

SCS – neuromodulačné techniky

- Indikácie: **FBSSy**, KRBSy, AP, FB...
- FBSSy- chirurgicky neriešiteľný stav po 1 alebo viacerých operáciách L chrbticem ktoré boli indikované k odstráneniu bolesti chrbta a DK bez priaznivého efektu.

(Burton, 1981)

- Indikačné kritériá...
- Povinné vyšetrenia:

MRI – neurochirurg

Psychológ a psychiatrické vyšetrenie

Záver algeziológa

Imunologické, vylúčenie fokusov



Mechanizmus účinku

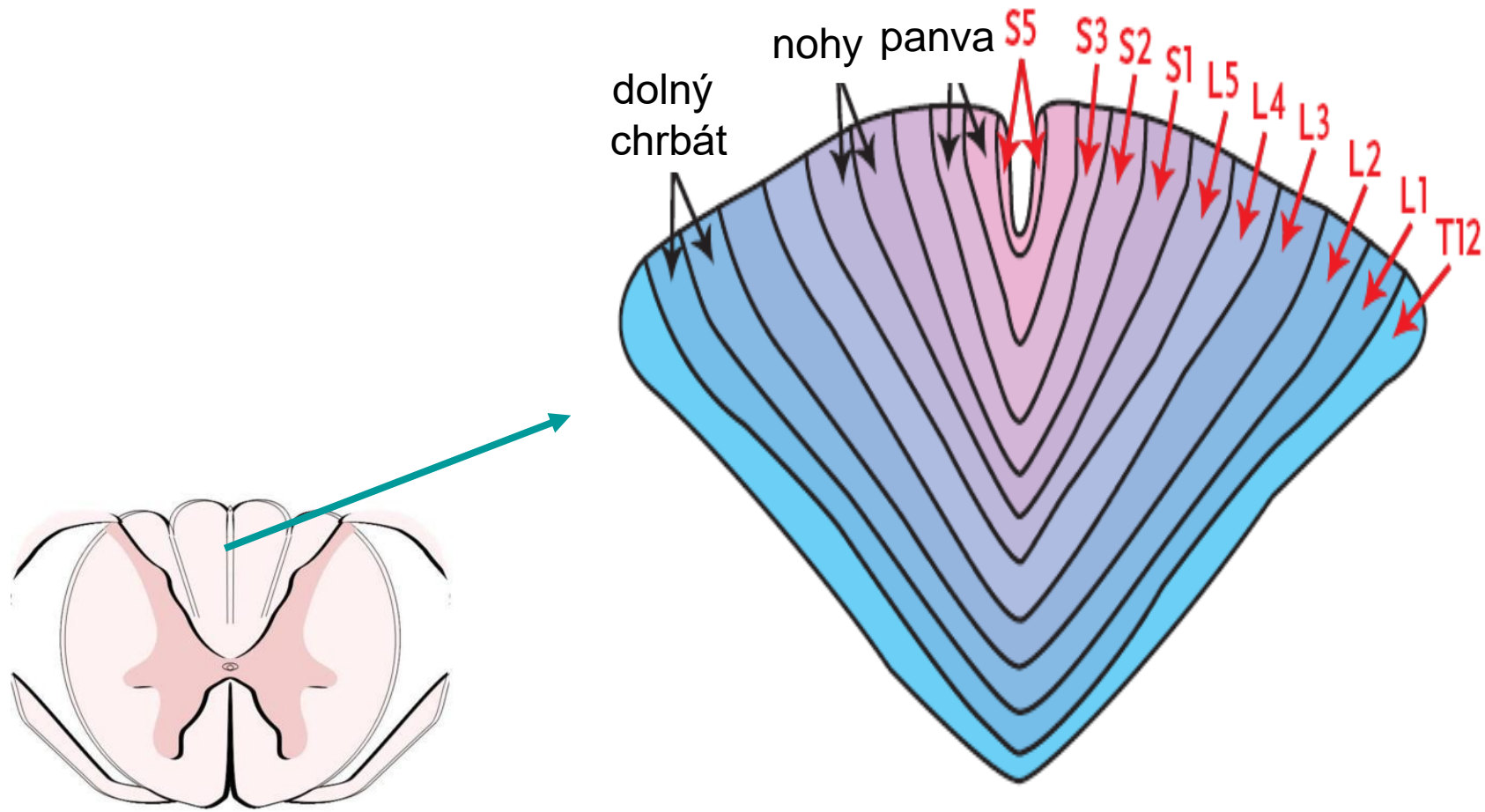
- Vrátková teória bolesti – stimulácia $A\beta$ vlákien – modulovanie aktivity neurónov ZRM
- Stimulácia DIS – \uparrow uvoľňovanie endorfínov



Možné mechanizmy účinku

- Zmeny v lokálnej cirkulácii krvi
- Blokáda depolarizácie bunkovej membrány a vedenia vzruchu axónmi
- Normalizácia vedenia vzruchov periférnymi nervmi
- Ovplyvnenie uvoľňovania neurotransmitterov
- Blokáda vstupu nociceptívnych podnetov do ZRM
- Uvoľňovanie endogénnych endorfínov
- Zvýšenie prahu mechanickej bolesti

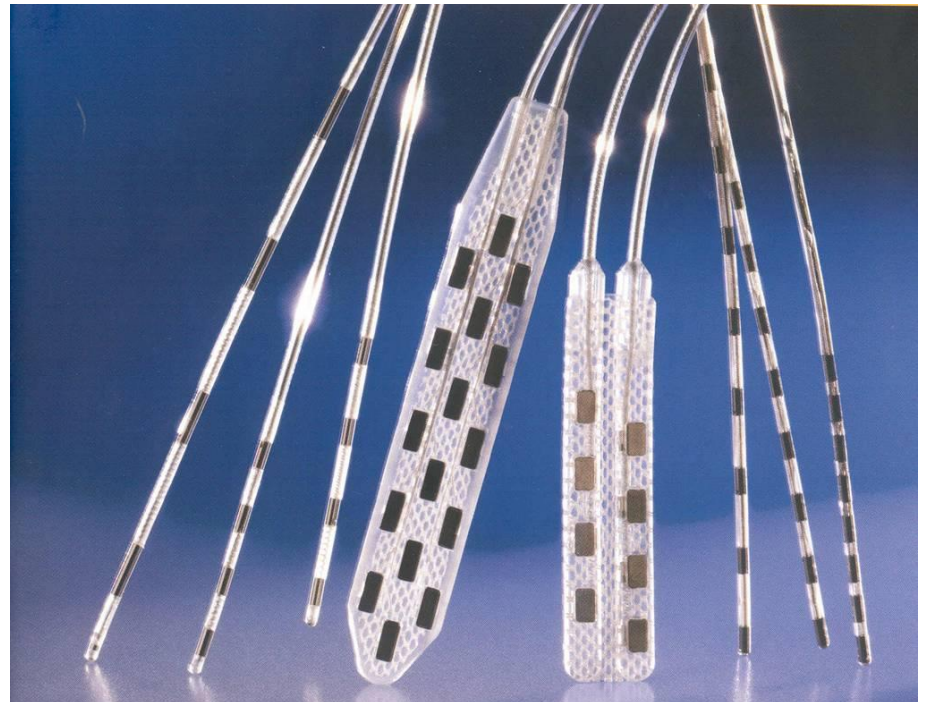
Hrúbka a umiestnenie dermatómov

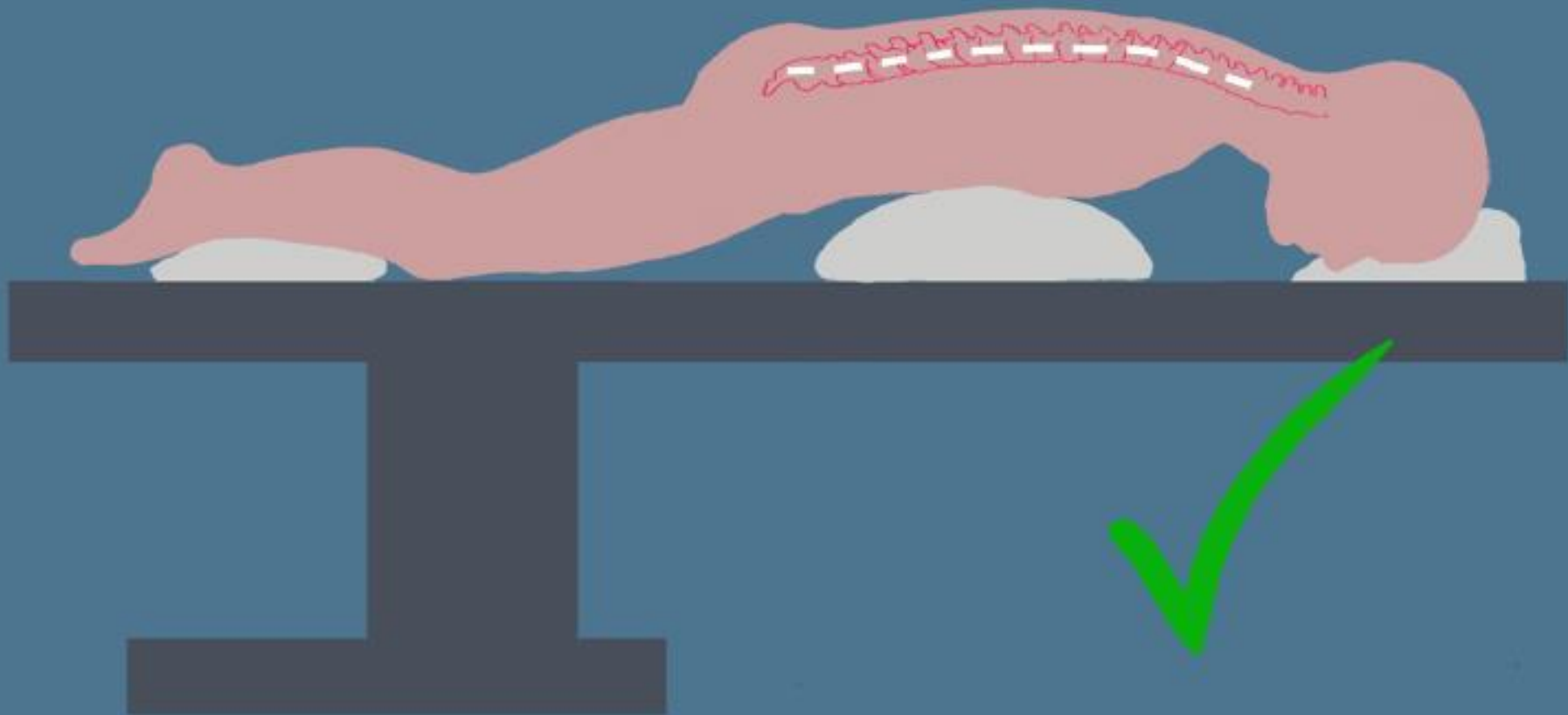
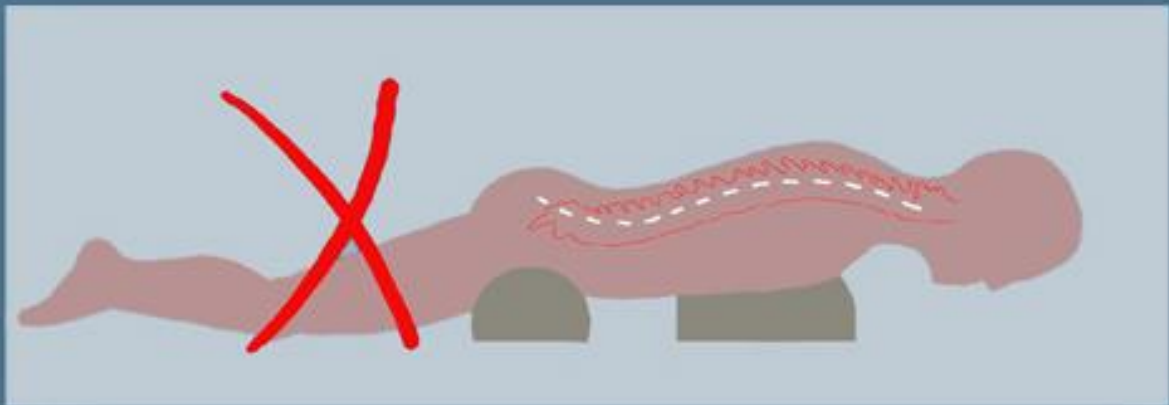


L1 & L2 dermatómy pre bolesť chrbta sú tenké a blízko nervových koreňov

Typy elektród

- Perkutánne
- Chirurgické
- Uloženie do epidurálneho priestoru
- V LA
- Testovanie

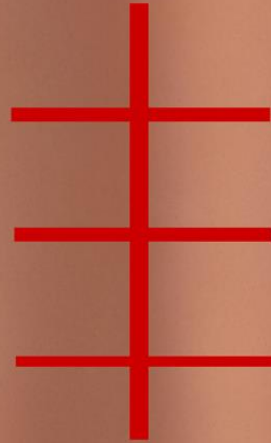


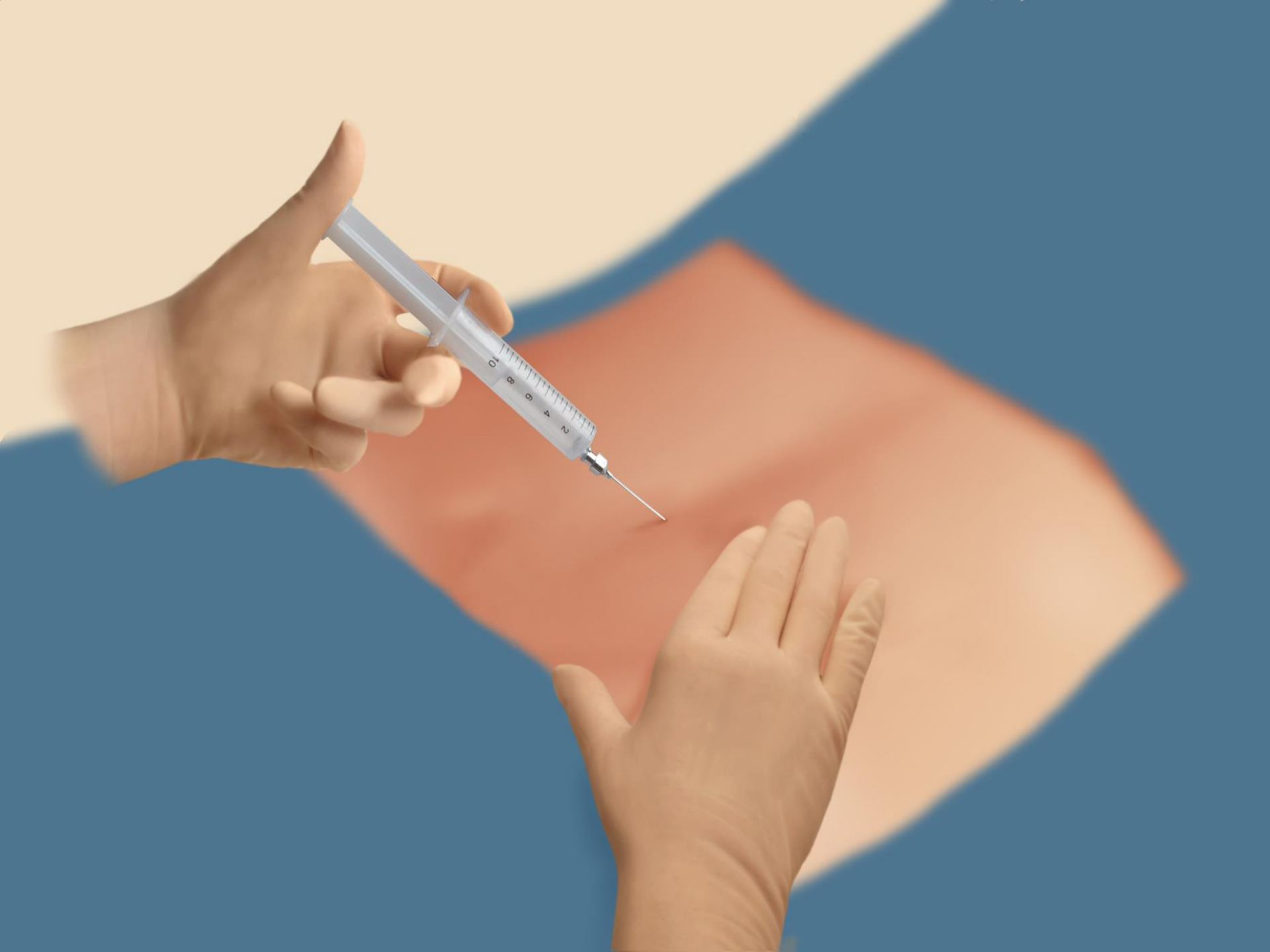


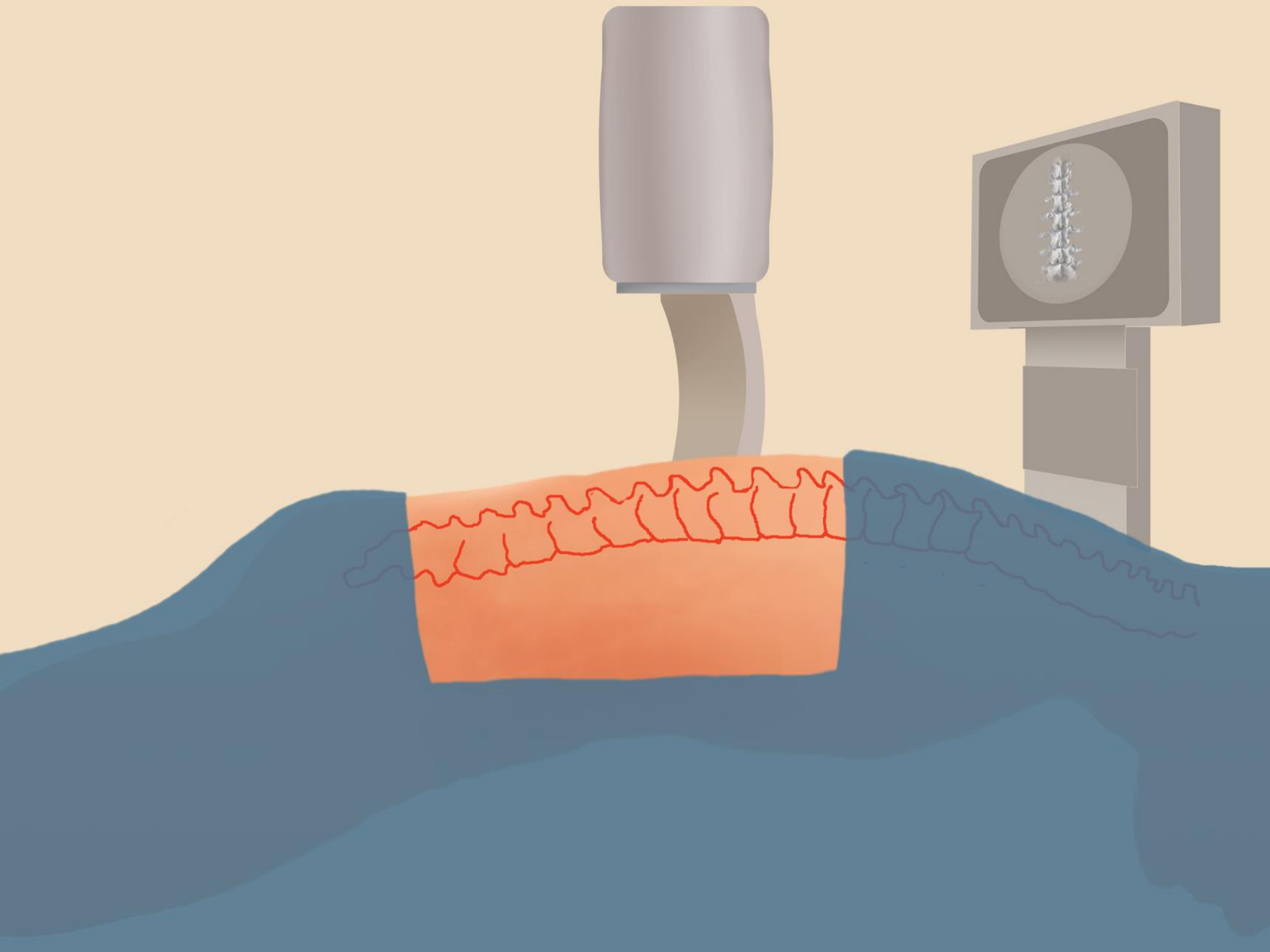
T 11/12

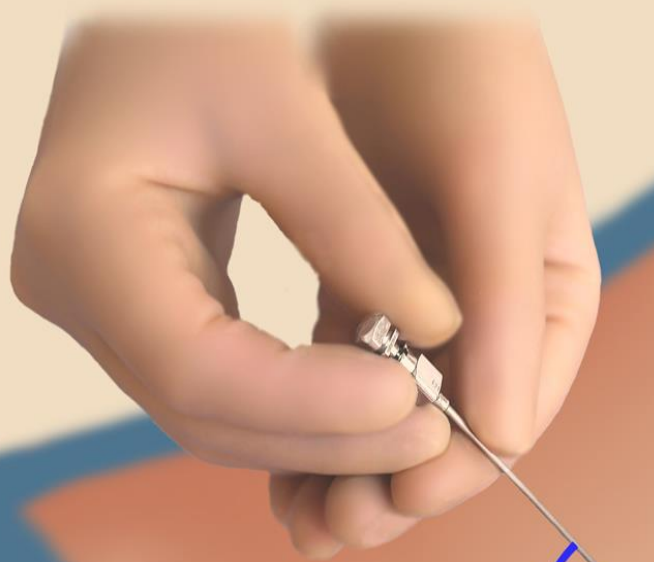
T 12/L1

L1/L2

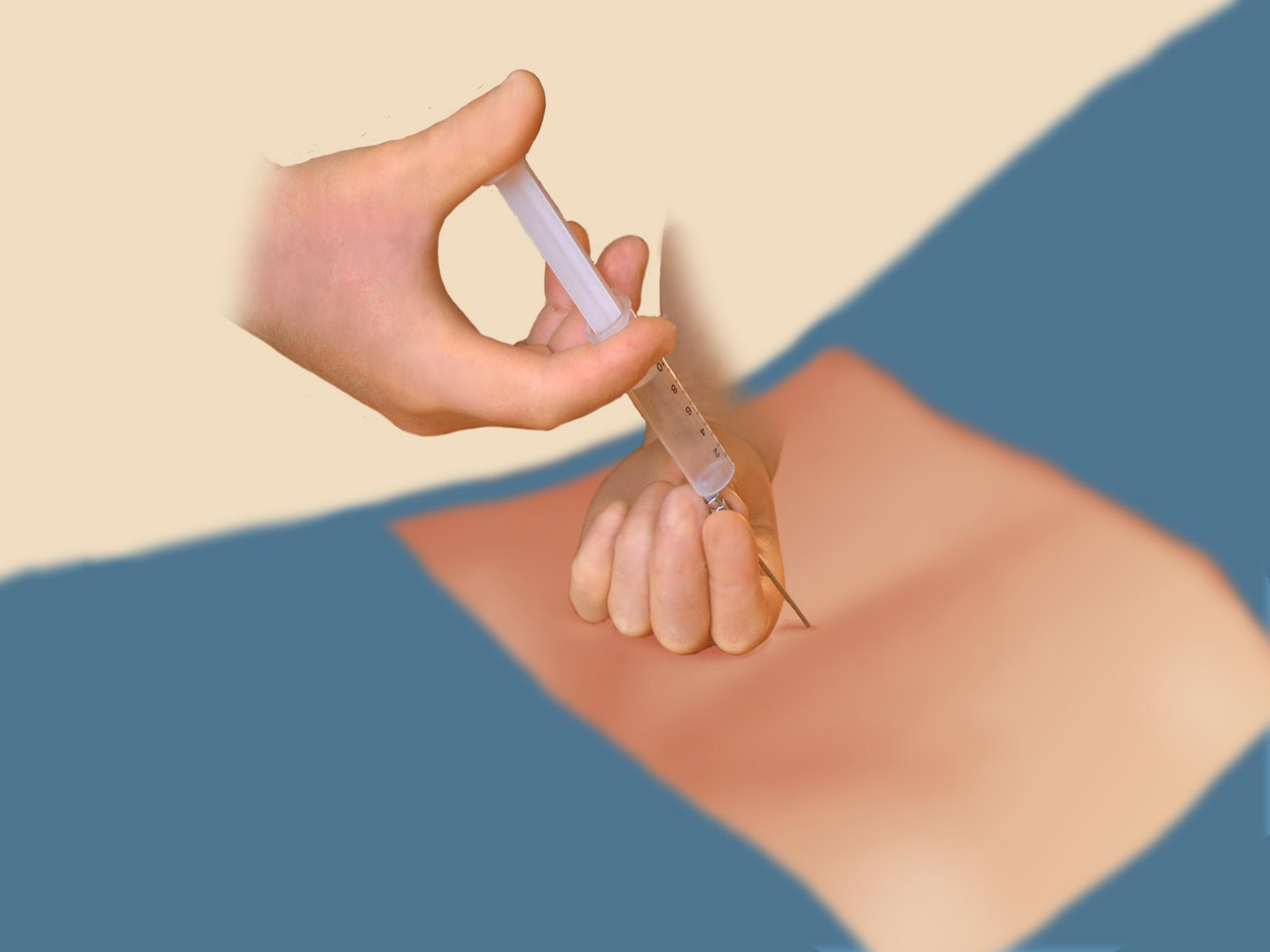




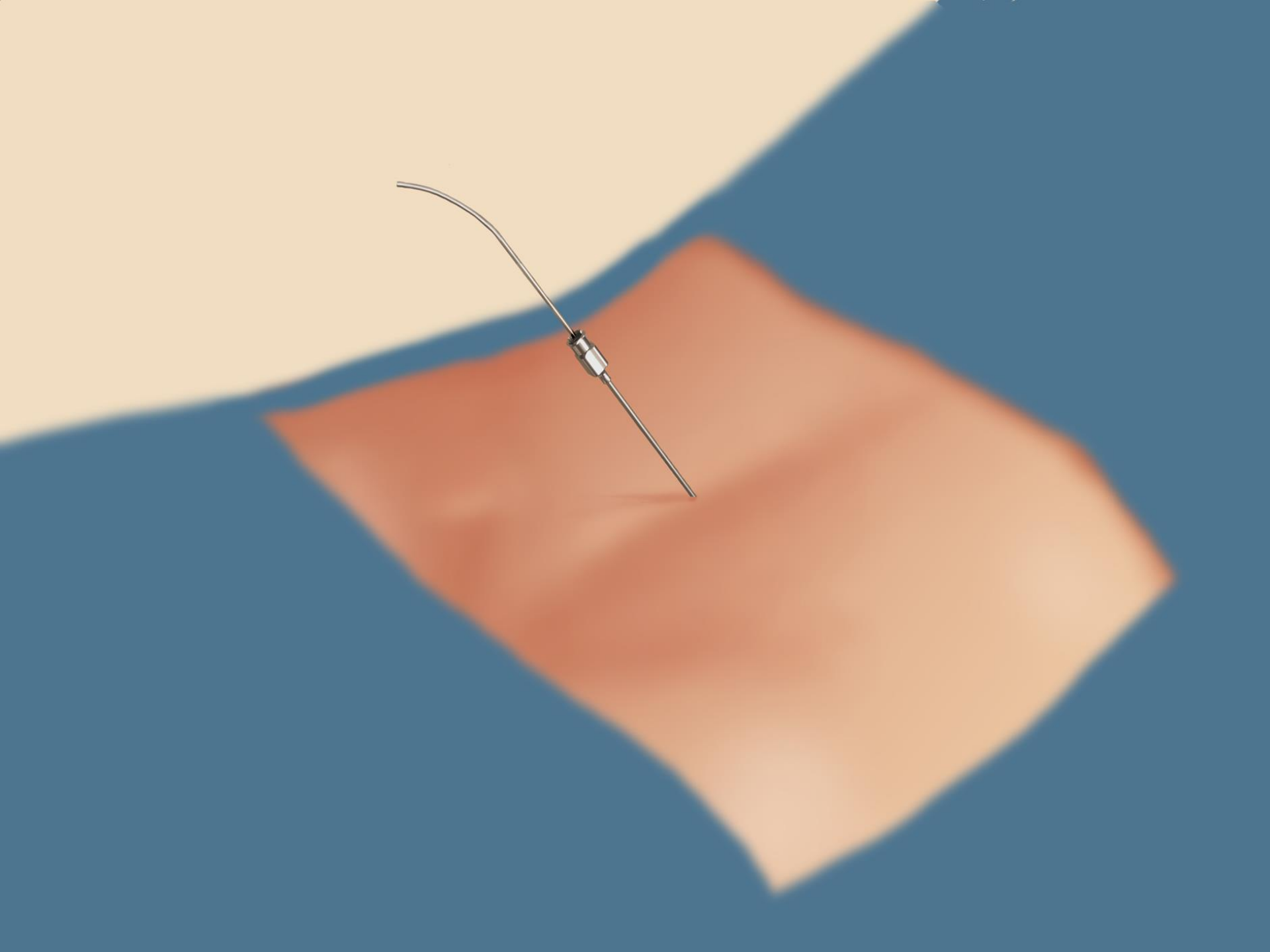


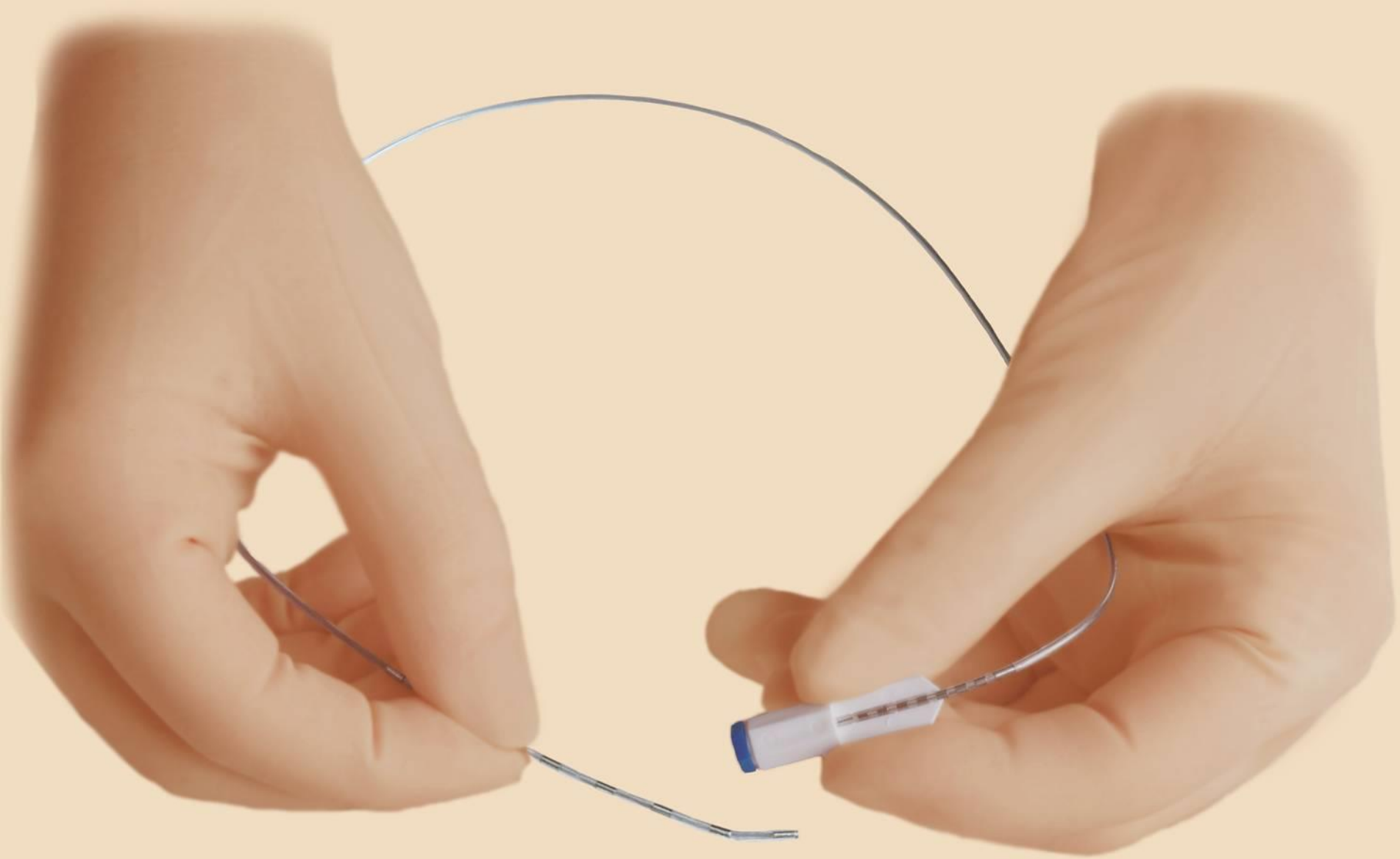


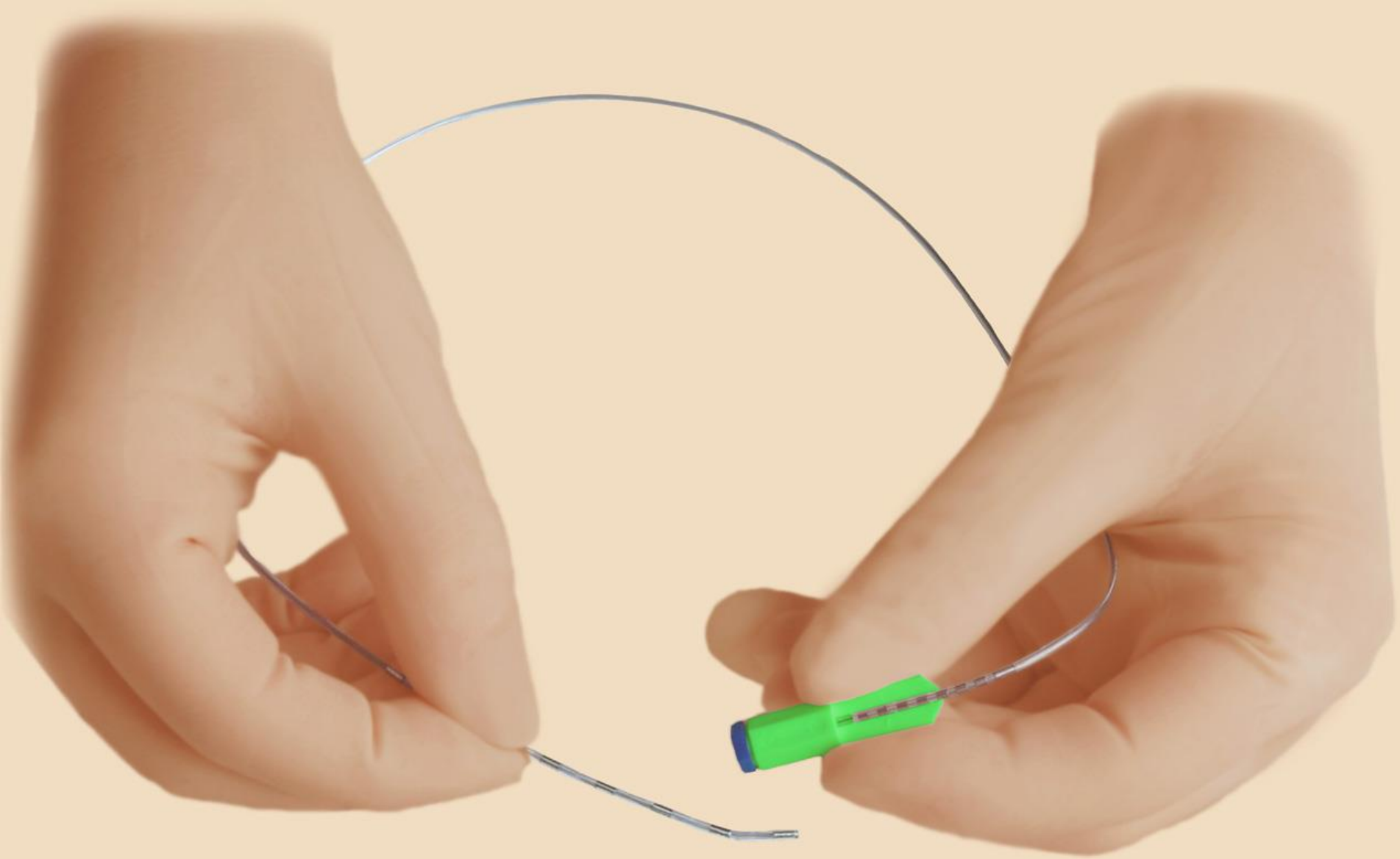
max 45°

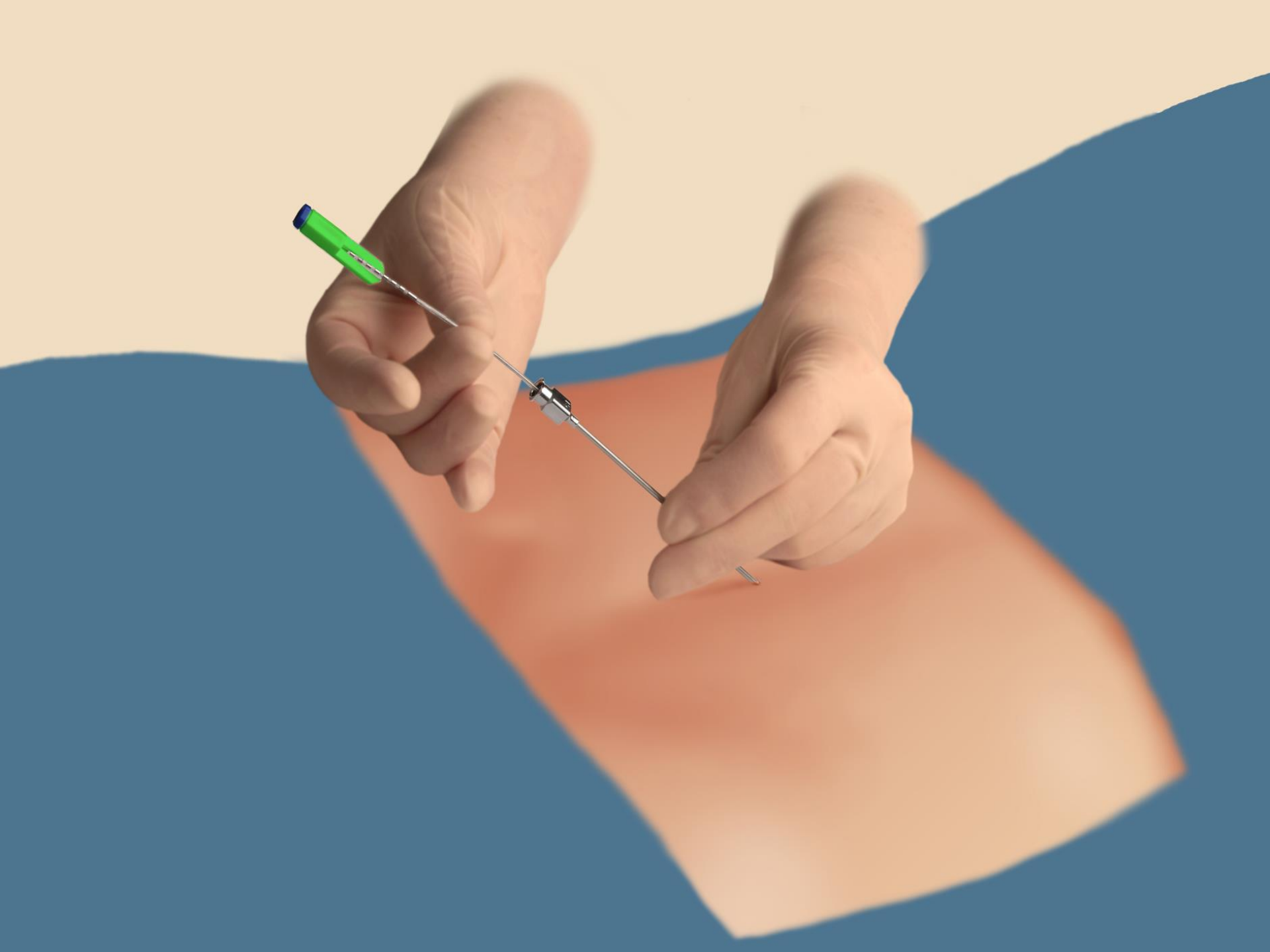


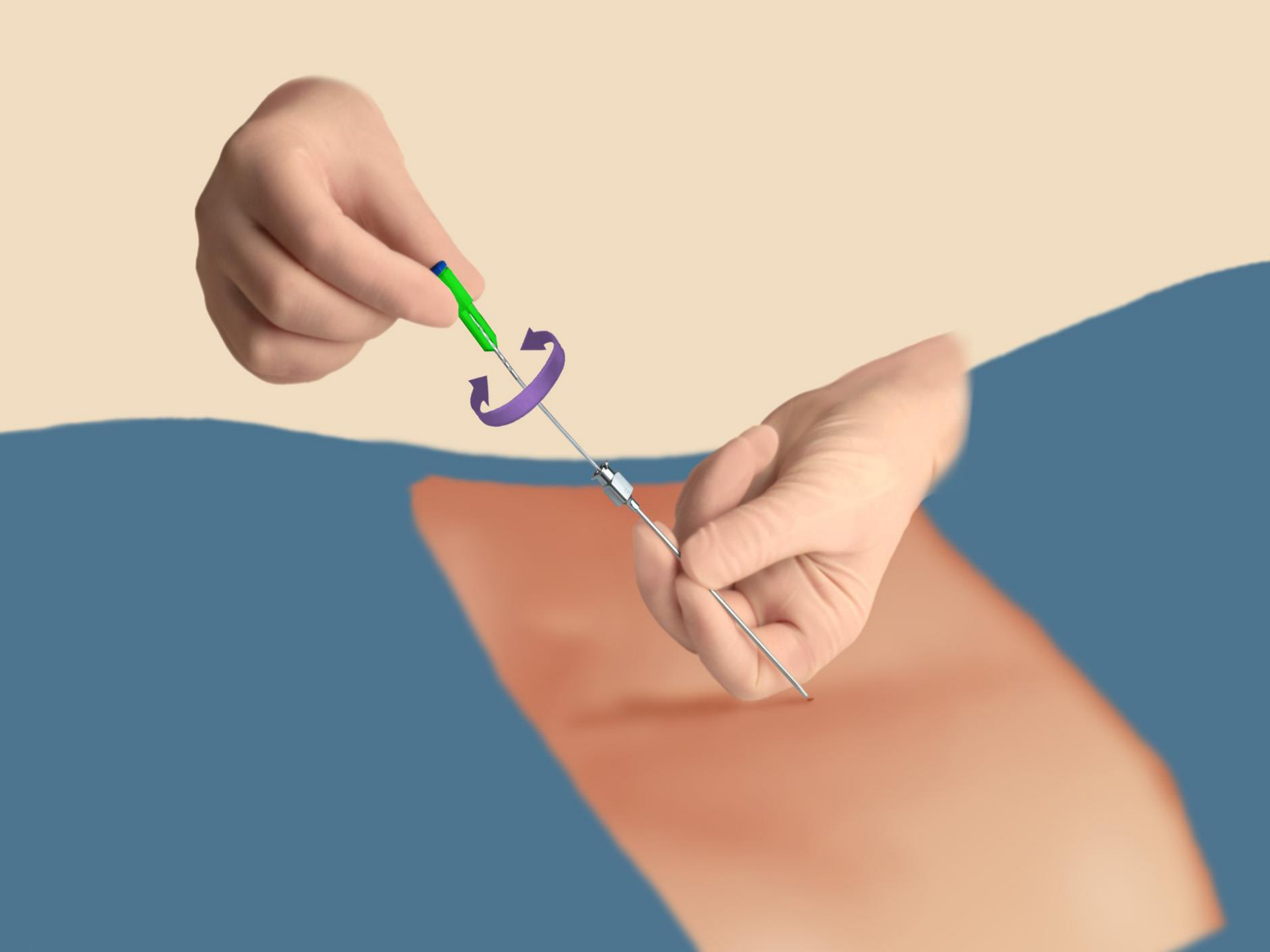


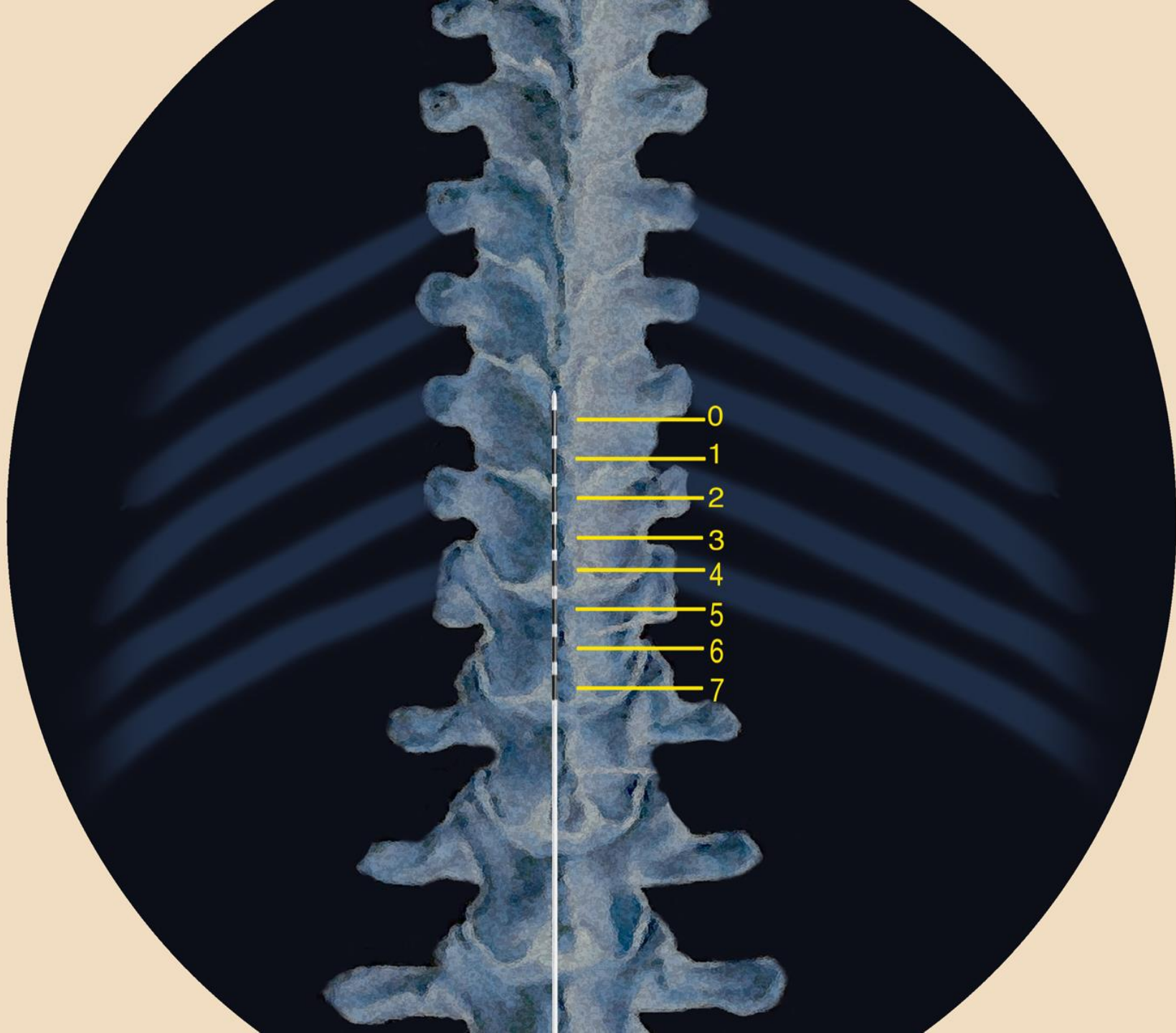












0

1

2

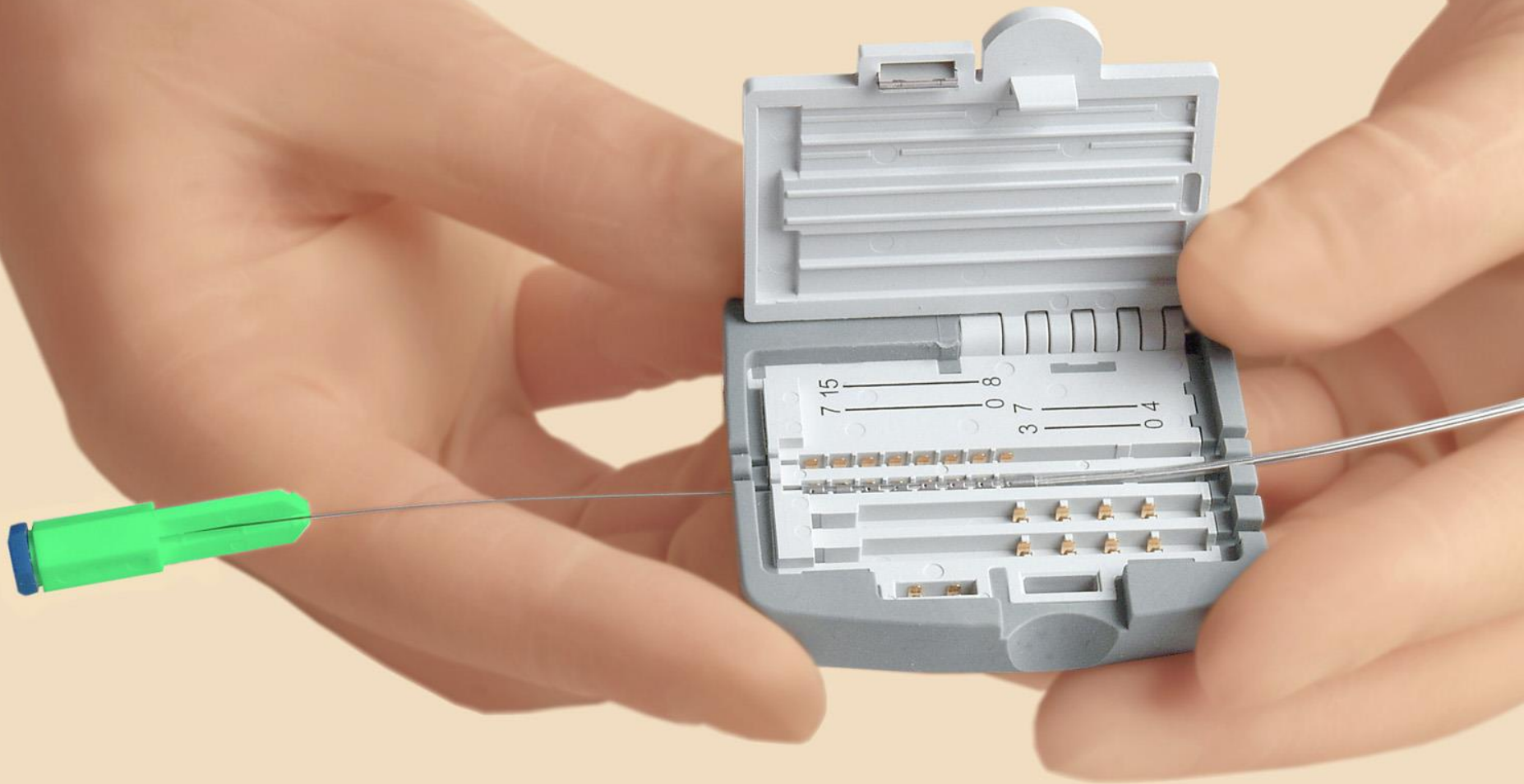
3

4

5

6

7



Parametre

- Amplitúda (Volt) - (životnosť batérie)
- Pulzová šírka (μsec)
- Frekvencia (Hz)

Ciel': Minimálne 80 % pokrytie miesta bolesti



8840 Simulator [Close] [Maximize] [Minimize]

> 06/15/2009 16:32 [Print] [Refresh] [Power]

TestStimULTRA - A - Demo
Program myStim [Refresh]

[Home] [Back] [Forward] [List] [Exit]

"A" [Dropdown] [A] [1] [?] [?] [?]

Current Programs [Dropdown]

[Left] [Right]

A1

0 1 2 3 4 5 6 7

1.7 V [Waveform] [Dropdown]

390 μ s [Pulse]

30 Hz [Frequency]

Clear [Trash] [P]

Optimizer... Save...

NJS***** 37022

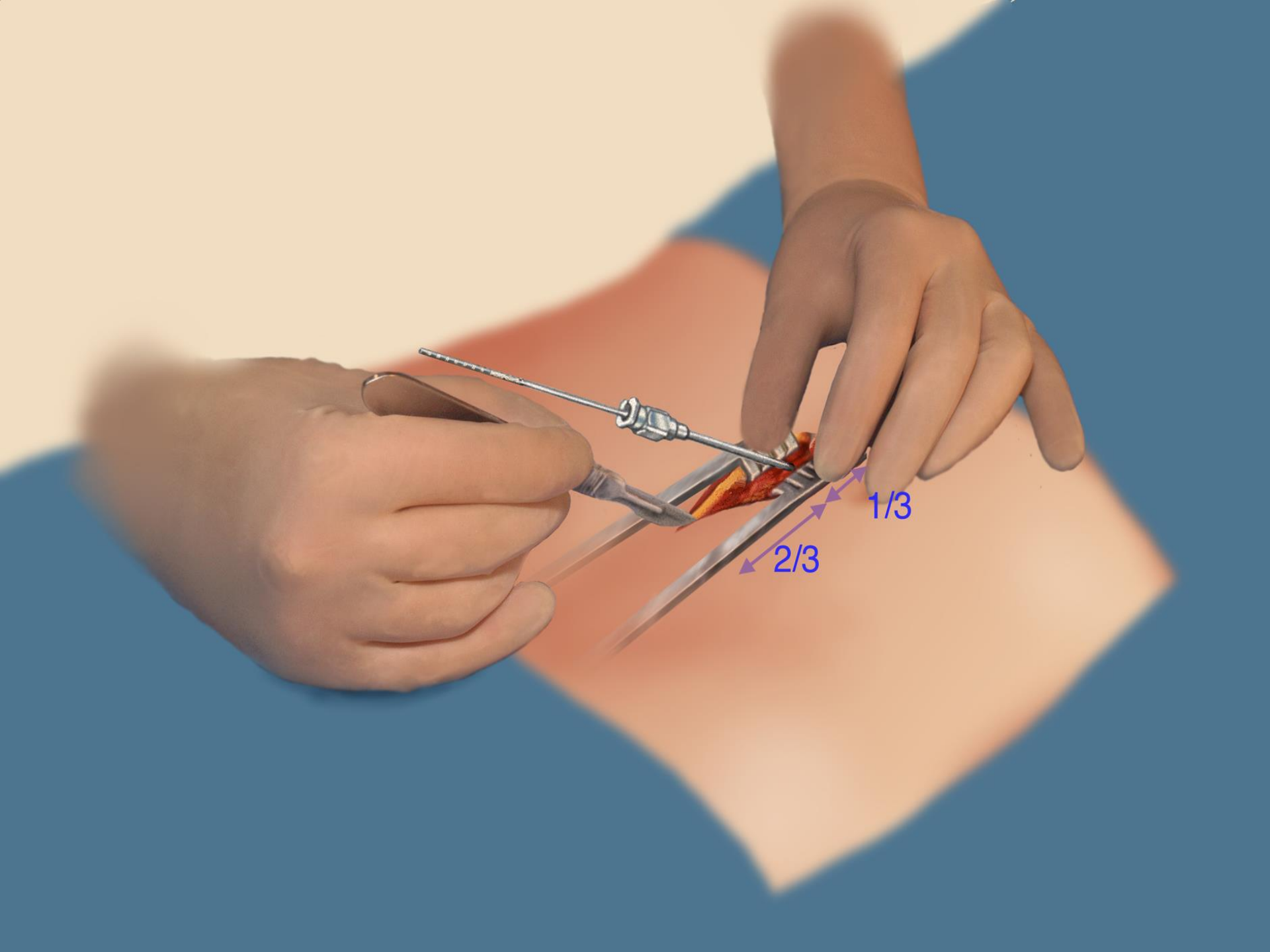
	A	B	C	D	E	F	G	H
1	DEFINITIVNY SCS							
2	Priezvisko							
3	Meno							
4	Dátum implantácie definitívneho SCS			21.03.2011				
5	Typ CSC			, 2x8				
6	Miesto vstupu do chrbtice		2 podkožné elektródy umiestnené horizontálne					
7	Uroveň SCS							
8	Konfigurácia SCS		Elektróda I		Elektróda II			
9		0	-	8	-			
10		1		9				
11		2		10				
12		3		11				
13		4		12				
14		5		13				
15		6		14				
16		7	+	15	+			
17								
18	Frekvencia (f)		program A1		program A2			
19	Pulzová šírka (PW)		30 Hz		30 Hz			
20	Intenzita/Amplitúta (I)		210 us		180 us			
21	Dátum naprogramovania		4,4 V		4,3 V			
22	Rozsah pokrytia		21.3.2012					
23			I.dx low back		I.sin low back			
24								
25								

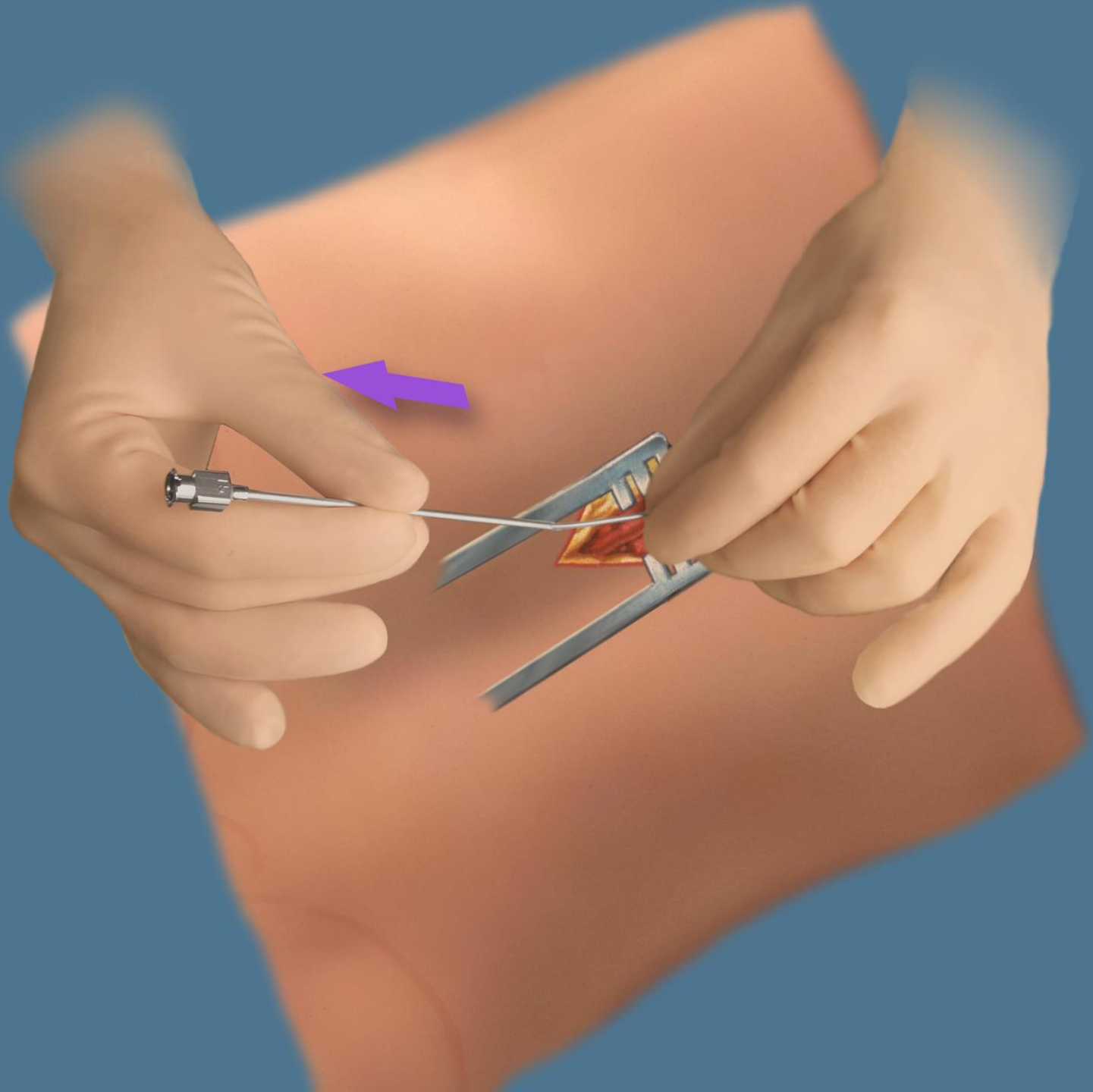
Trial fáza

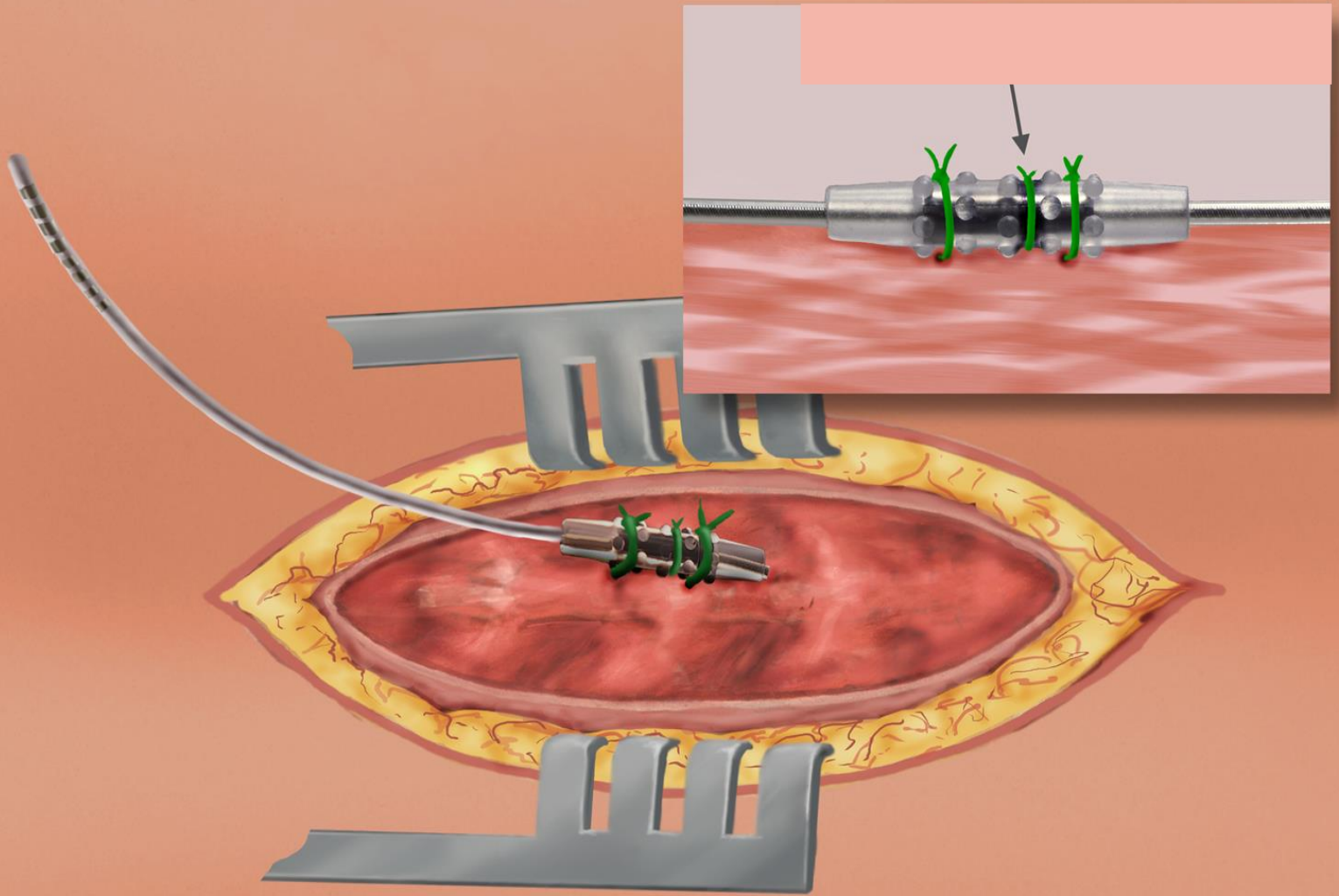
- 90-100% pokrytie
- ↓ intenzity bolesti o viac ako 70%

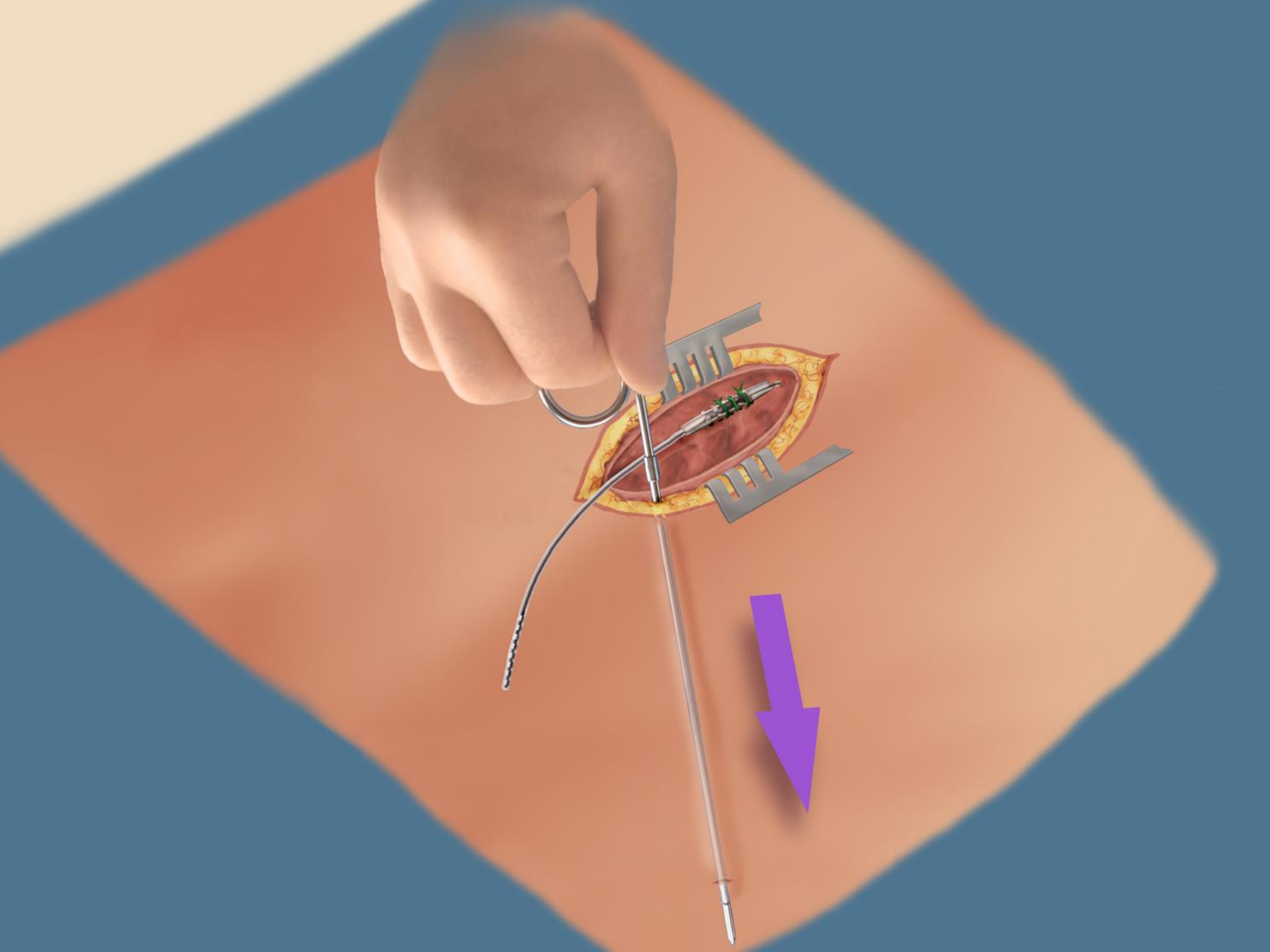


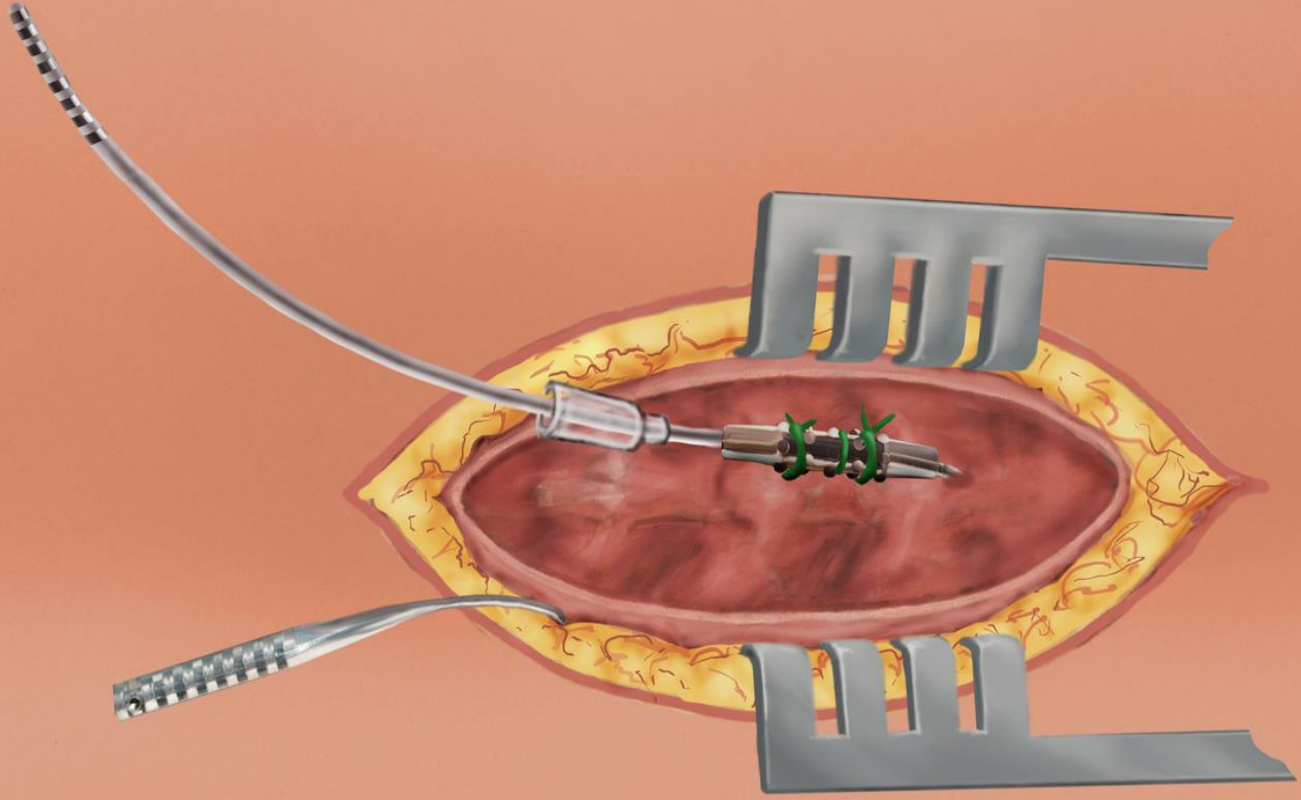
definitívne zavedenie

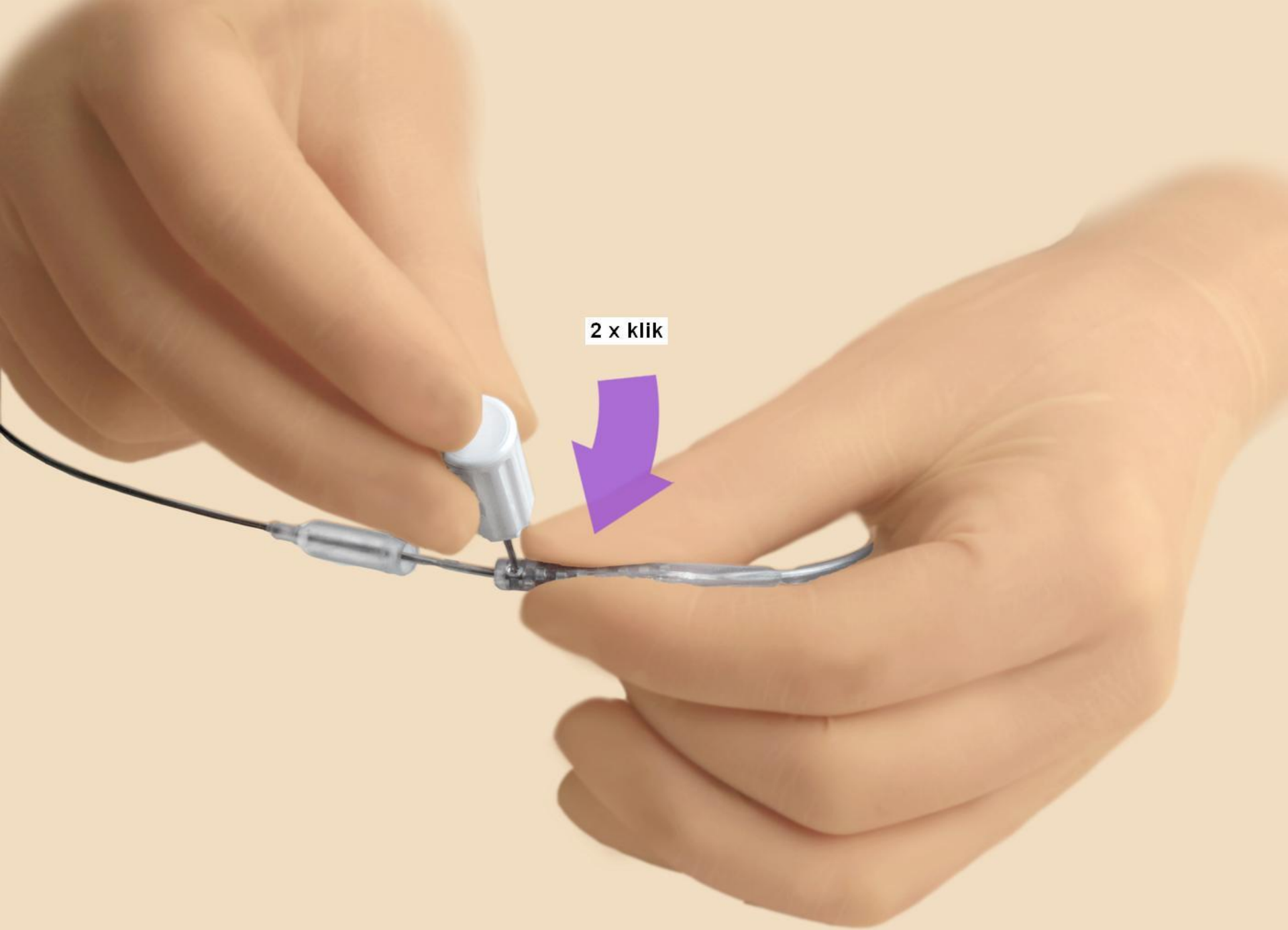




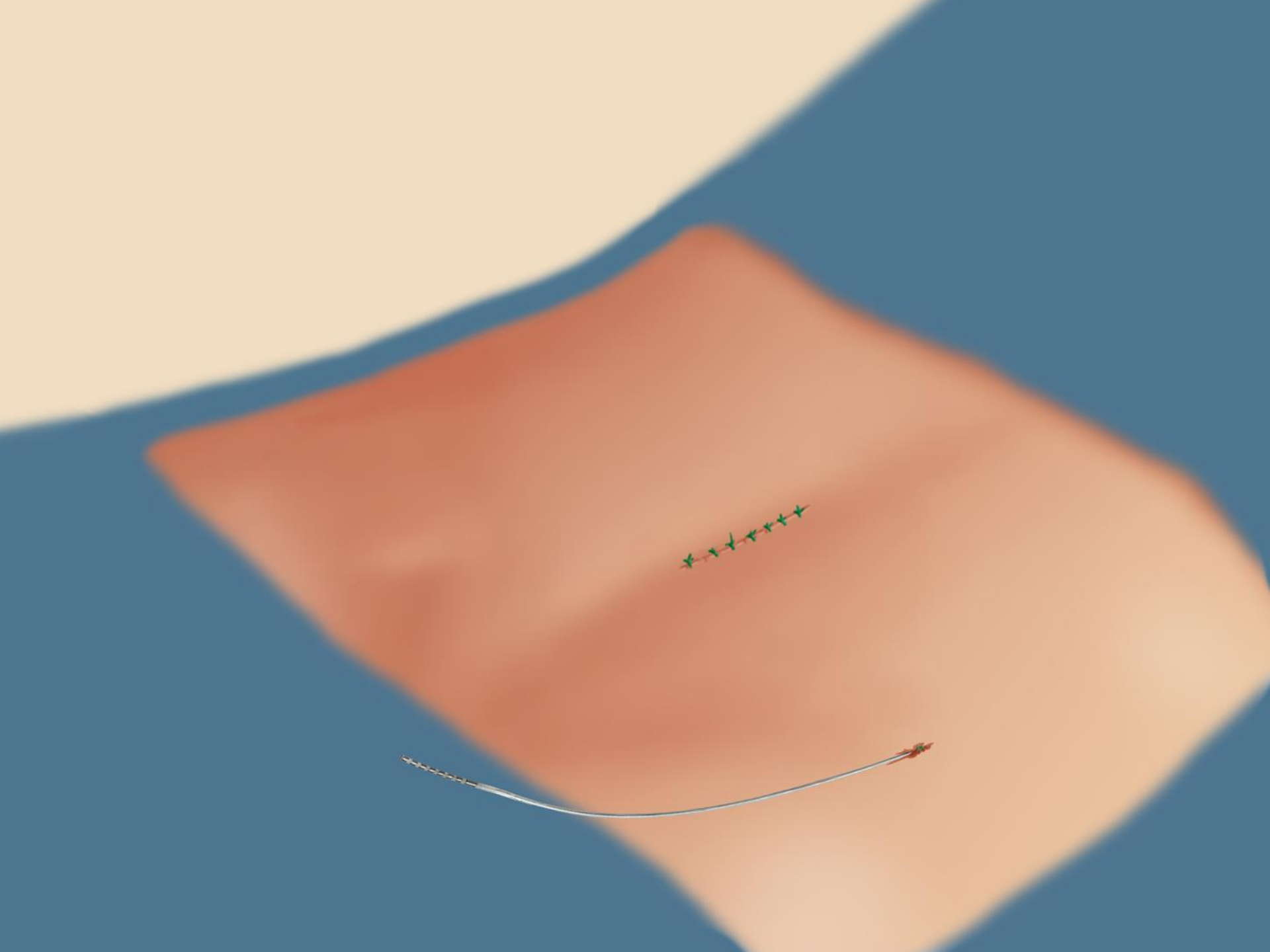


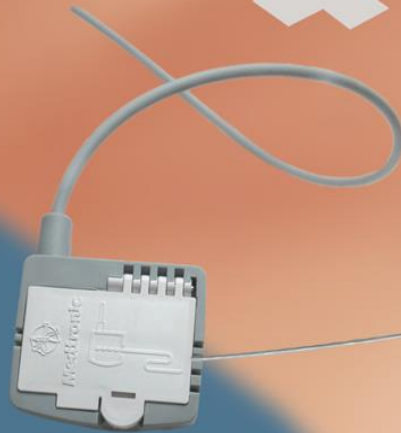
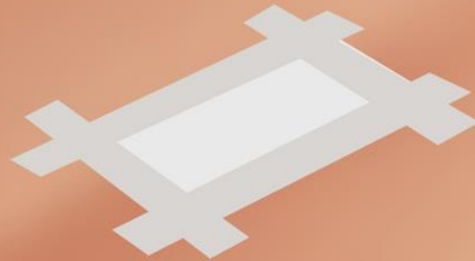




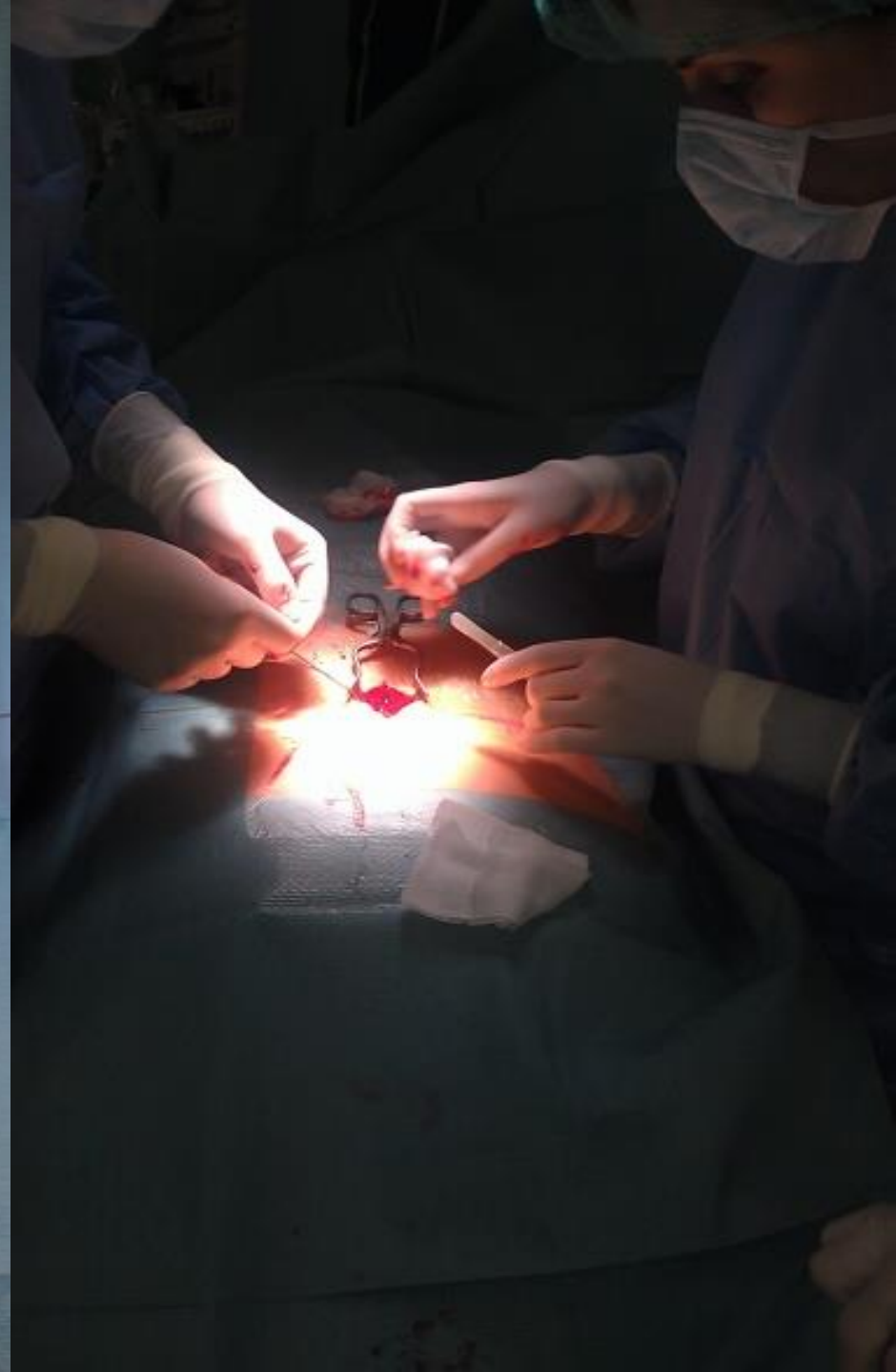
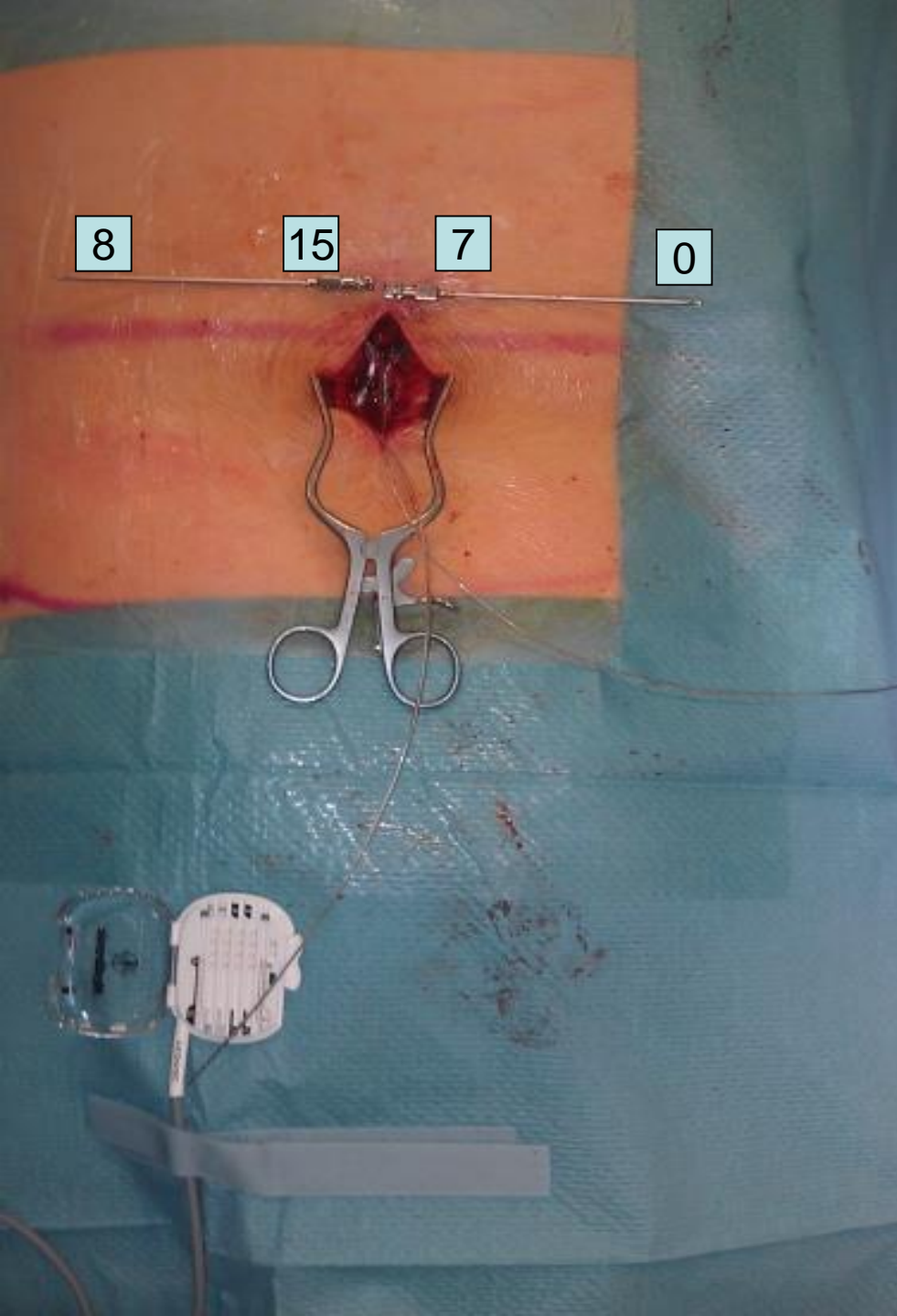


2 x klik













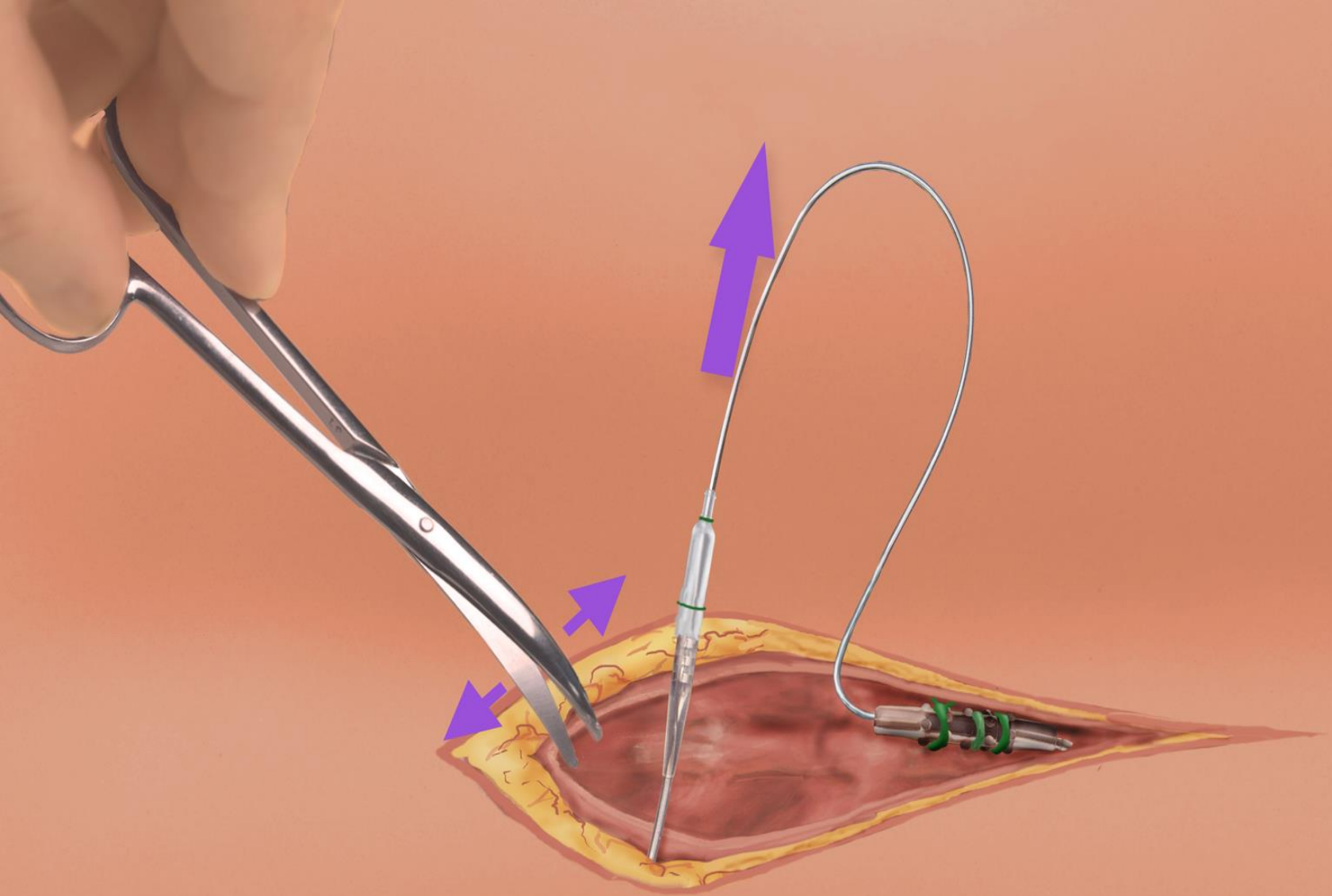
Testačná fáza

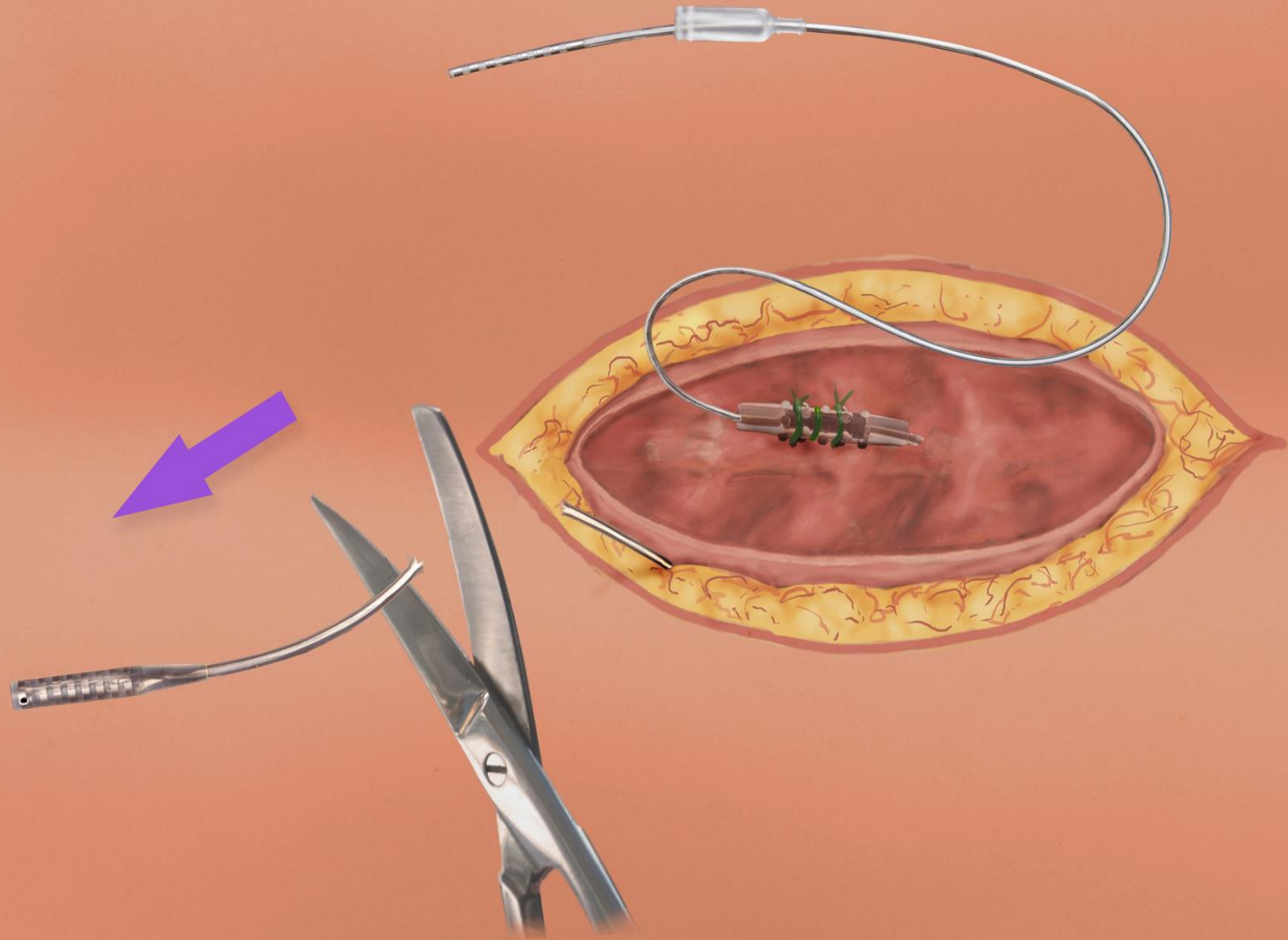
- 7 dní, hospitalizácia
- Pokrytie minimálne 80% bolestivej plochy
- Úľava bolesti o minimálne 50% (70%)
- Poststimulačný efekt

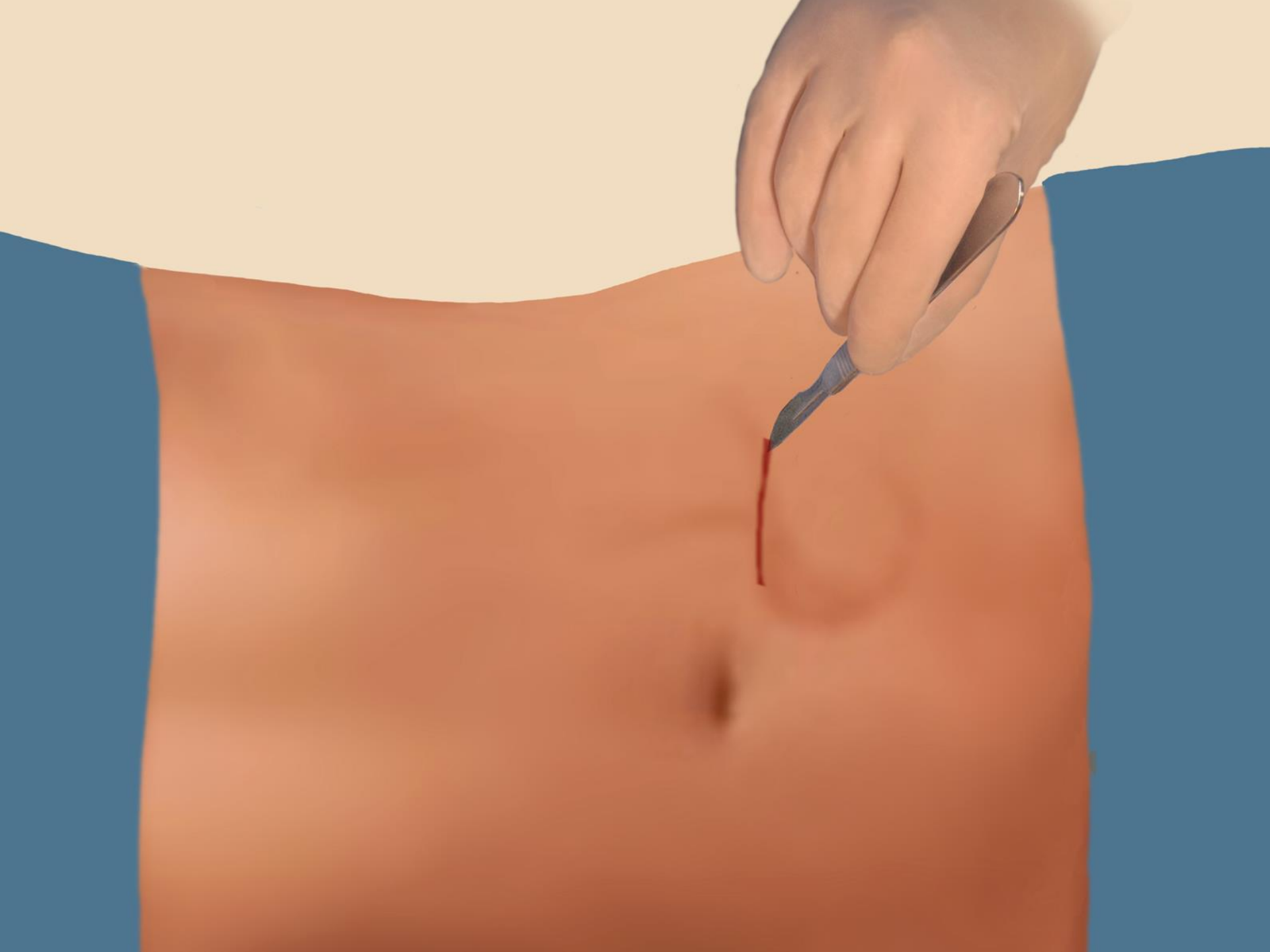
Definitívna implantácia

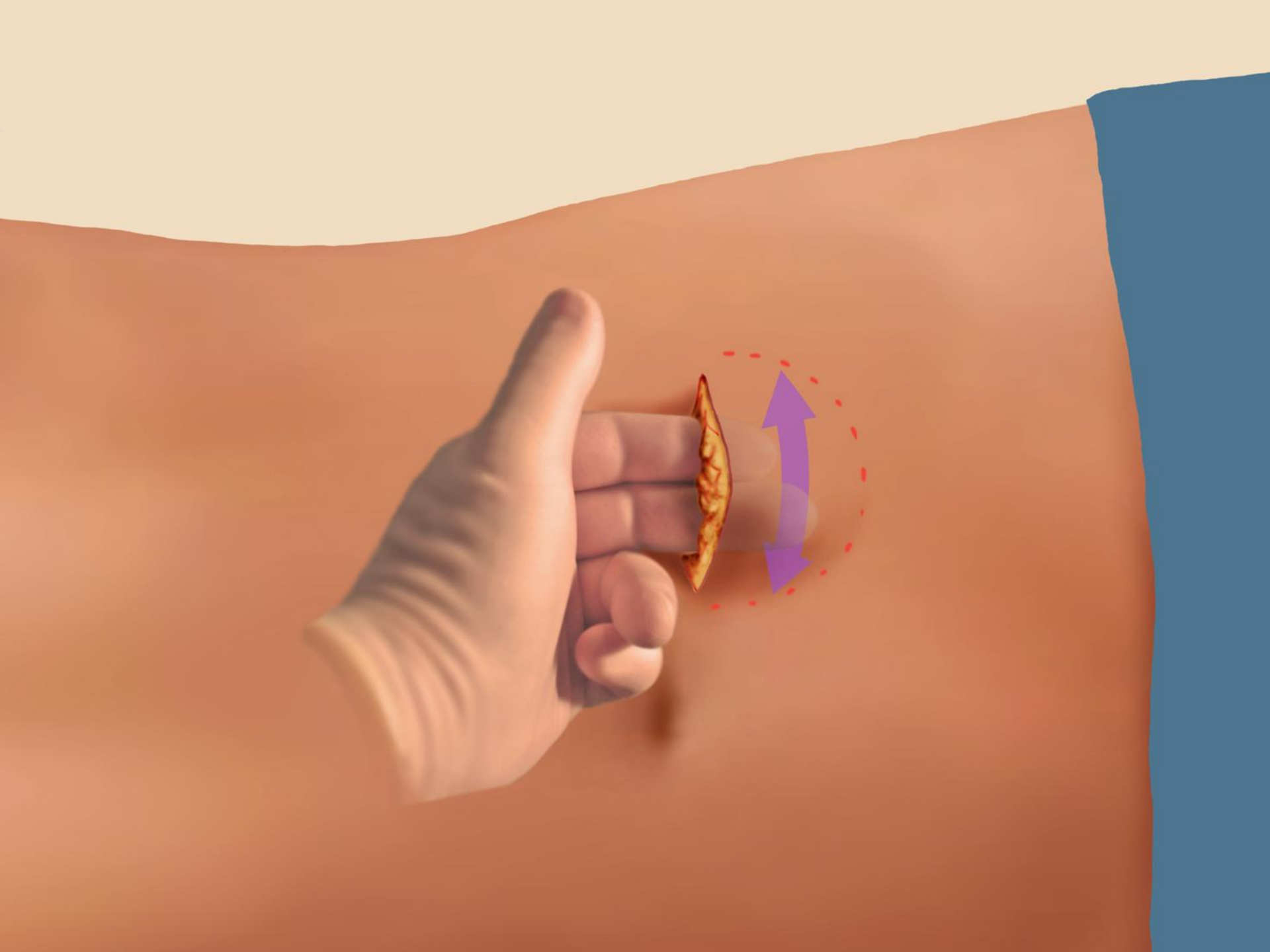
- Uloženie pulzného generátora do podkožia
- V LA (CA)

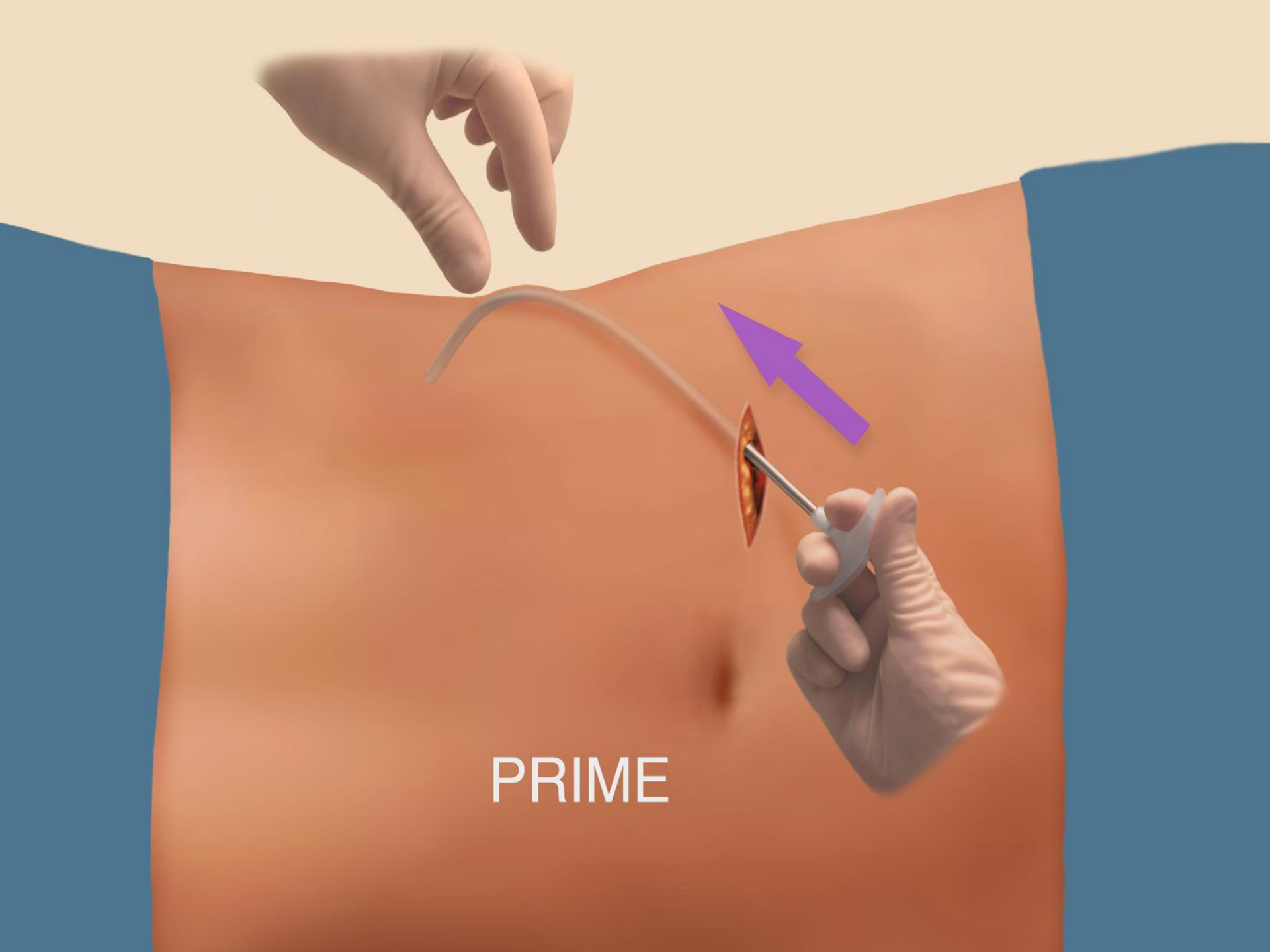




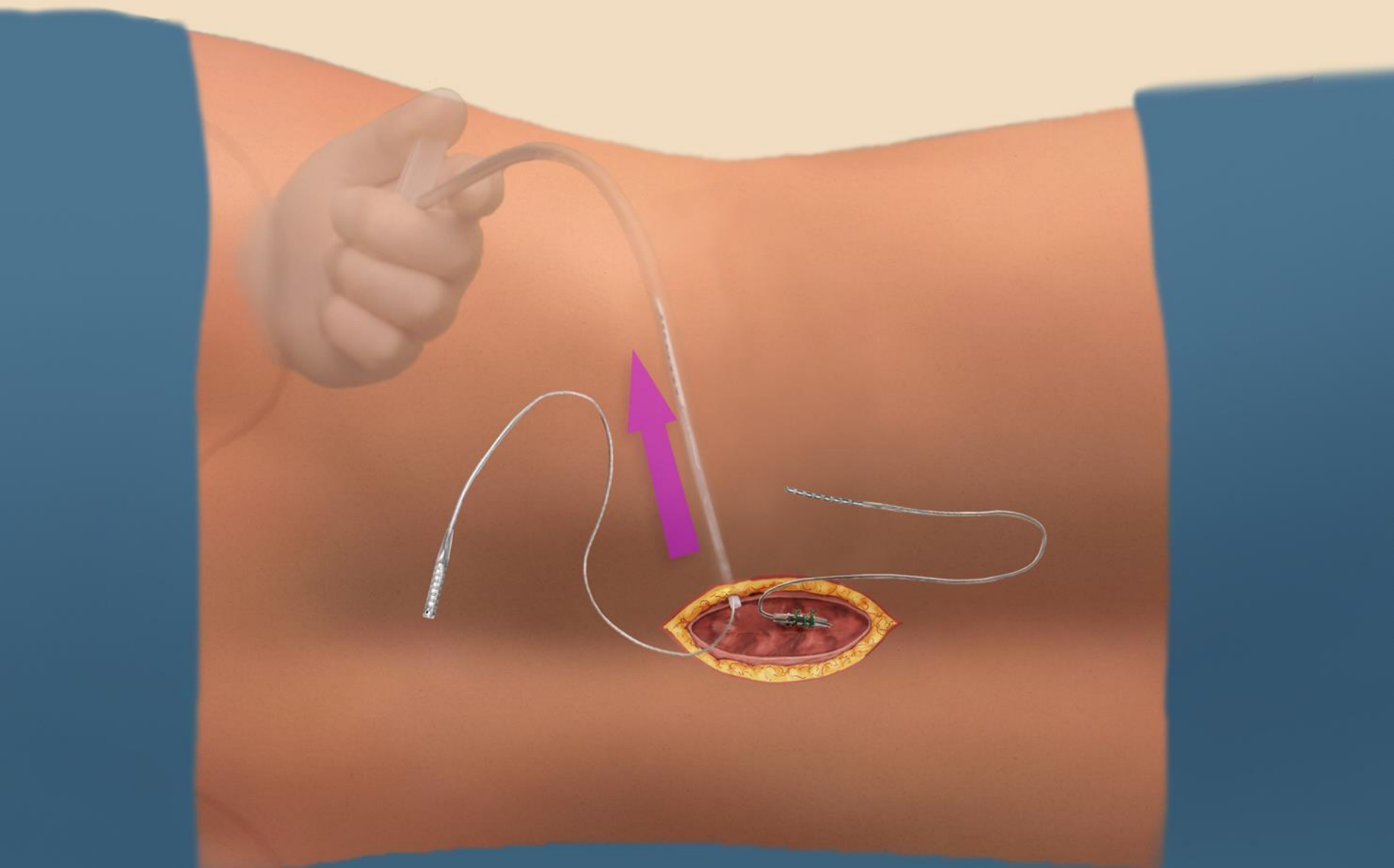




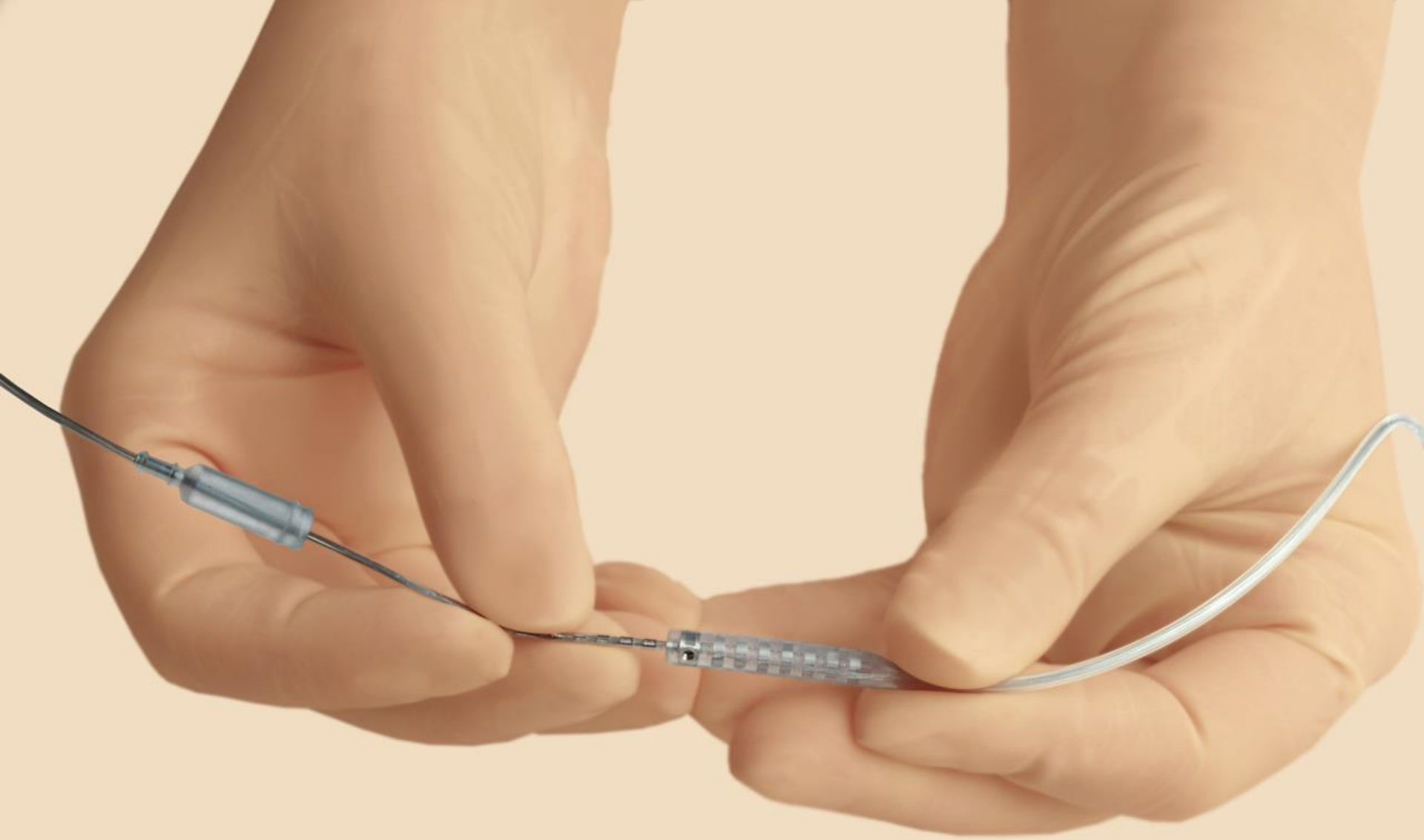




PRIME



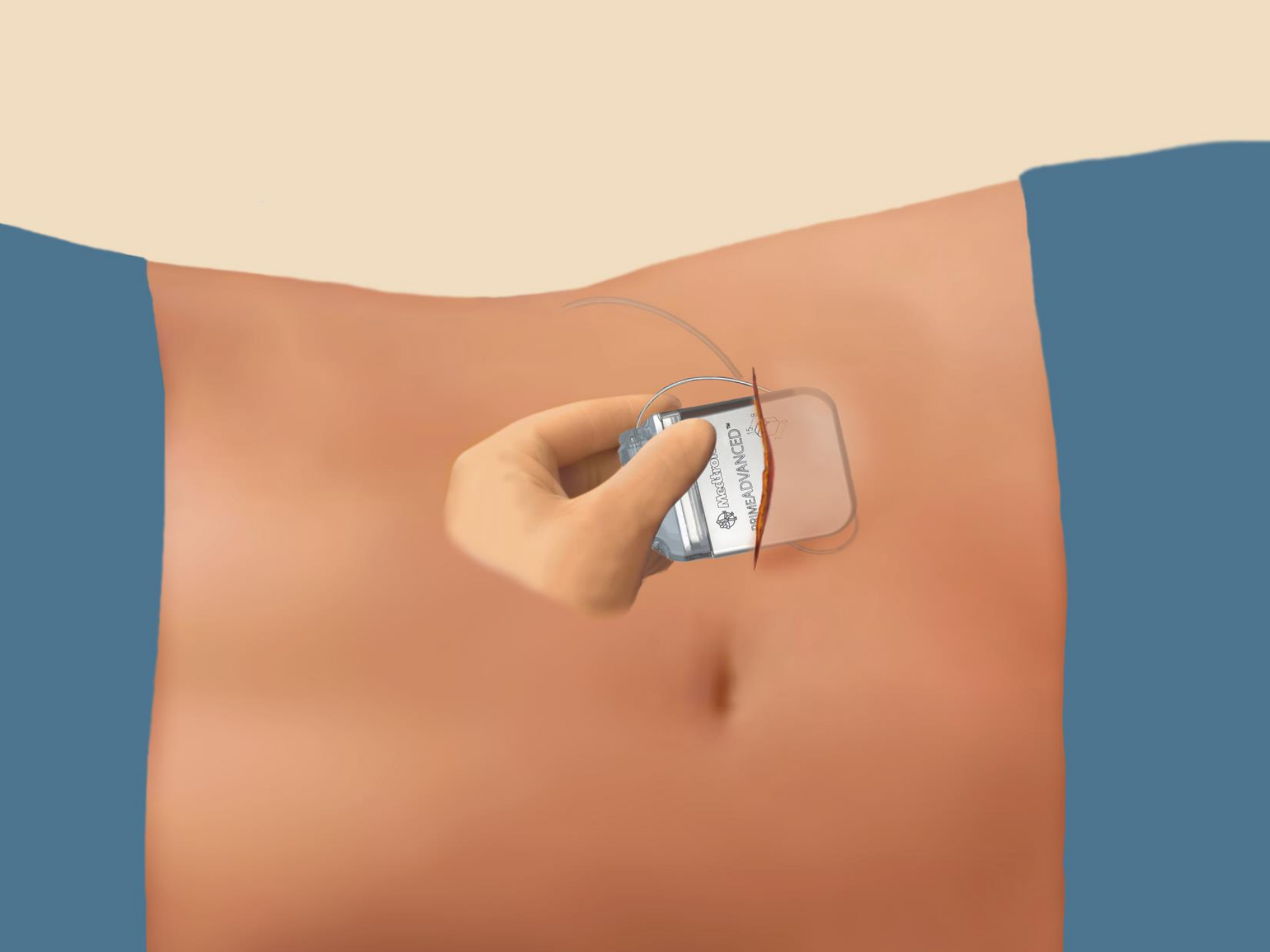
PRIME





Medtronic
PRIMEADVANCED™







26/02/2007
21:29

Synergy A
Data

Synergy on

Electrode impedance:

Amp (V) 1,5
PW (µs) 210
Rate (Hz) 30

Adjust settings

Results

5 & 6	650 Ω	63 µA
5 & 7	550 Ω	102 µA
6 & 7	650 Ω	63 µA

Therapy measurements:

Impedance (Ω)	???	???
Current (µA)	???	???

Battery Information:

Status	OK
Voltage (V)	3,25
Capacity used %	<20

