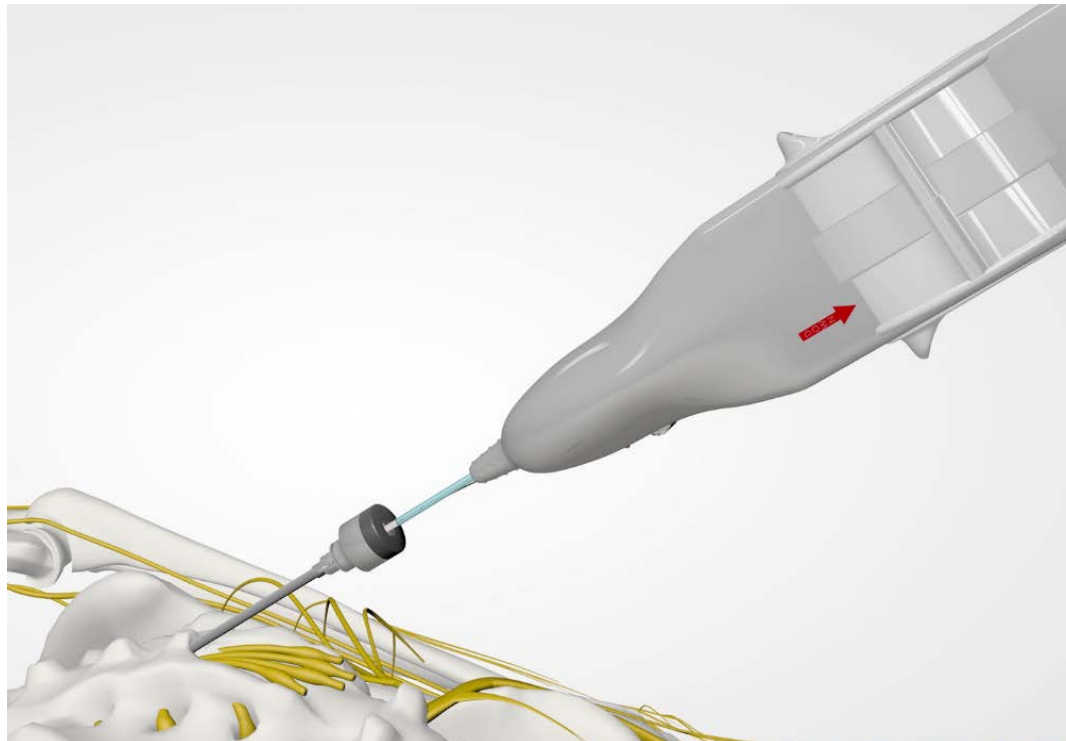


Attach the flushing inlets and outlets to the endoscope. Insert the Flexible Storz Mini-Endoscope. Now we are ready to begin!



STEP 5 – Sacral Hiatus access by Seldinger technique

Insert the Resascope, with built-in optical fibre, through the introducer sheath and start navigating!



STEP 6 – Resaloon Preparation

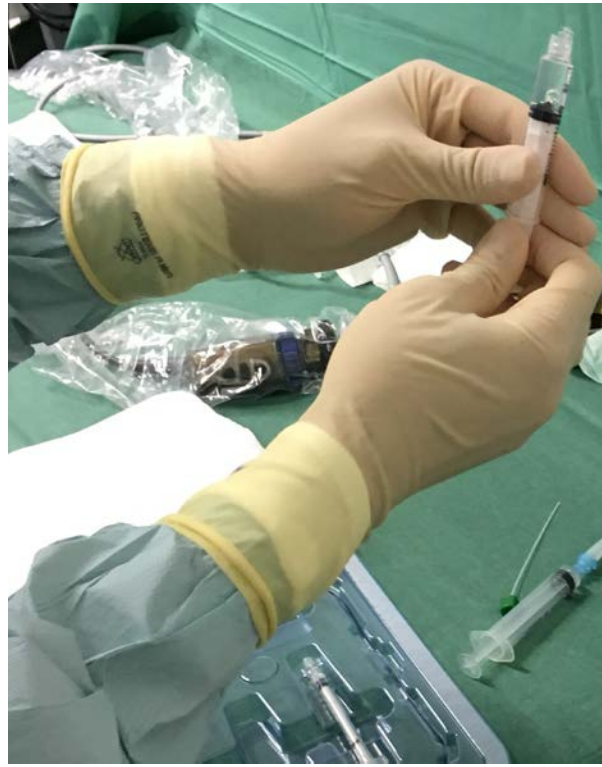
Open the covered plastic tray and pull out the Balloon Catheter, 1mL syringe and 5mL syringe.



Feel the 5mL syringe with 2mL of saline. Gas bubbles must be removed

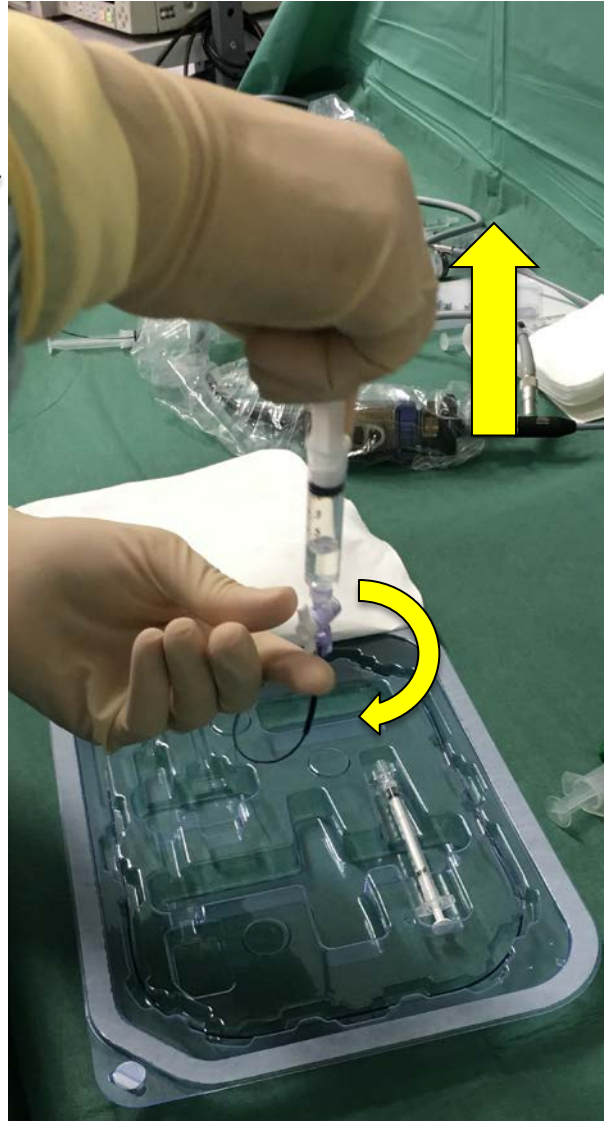


Connect the 5mL syringe to the Balloon Catheter



STEP 6 – Resaloon Preparation

Siphon the gas in the Balloon with the 5mL syringe. The result is no gas bubbles in the 5mL syringe



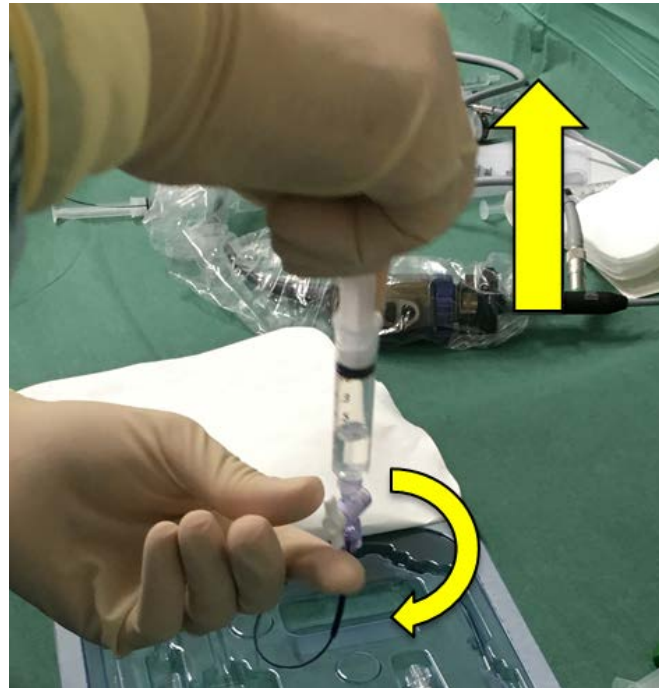
Turn the 2-way valve keeping the vacuum in the syringe

STEP 6 – Resaloon Preparation

Siphon the gas in the Balloon with the 5mL syringe. The result is no gas bubbles in the 5mL syringe



Turn the 2-way valve keeping the vacuum in the syringe



STEP 6 – Resaloon Preparation

Fill the 1mL syringe with
saline or contrast agent
(no gas bubbles)



Detach the
5mL syringe
from the
Balloon.

Connect the
1mL syringe to
the Balloon
and open the
2-way valve.

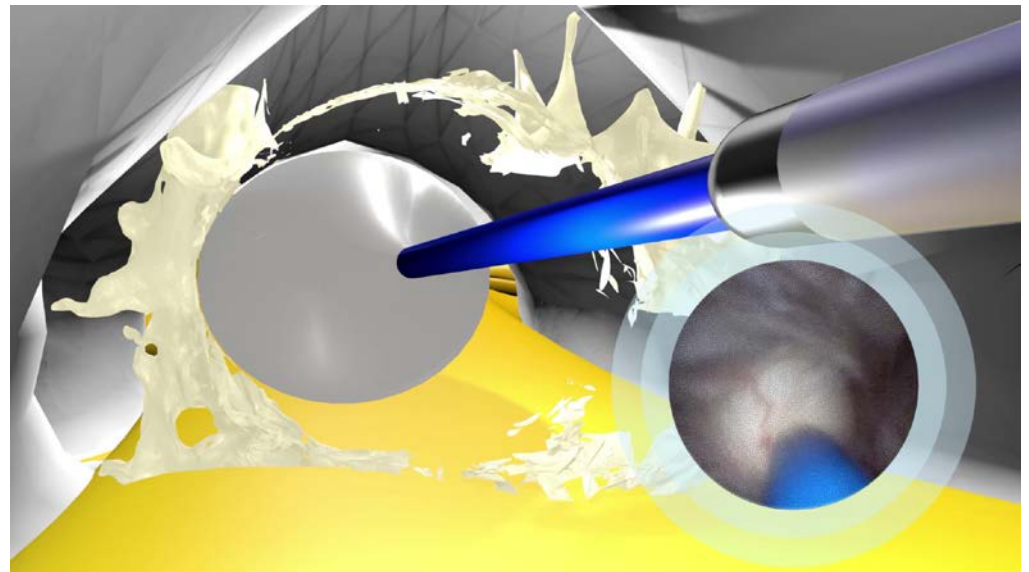
STEP 6 – Resaloon Preparation



Insert the Balloon in
the Port «TOOL 1»

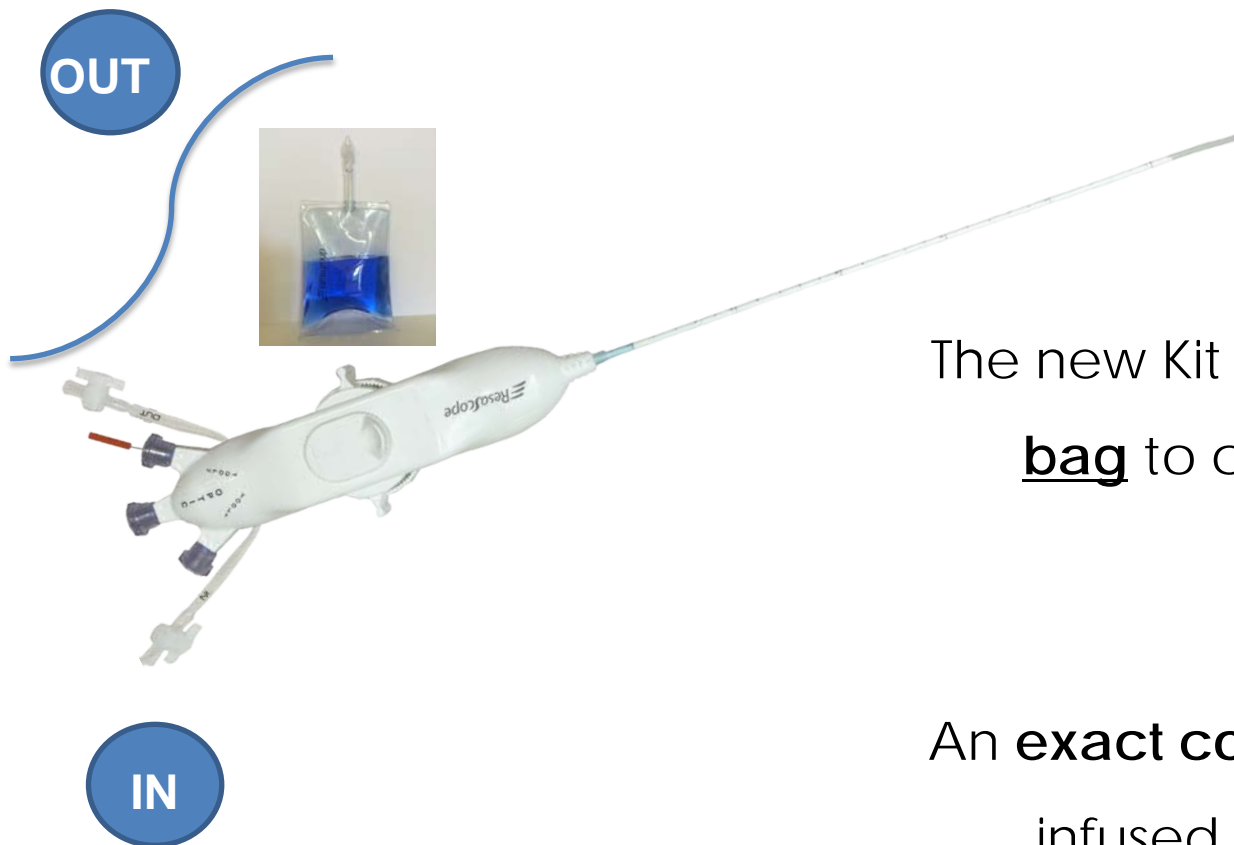


The Resaloon is
ready to use!



NEW RESASCOPE

Accessories – Graduated bag



The new Kit contains also a **graduated bag** to connect to the **OUT** line



An **exact control of the saline volume** infused in the epidural space



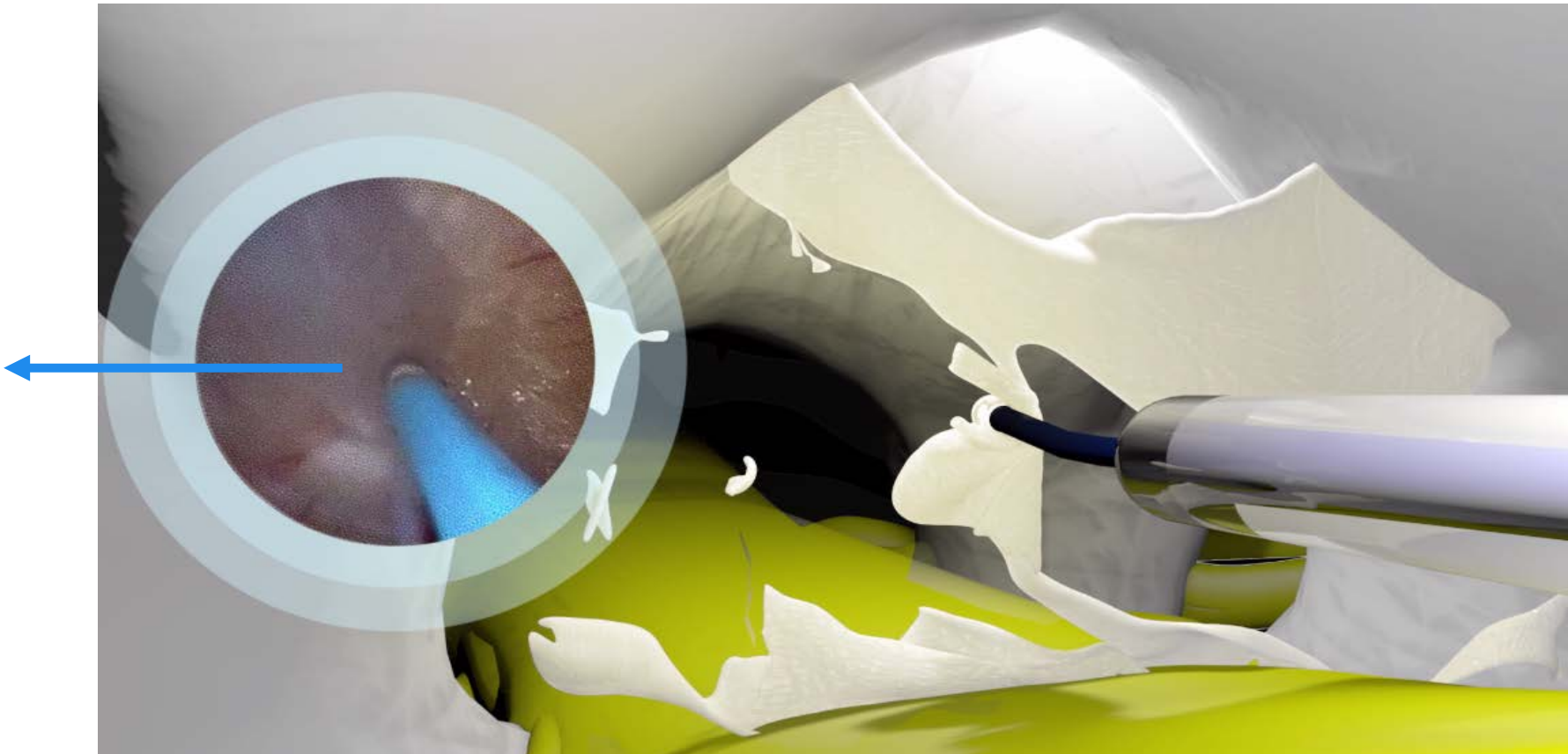
STEP ⑦

Resaflex



Resaflex

Channel
opening
from
adhesions



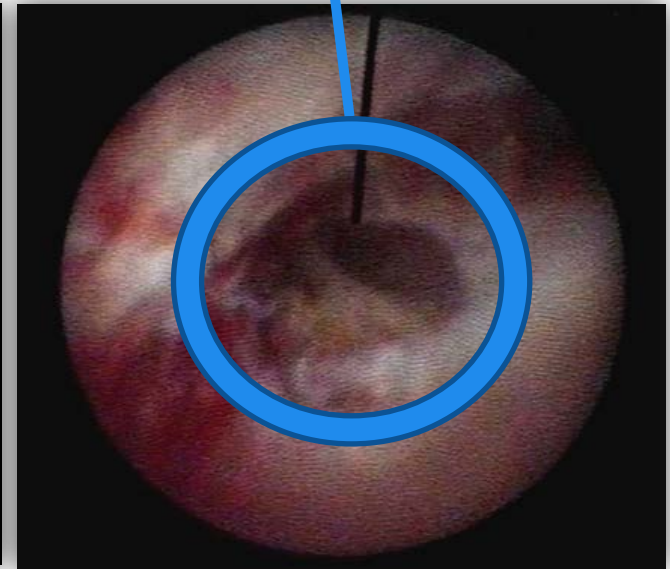
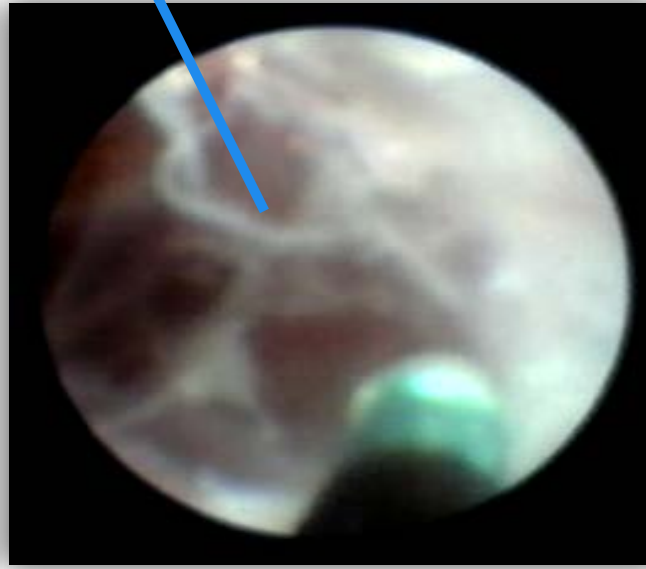
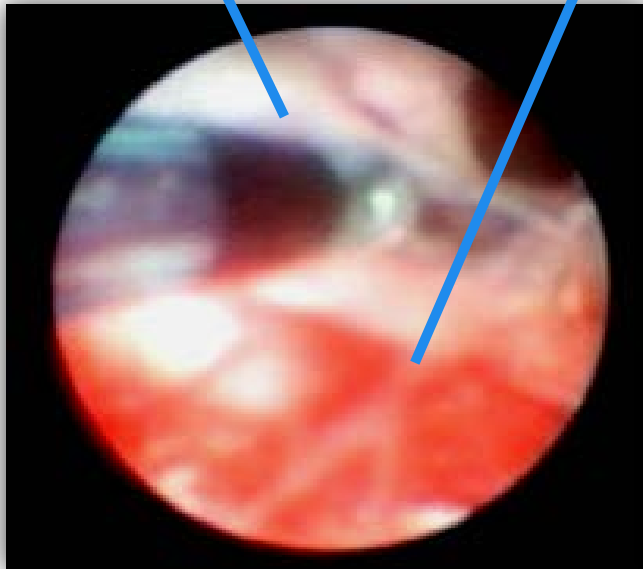
STEP 7

Resaflex

Resaflex

Scar Tissue

Opening made by Resaflex in the
scar tissue



NEW RESASCOPE

Accessories – RESABLATOR50

TECHNOLOGICAL IMPROVEMENTS



OUTPUT

- ✓ **Optimization** of cutting signal
- ✓ Higher power in output **70W**



NUOVO RESASCOPE

Accessories – RESABLATOR50

TECHNOLOGICAL IMPROVEMENTS



SAFETY

- ✓ Possibility to stimulate before Resablation:

- 2 Hz → Motor Test
- 50 Hz → Sensory Test

- ✓ $0 < \text{Stimulation range} < 10V$



IESS[®] Technology

RESABLATION

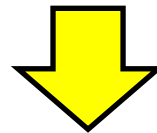
Revolutionary technology with
QUANTUM MOLECULAR RESONANCE[®]

RESABLATION

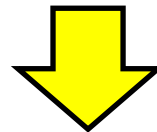
How does it work??

The first Principle of the Thermodynamics says that:

« In a closed thermodynamic system energy can be transformed from one form to another, but cannot be created or destroyed »



The energy supplied to a biological system (for example through an electrosurgical knife) is converted into another form of energy



PROBLEM:

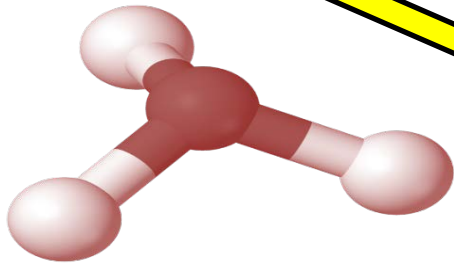
In which kind of energy does the first energy will be converted?



RESABLATION

How does it work??

Each type of atomic and/or molecular bond is characterized by a particular **Value of energy (E)**



This energy is able to break this bond

This kind of energy has a typically discrete shape and is expressed in «**QUANTUM OF ENERGY**» as per the following formulation

$$E = k \times f$$

Constant that depends on the type of molecular or atomic bond

Frequency

RESABLATION

How does it work??

If we supply some energy to a biological system two cases can occur:

Case 1

$$E \neq E_{Bound}$$

- Electrons excitation
- Increase of kinetic energy of the system
- Increase of the temperature
- Tissue overheating
- Proteins thermocoagulation
- Possible tissue necrosis

Case 2

$$E = E_{Bound}$$

- Bonds breakage due to
MOLECULAR RESONANCE PHENOMENON

RESABLATION

How does it work?

QUANTUM MOLECULAR RESONANCE occurs when:

$$E = E \quad \text{Bond}$$

Or rather when....

$f = f$ *resounance of the molecular system*

This frequency let vibrate the molecular structure causing the brekage of molecular bonds *without increasing temperature.*

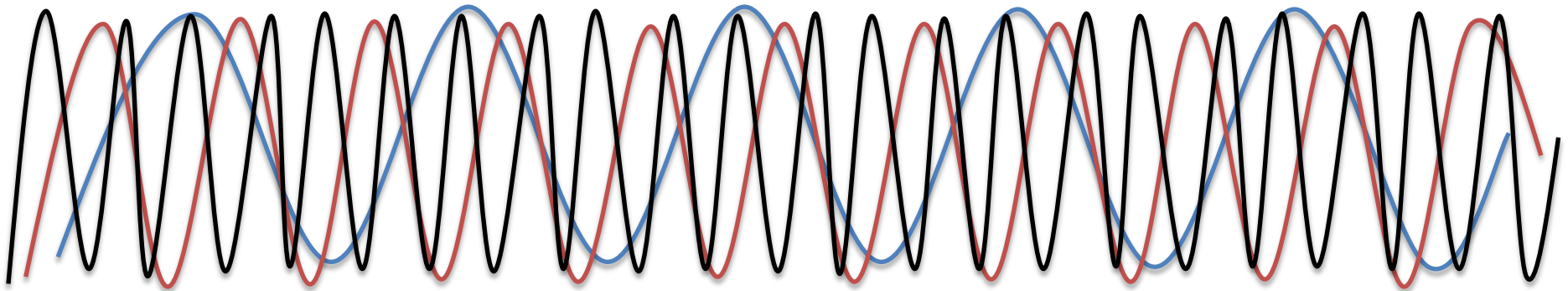
RESABLATION

How does it work?

RESABLATION TECHNOLOGY consists of a **combination of frequencies** that allow us to deliver the ideal energy to break tissues' molecular bonds without overheating adjacent tissue

4 8 12 16 MHz

Multiple Frequency Spectrum



RESABLATION

In practice...

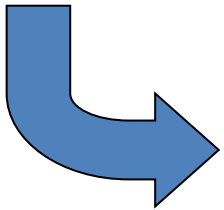
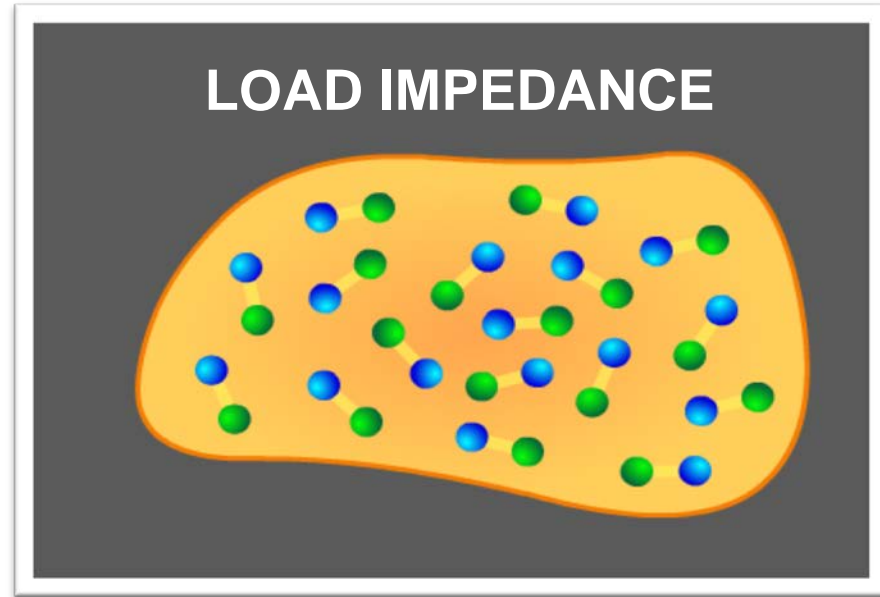
SOURCE



Quantum energy



LOAD IMPEDANCE



The quantum energy value depends on the frequency source generator

STEP

8

Resaplus for Neuromodulation

Neuromodulation:

When oriented the videoguide and set the epidural space free, you can insert the resaplus through «Tool 1».

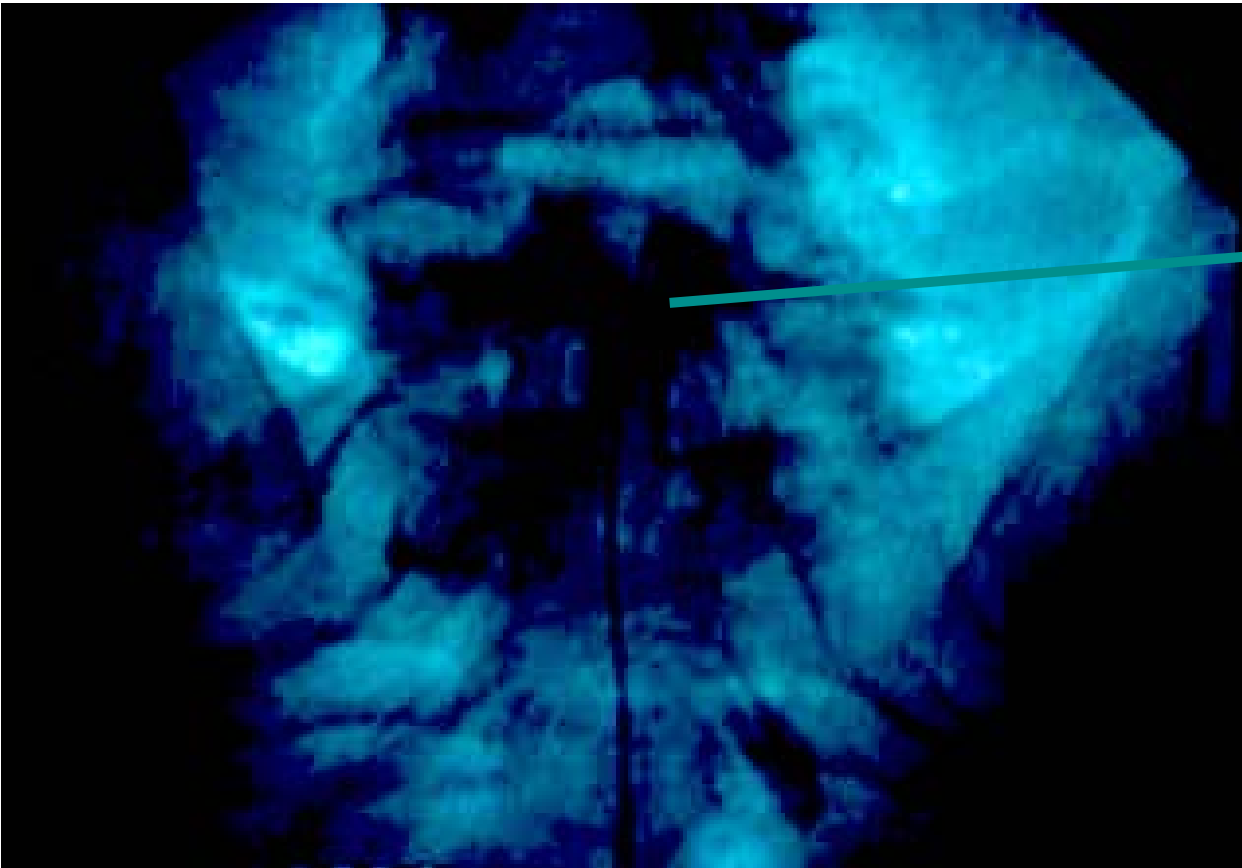
When on the target, you can make motor and sensory before proceeding with PRF treatment. Resaplus allows to inject drugs with a better precision.



STEP

8

Epidurography after IESS



Contrast agent at the end of the surgery to check if scar tissues have been removed from the epidural channel



Thank you

