

IV Simposio Nazionale

Centrale di Sterilizzazione e Sala Operatoria,
processi trasversali: devono essere sicuri

09 NOVEMBRE **2019**

Hotel Ambasciatori
Rimini

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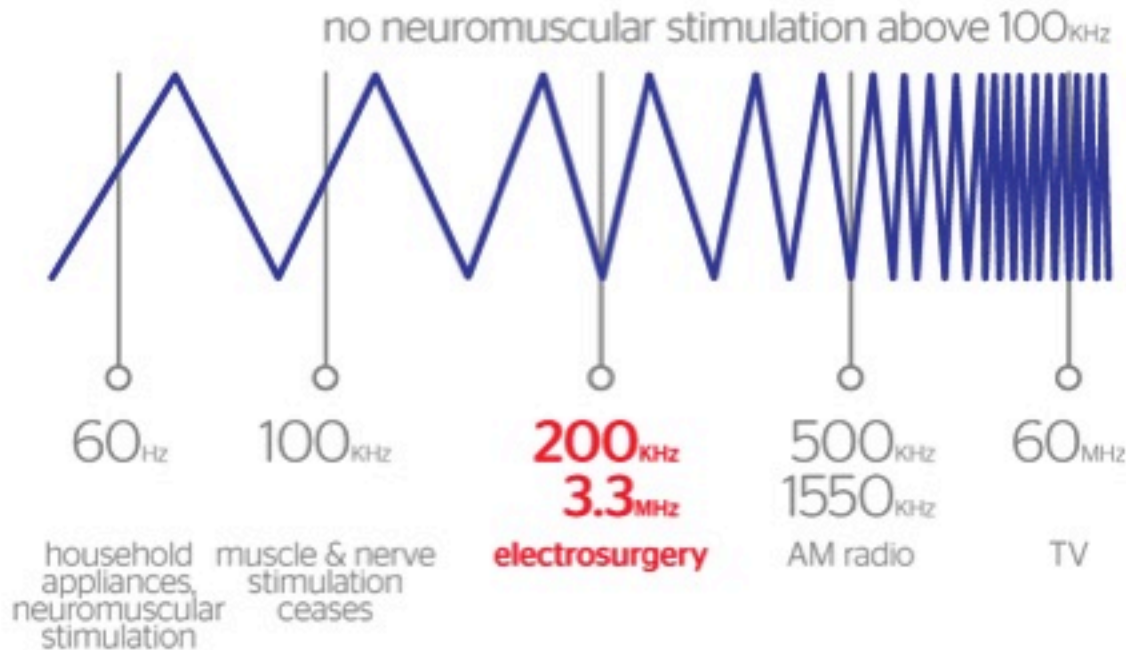
L'ELETTROBISTURI

RISCHI E BENEFICI
SALVATORE FRANCESCHINI

ELECTROSURGERY

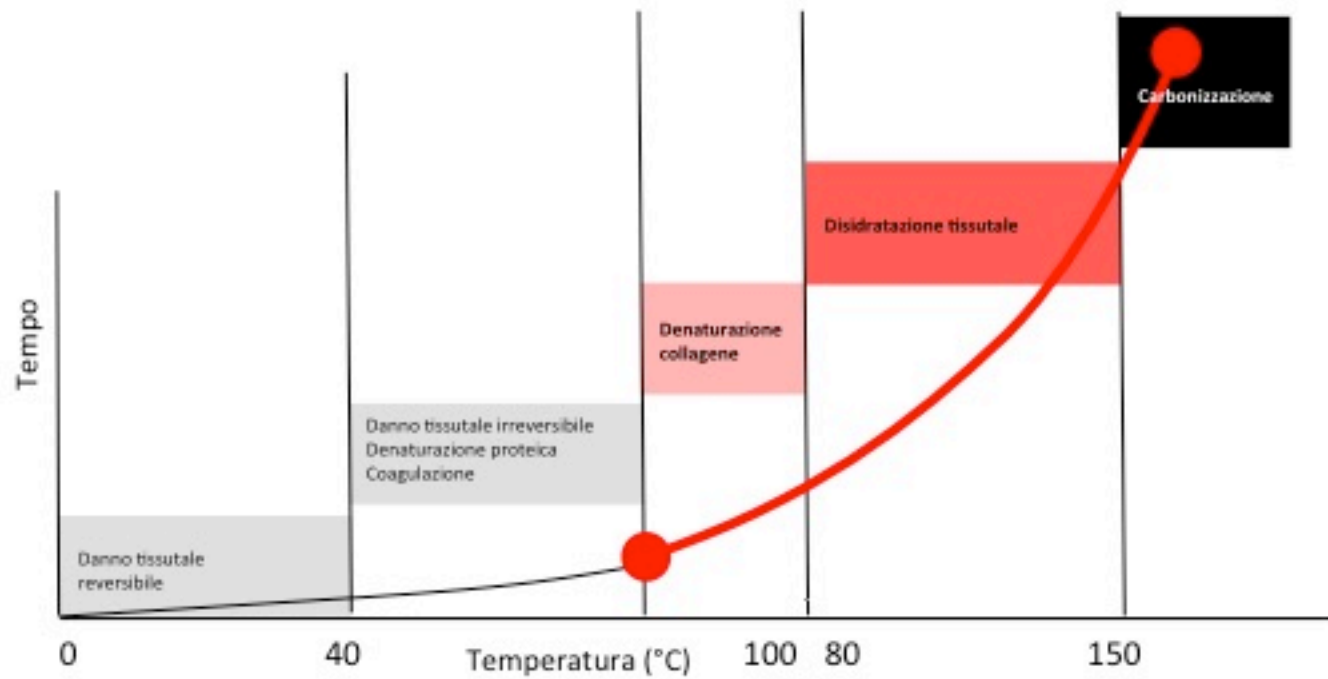
PHYSIC OF ELECTRICITY





what would happen if they placed their finger into an electrical outlet with an alternating current of 60Hz?

TEMPERATURA E TEMPO

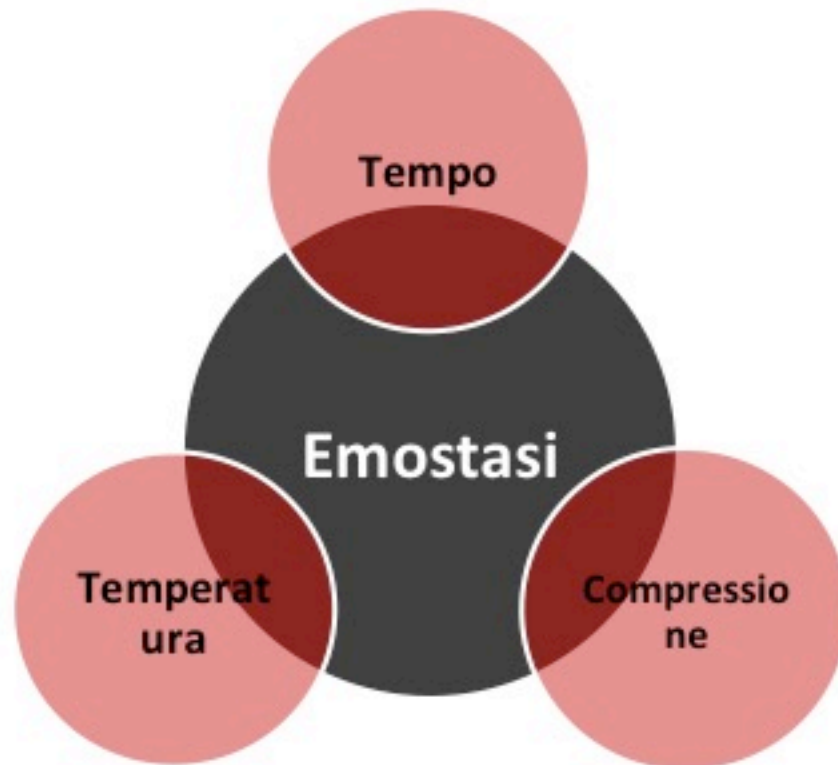


LA COMPRESSIONE MIGLIORA LA CAPACITÀ E LA VELOCITÀ DI EMOSTASI:

Promuove la fusione del collagene contenuto nelle pareti dei vasi

Diminuisce il volume tissutale e il contenuto d'acqua.
(Resistenza più alta --> velocità maggiore)

Meccanismo
di emostasi:
3
fattori



Electrochirurgia

Monopolare, Bipolare Tradizionale, Bipolare Avanzata



Understanding the basic principles of electrosurgery can help you optimize the use of electricity in surgery.

cautery

the surgical use of heat



electrocautery

The process of destroying tissue with an object that is heated with electricity. There is no current flowing thru the patient.



electrosurgery

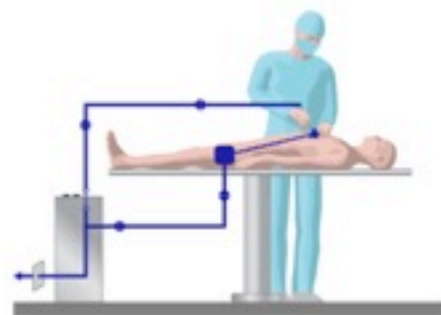
The use of alternating current passed thru the patient to cut and coagulate tissue.



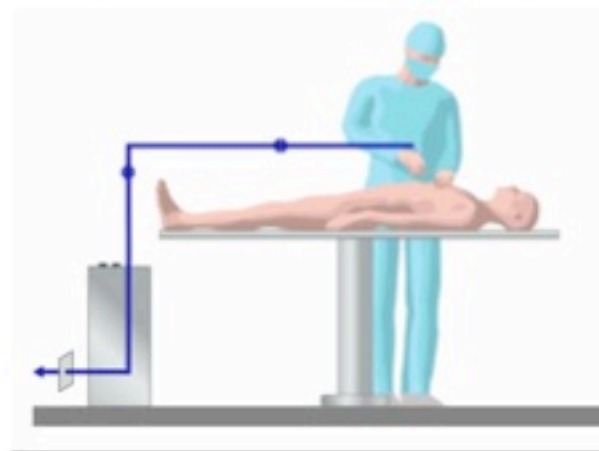
STORIA:
cautery,
electrocautery
and
electrosurgery

MONOPOLARE E BIPOLORE

circuito monopolare

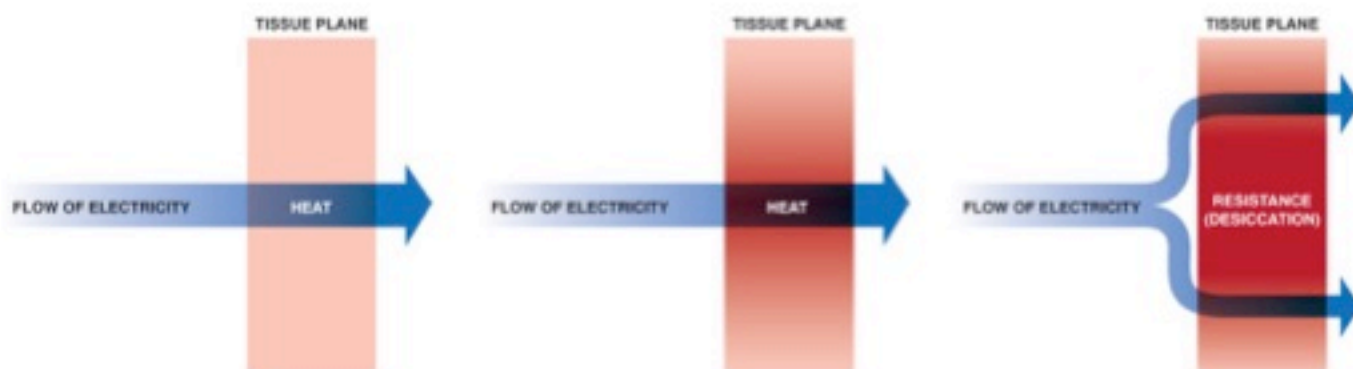


Circuito Bipolare



QUAL'È IL PERCORSO DEGLI ELETTRONI?

- ✓ Gli elettroni cercano il percorso a minore resistenza
- ✓ Alto contenuto d'acqua = bassa resistenza
- ✓ La resistenza aumenta con la disidratazione tissutale
- ✓ La corrente cerca un percorso alternativo

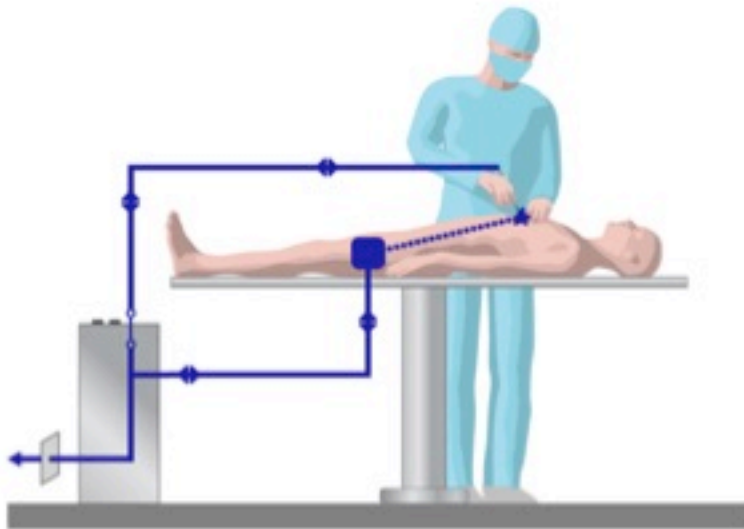


**PRINCIPLES
OF
MONOPOLAR
ELECTROSURGERY**

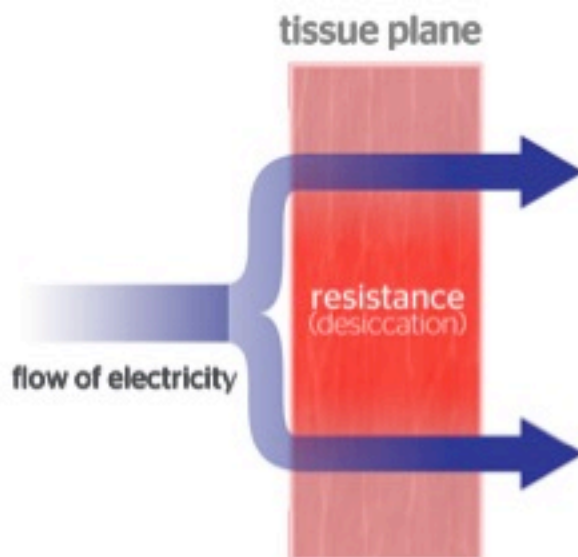


MONOPOLAR ELECTROSURGICAL SYSTEM

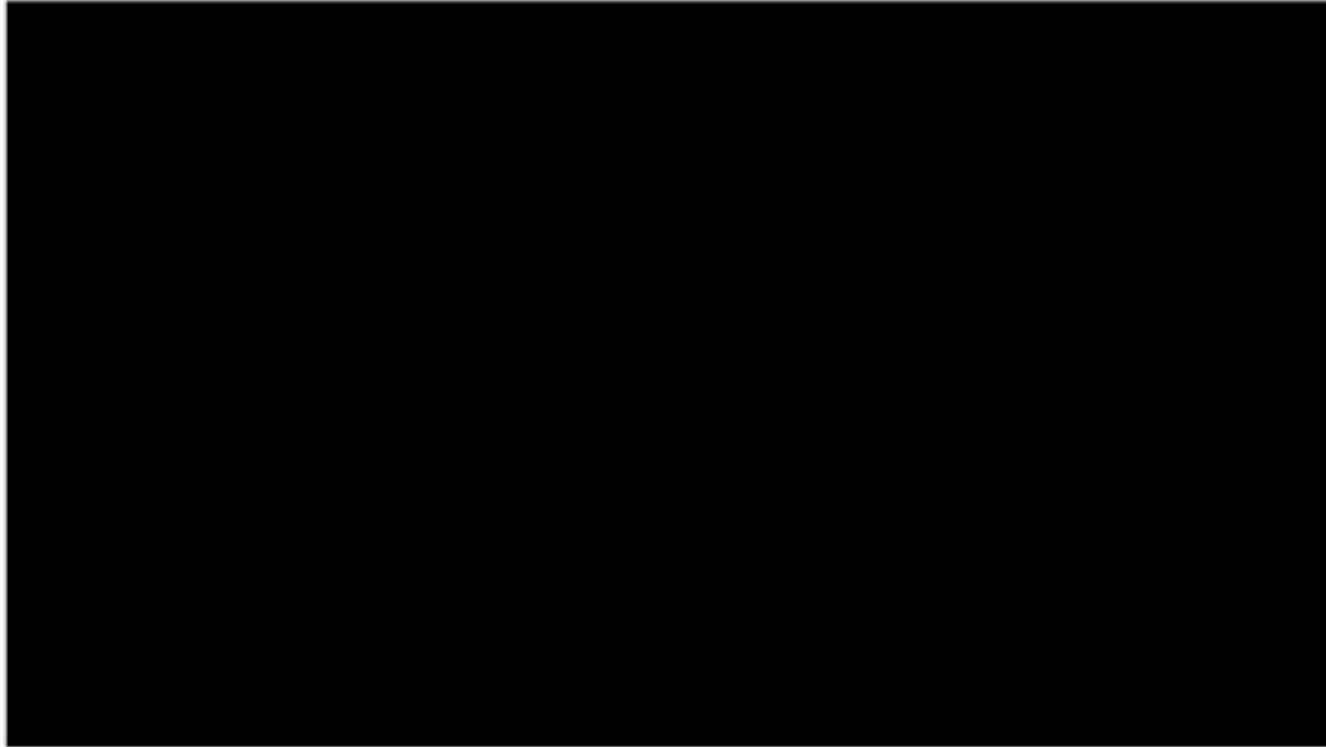
- In monopolar electrosurgery, the patient's tissue completes the circuit. The pencil and the pad are both active electrodes, each with different current concentrations.
- The patient's tissue completes the circuit
- The most important aspect of a monopolar electrosurgical system is that there is one electrode with a small contact point and another with a large contact point



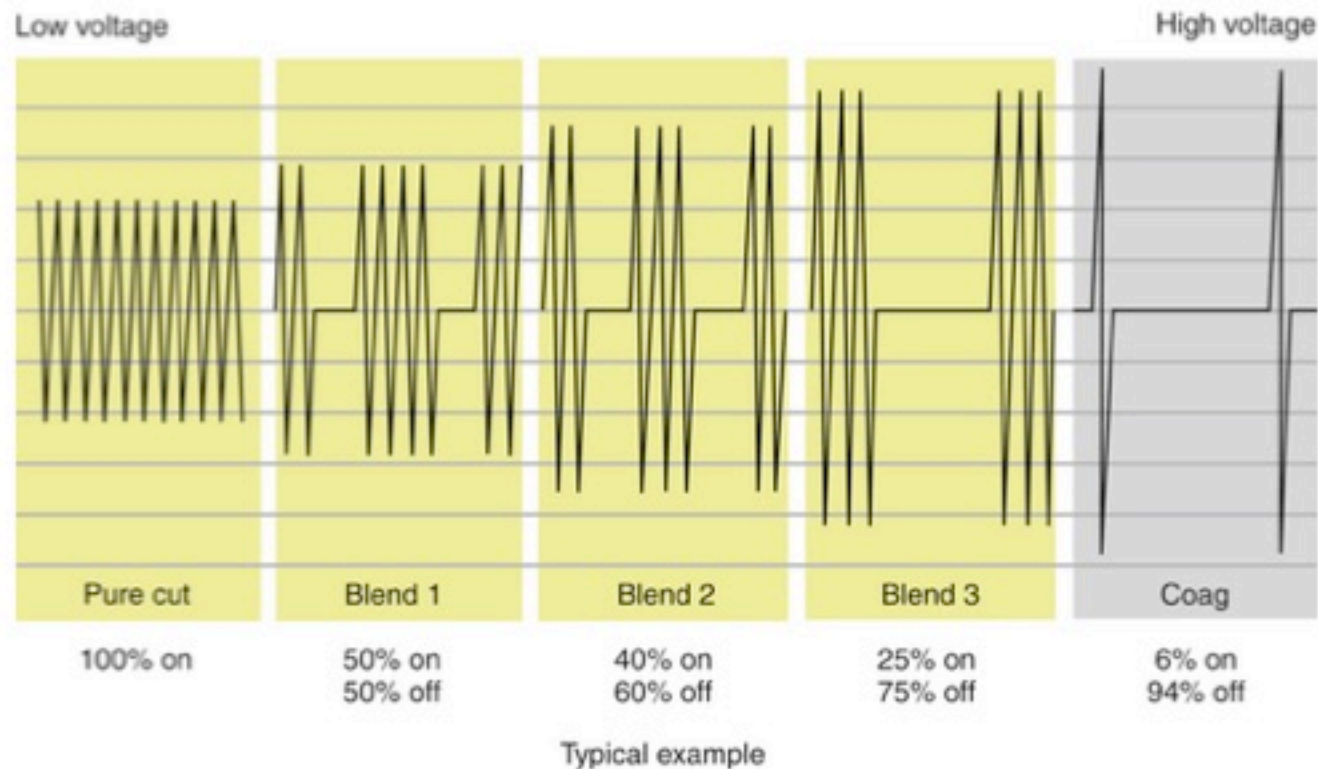
- Current follows the path of least resistance
- In humans, water which always contains electrolytes is the most conductive element present in the human body. Therefore, there is more current flow through blood than nerve than muscle the fat than bone
- water is vaporized and the tissue resistance increases...As resistance increases the current seeks an alternate pathway



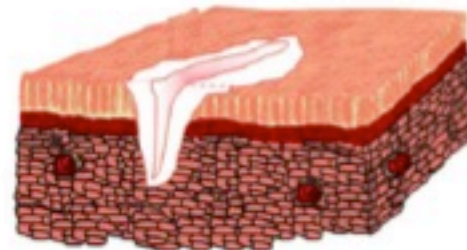
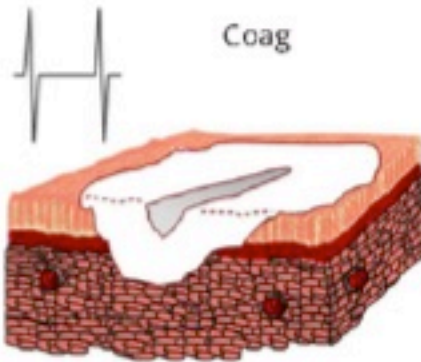
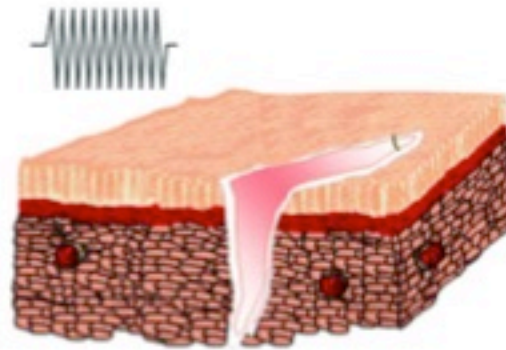
CUT
VS
COAGULATION:



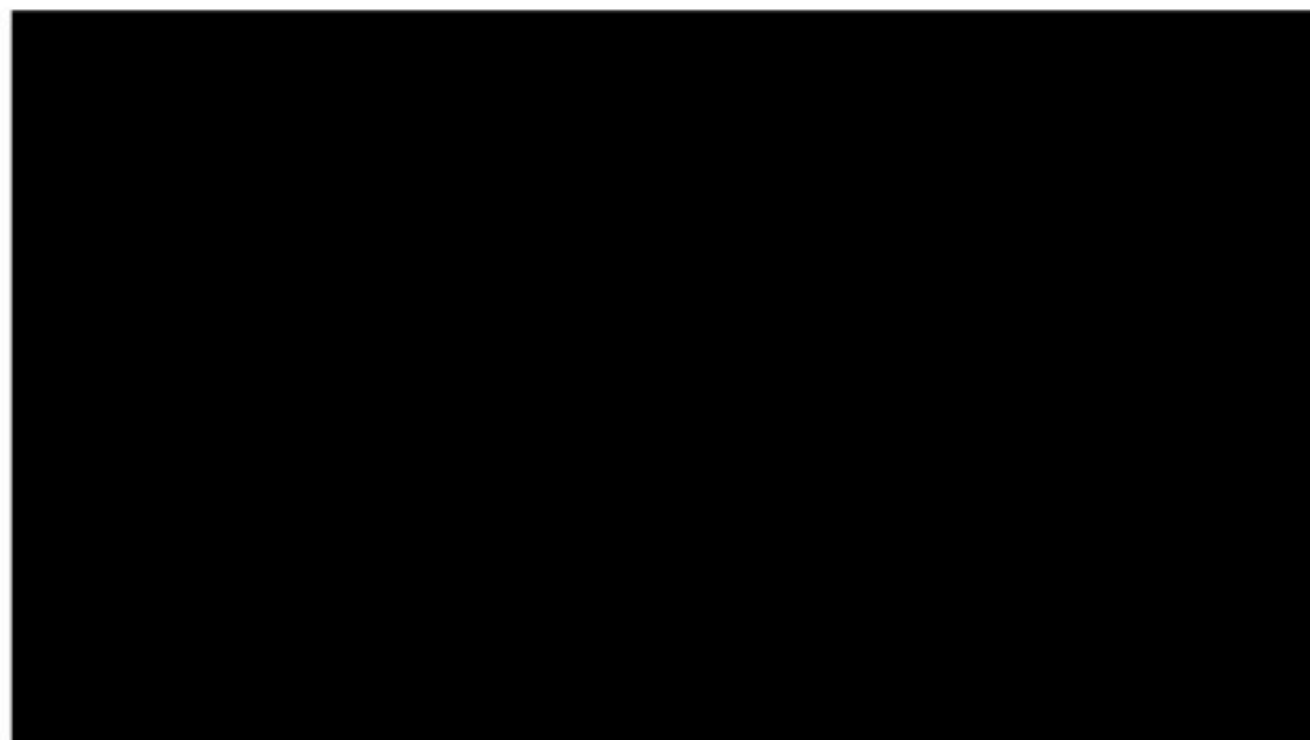
CUTTING AND COAGULATION WAVEFORM



CUTTING AND COAGULATION WAVEFORM

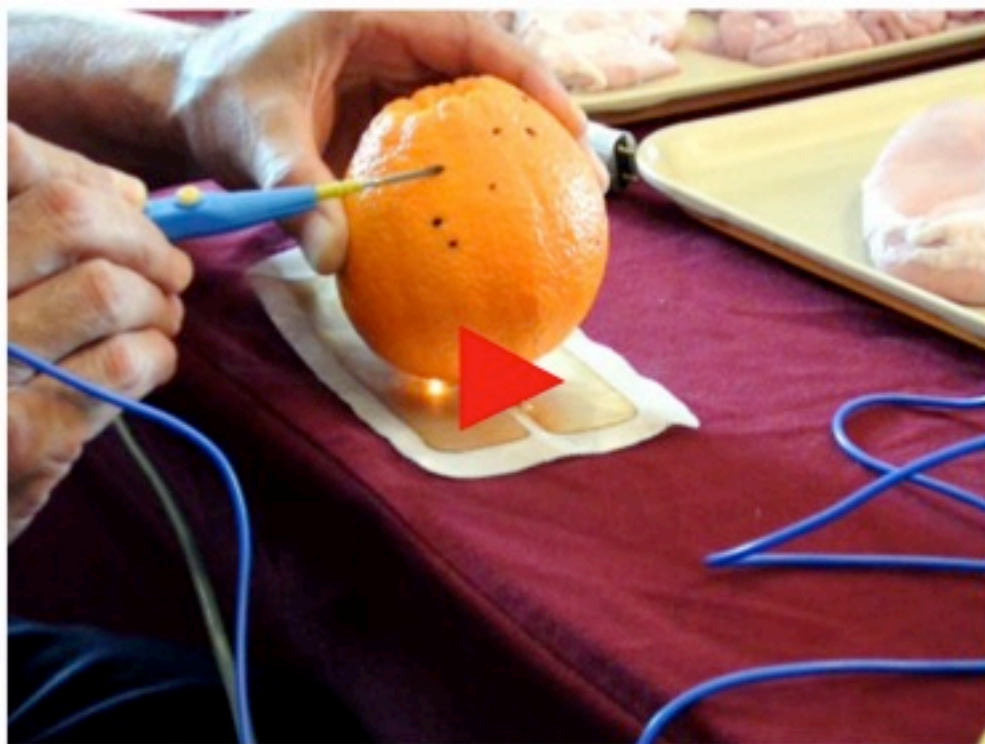


La concentrazione della
corrente



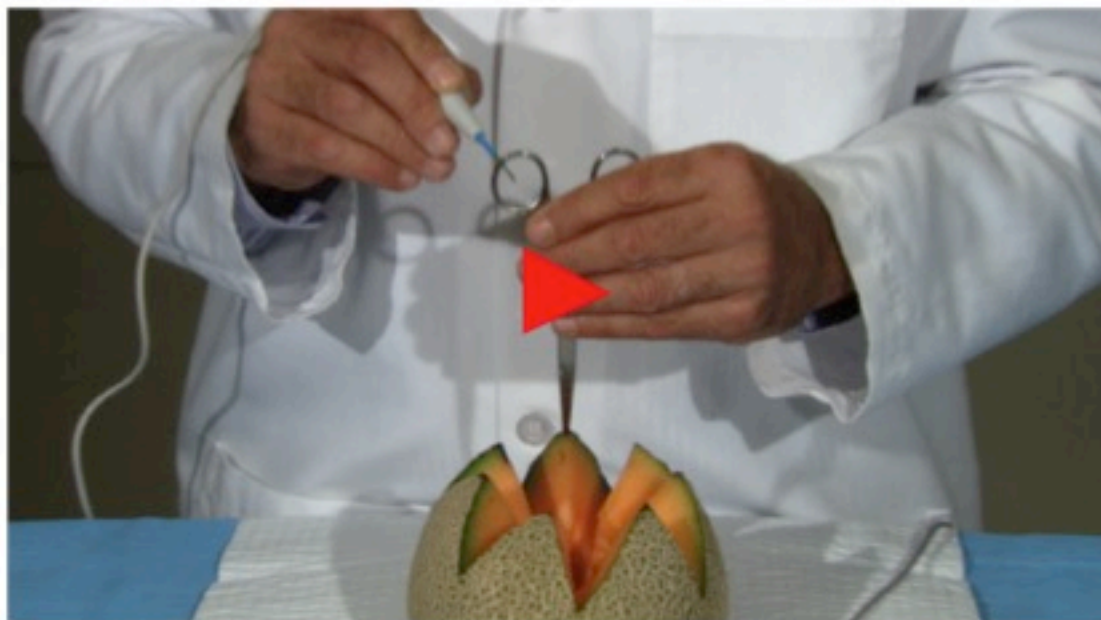
L'IMPORTANZA DELLA PIASTRA:

La concentrazione della
corrente



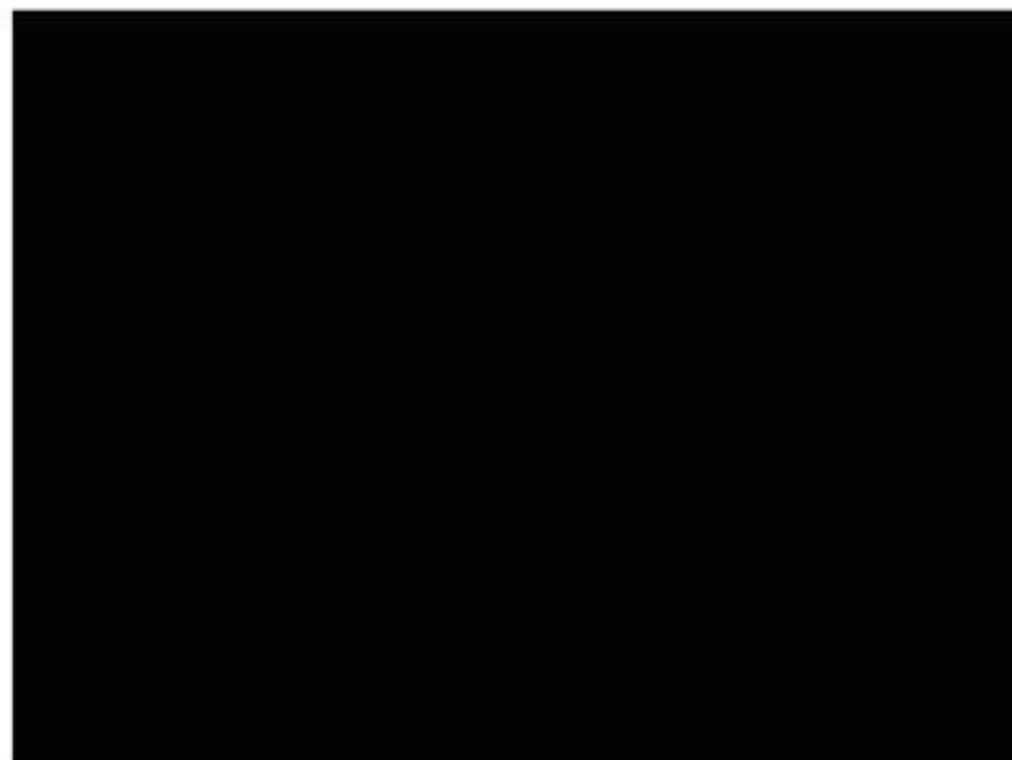
L'IMPORTANZA DELLA PIASTRA:

La concentrazione della corrente



DIRECT COUPLING

La concentrazione della
corrente

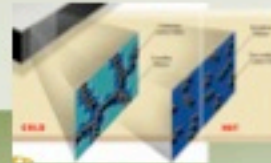


DIRECT COUPLING

ELETTROCHIRURGIA BIPOLORE



2000s:
Tecnologia del polimero per controllare la temperatura



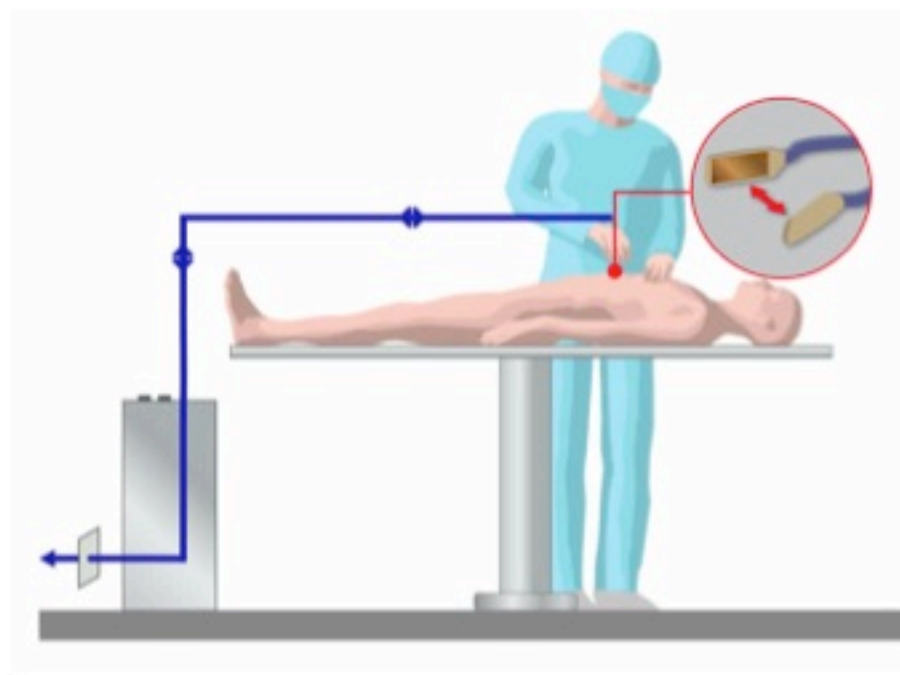
Anni '90:
Tissue sensing, modulazione di corrente e sistemi di feedback

Anni '50 - '60:
L'energia bipolare viene perfezionata.
Pinze di Kleppinger per la GYN



Anni '40:
James Greenwood sviluppa il primo strumento bipolare

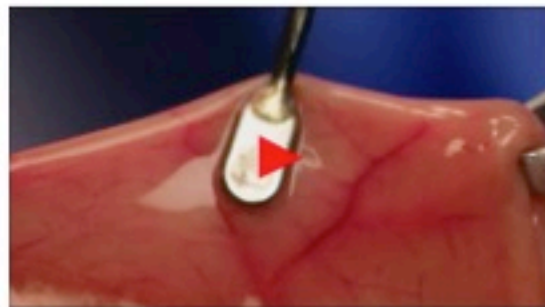
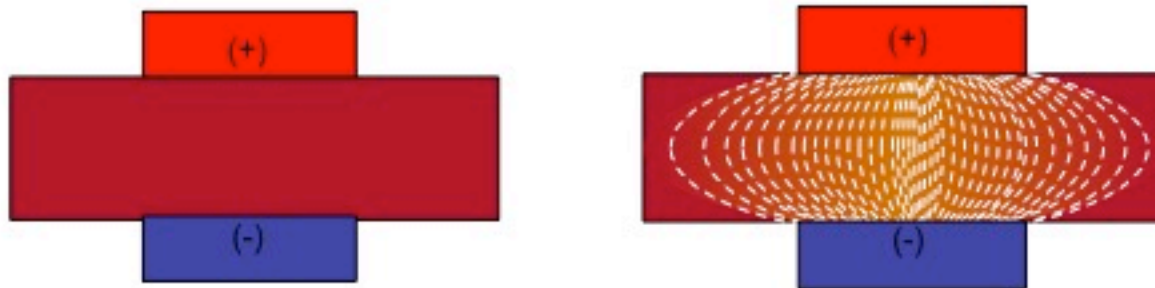
ELETTROCHIRURGIA BIPOLARE



EFFETTO BALLOONING



- MECCANISMI
- DI AZIONE



GRAZIE