

Cancer pain Management

Dr. A.A.Baghaie

**Anesthesiologist, Pain Fellowship
Associated professor of HUMS**

عوامل مؤثر در ایجاد سرطان

مواد غذایی

برای پیشگیری از سرطان

گوچه فرنگی

چای سبز

سبزیجات برگ‌دار سبز

مصرف غلات کامل

ادویه، مانند زردچوبه

میوه و سبزیجات تازه (به خصوص ارگانیک)

مصرف منابع غذایی حاوی فولات

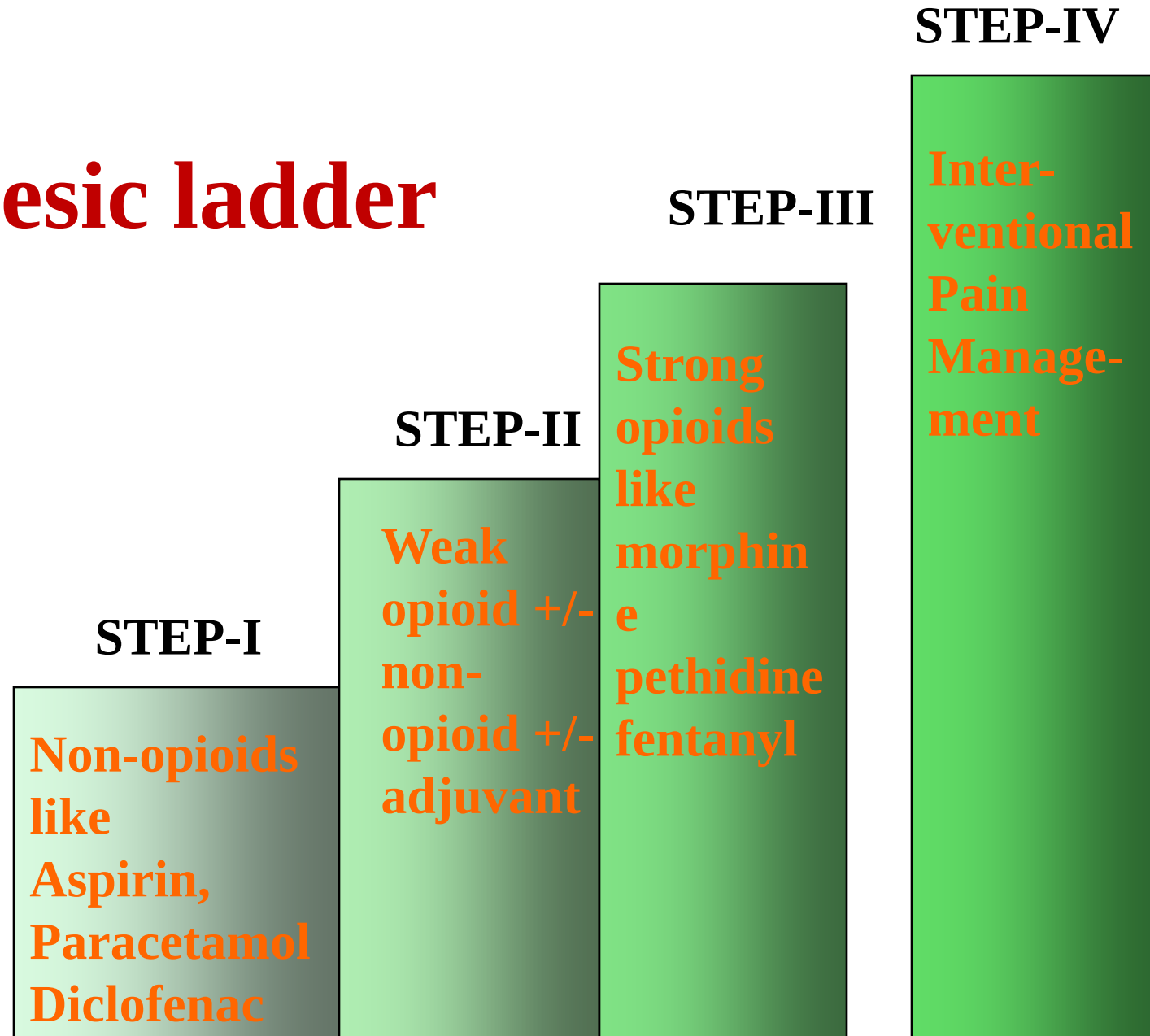


Cancer Pain

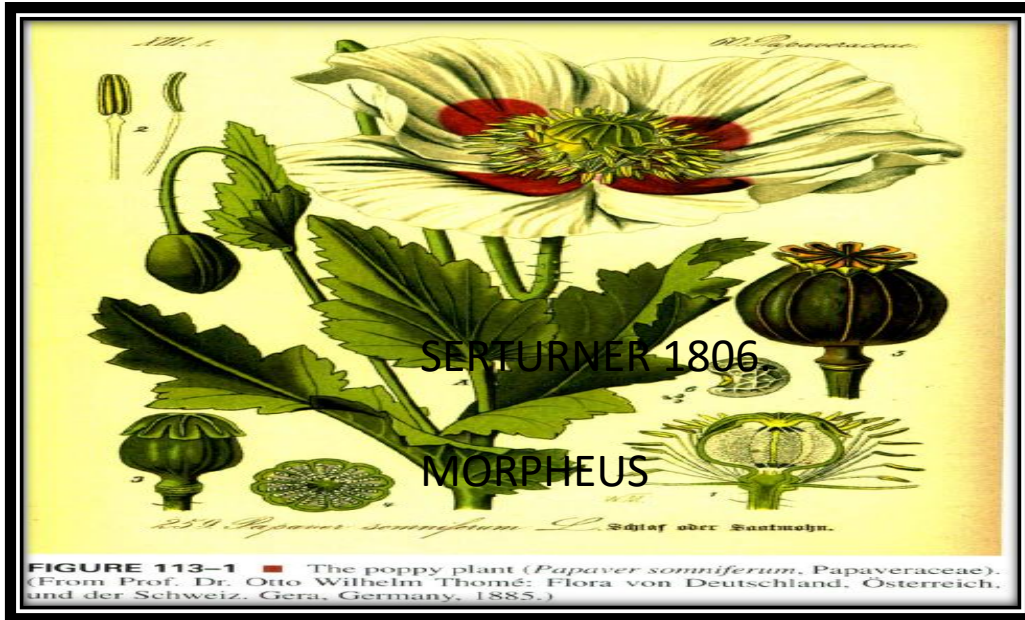
- Cancer Pain, Metastatic pain
- Pain associated with cancer therapy,
procedural, postoperative, postchemotherapy, post radiotherapy
- Pain indirectly or unrelated to cancer,
myofascial pain, PHN, Chronic headache
- One Report , 77% moderate to sever pain
- Barriers to Pain Treatment



WHO analgesic ladder



HISTORY



SERTURNER 1806.

MORPHEUS

Opioid Receptors and Their Clinical Effects

<i>Receptor</i>	<i>Effect</i>
Mu (μ)	
μ_1	Supraspinal analgesia
μ_2	Spinal analgesia
	Respiratory depression
	Slowing of gastric transit
	Pruritus, nausea, vomiting
	Most cardiovascular effects
	Physical dependence
	Euphoria
Kappa (κ)	
κ_1	Spinal analgesia
	Diuresis
	Sedation
	Miosis
κ_2	Low potential for abuse
κ_3	Supraspinal analgesia
Delta (δ)	Modulation of μ -receptor activity
	Spinal analgesia
Sigma (Σ)	No analgesia
	Dysphoria
	Hypertonia
	Respiratory and vasomotor stimulation
	Mydriasis

Narcotics: Agents that alter CNS activity, and lead to habituation, physical and psychological dependence

Cannabinoids Opioids Cocaine Barbiturates

Opioids: Drugs that bind opioid receptors and have morphine like activity

Opiates
Derivatives of Opium

Morphine
Codeine
Thebaine

Semi-synthetics
Substituted derivatives of morphine or codeine

Hydromorphone
Oxymorphone
Levorphanol

Oxycodone
Hydrocodone

Agonist/Antagonists

Nalbuphine,
Butorphanol,
Pentazocine,

Partial Agonist
Buprenorphine

Antagonists
Naloxone
Naltrexone

Synthetics
Non morphinians

Phenylpiperidines

Meperidine
Fentanyl
Sufentanil
Alfentanil
Remifentanyl

Diphenylpropylamines

Methadone
Propoxyphene
Dextromethorphan

Endogenous Opioids
Natural peptides

Enkephalin
Endorphin
Dynorphin

Complex Analgesics

Tramadol
Tapentadol

Figure 13.1: An overview of opioid compounds, including naturally occurring, semisynthetic, synthetic, and endogenous compounds.

Table 40-4 Oral and Parenteral Analgesics for Treatment of Perioperative Pain						
Agent	Route of Administration	Dose (mg)	Half-Life (hr)	Onset	Analgesic Action (hr)	Peak Duration
Opioids and Opioid Derivatives Morphine	Intravenous	2.5-15	2-3.5	0.25	0.125	2-3
	Intramuscular	10-15	3	0.3	0.5-1.5	3-4
	Oral	30-60	3	0.5-1	1-2	4
Codeine	Oral	15-60	4	0.25-1	0.5-2	3-4
Hydromorphone	Intravenous	0.2-1.0	2-3	0.2-0.25	0.25	2-3
	Intramuscular	1-4	2-3	0.3-0.5	1	2-3
	Oral	1-4	2-3	0.5-1	1	3-4
Fentanyl	Intravenous	20-50 (μg)	0.5-1	5-10 min	5 min	1-1.5
	Transmucosal*	200-1600 (μg)	2-12	0.1-0.25	0.5-1	0.25-0.5
	Transdermal	12.5-100 (μg)	20-27	12-24	20-72	72
Oxymorphone	Oral	5-10	3.3-4.5	0.5	1	2-6
	Intravenous	0.5-1	3-5	0.15	0.25	3-6
	Subcutaneous	1-1.5	3-5	0.15	0.25	3-6
	Intramuscular	1-1.5	3-5	0.15	0.25	3-6
Hydrocodone	Oral	5-7.5	2-3	30	90	3-4
Oxycodone	Oral	5	3-5	0.5	1-2	4-6
Methadone	Oral	2.5-10	3-4	0.5-1	1.5-2	4-8
Propoxyphene	Oral	32-65	12-16	0.25-1	1-2	3-6
Other Tramadol [†]	Oral	50-100	5-6	0.5-1	1-2	4-6

*Transmucosal fentanyl is most appropriately reserved for breakthrough malignant (cancer) pain.

[†]Not classified by the U.S. Food and Drug Administration (FDA) as an opioid; however, tramadol possesses naloxone partial-reversal analgesia.

Pharmacodynamic (analgesia)

Relative Potencies of Opioid Analgesics

<i>Drug</i>	<i>Relative Potency IM</i>	<i>Relative Potency PO</i>
Morphine	10	30
Hydromorphone	1.5	7.5
Meperidine	75	300
Methadone	10	12.5
Codeine	120	200
Levorphanol	2	4
Nalbuphine	10	
Oxycodone		30
Pentazocine	60	180

MORPHINE

- Gold standard.
- Hydrophilic.
- Half life 2 to 3 hours.
- Morphine -6- glucoronide more potent than the parent drug.
- Caution in renal failure.



Side effects of Oxycodone

Red color - more serious effect

Central:

- Hallucination
- Confusion
- Fainting
- Dizziness
- Loss of appetite
- Lightheadedness
- Drowsiness
- Headache
- Mood changes

Skin:

- Hives
- Rash
- Flushing
- Sweating
- Itching

Respiratory:

- Difficulty breathing
- Slowed breathing

Mouth, tongue or lips:

- Swelling
- Dryness

Eyes:

- Swelling
- Smaller pupil
- Redness

Face:

- Swelling

Throat:

- Hoarseness
- Swelling
- Difficulty swallowing

Heart:

- Fast or slow heartbeat

Muscular:

- Seizures
- Weakness

Gastric:

Central Nervous System Effects

Degrees of Tolerance that May Develop to Some of the Effects of the Opioids.		
High	Moderate	Minimal or None
Analgesia	Bradycardia	Miosis
Euphoria, dysphoria		Constipation
Mental clouding		Convulsions
Sedation		
Respiratory depression		
Antidiuresis		
Nausea and vomiting		
Cough suppression		

Opiates represent one of the four drug categories that cause more than 60% of serious adverse events in the United States (the others are anticoagulants, insulin, and antibiotics).

The Opioid Antagonists

- **Naloxone, naltrexone, and nalmefene**
- **Methylnaltrexone bromide**
- **Alvimopan**

Naloxone

- Short half-life
- not effective orally
- 0.4 to be dissolved in 10 ml NS and administer 1 to 2 ml every 1 to 2 mins.

Pharmacological Safety Profile with Renal or Hepatic Impairment

<i>Safest</i>	<i>Require Precaution (ie, dose reduction)</i>	<i>Avoid</i>
Renal impairment/failure		
Acetaminophen	Amitriptyline	Aspirin
Alfentanil	Bupivacaine	Dextropropoxyphene
Buprenorphine	Clonidine	Meperidine
Fentanyl	Gabapentin	NSAIDs
Ketamine	Hydromorphone	
Remifentanil	Levobupivacaine	
Sufentanil	Lidocaine	
	Methadone	
	Mexilitine	
	Morphine	
	Oxycodone	
	Tramadol	
Hepatic impairment/failure		
Remifentanil	Other opioids	Amitriptyline
		Carbamazepine
		Dextropropoxyphene
		Meperidine
		Valproate

SPINAL AND EPIDURAL ANALGESIA

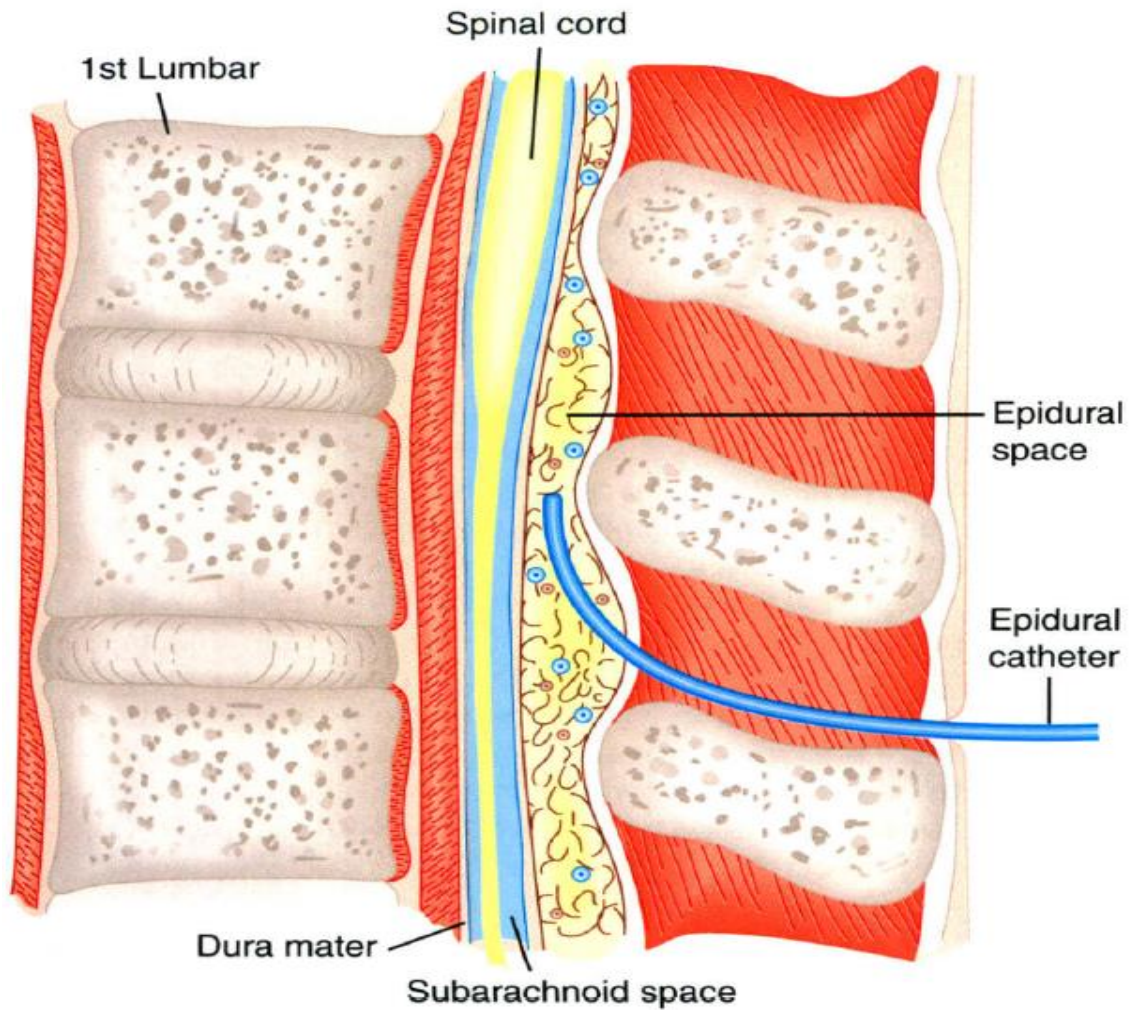
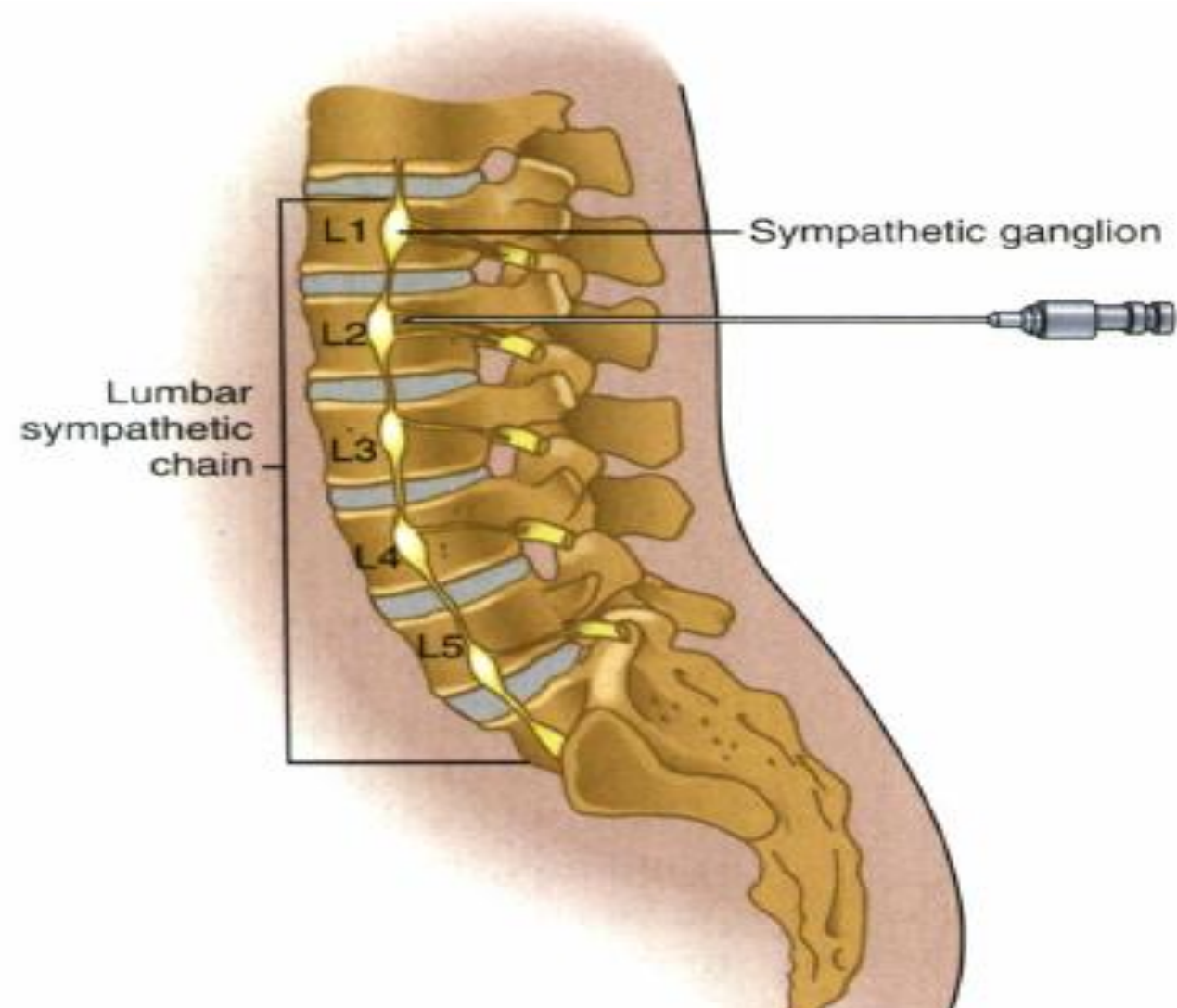
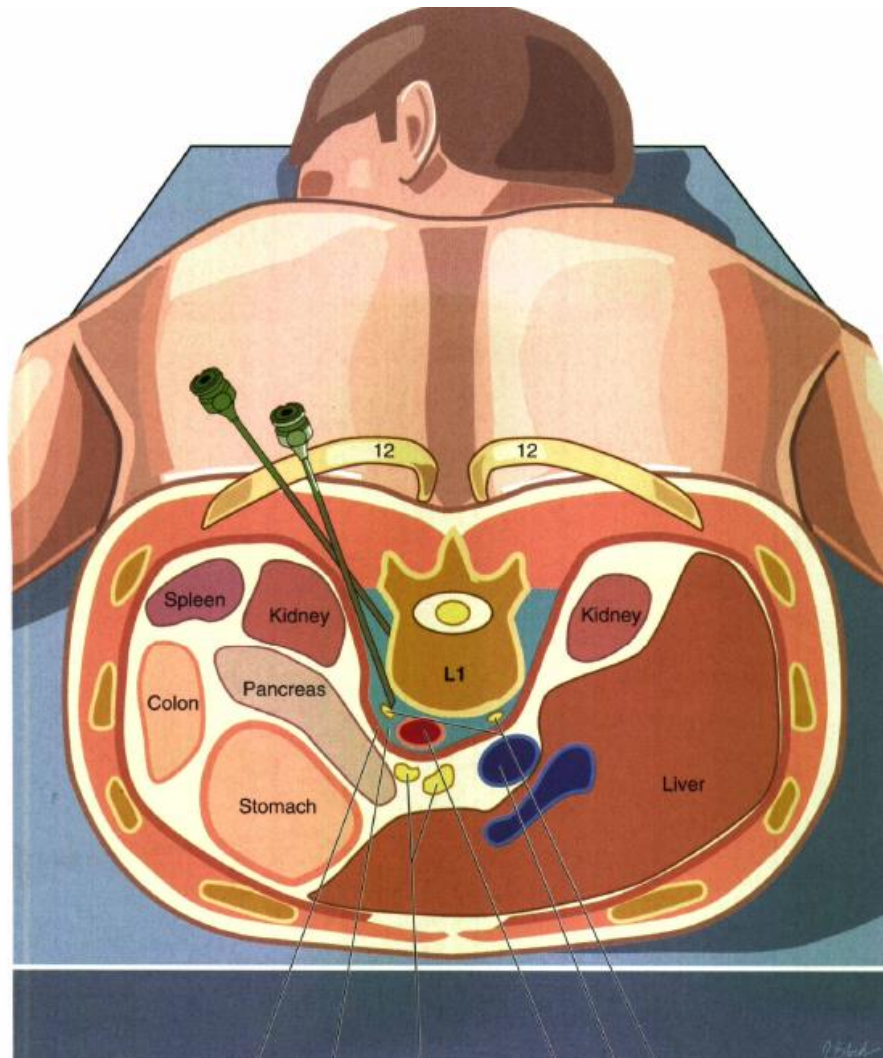


FIGURE 78.2 Drug delivery catheter in the epidural space.





Sympathetic Blocks



Local Anesthetics

- EMLA Eutectic Mixture of Lidocaine 2.5%, Prilocaine 2.5% , Xyla-P
For intact skin, need to covering, Safe in Neonate
Applied under occlusive bandage for 45-60 min (more time is better),
For Venipuncture, IV Cannulation, Skin grafting, Even Circumcision
- Ela Max Liposomal lidocaine 4-5%, Only Lidocaine , No need to covering
- Numby stuff Iontocaine (Lidocaine 2%+ Epinephrine), Iontophoresis
- S- Caine (Synera) Lidocaine and Tetracaine with heating element

NDC 0406-9025-76

Five (25mcg/hr) Systems

FENTANYL TRANSDERMAL SYSTEM

Rx only 25mcg/hr

In vivo delivery of 25mcg/hr fentanyl for 72 hours

Because it can cause trouble breathing which can be fatal,
DO NOT USE FENTANYL TRANSDERMAL SYSTEM:

- For short term or any post-operative pain, or occasional pain
- For mild pain or pain that can be treated with non-opioid or as-needed opioid medication
- Unless you have been using other narcotic opioid medicines (must be opioid tolerant)

Each transdermal system contains: 2.75mg fentanyl

DO NOT USE IF SEAL ON POUCH IS BROKEN

KEEP OUT OF REACH OF CHILDREN

Read enclosed fentanyl transdermal system Medication Guide for important safety information.

C II

ONLY for pain requiring
opioid medicine
around-the-
clock

Mallinckrodt

© 2014 GS



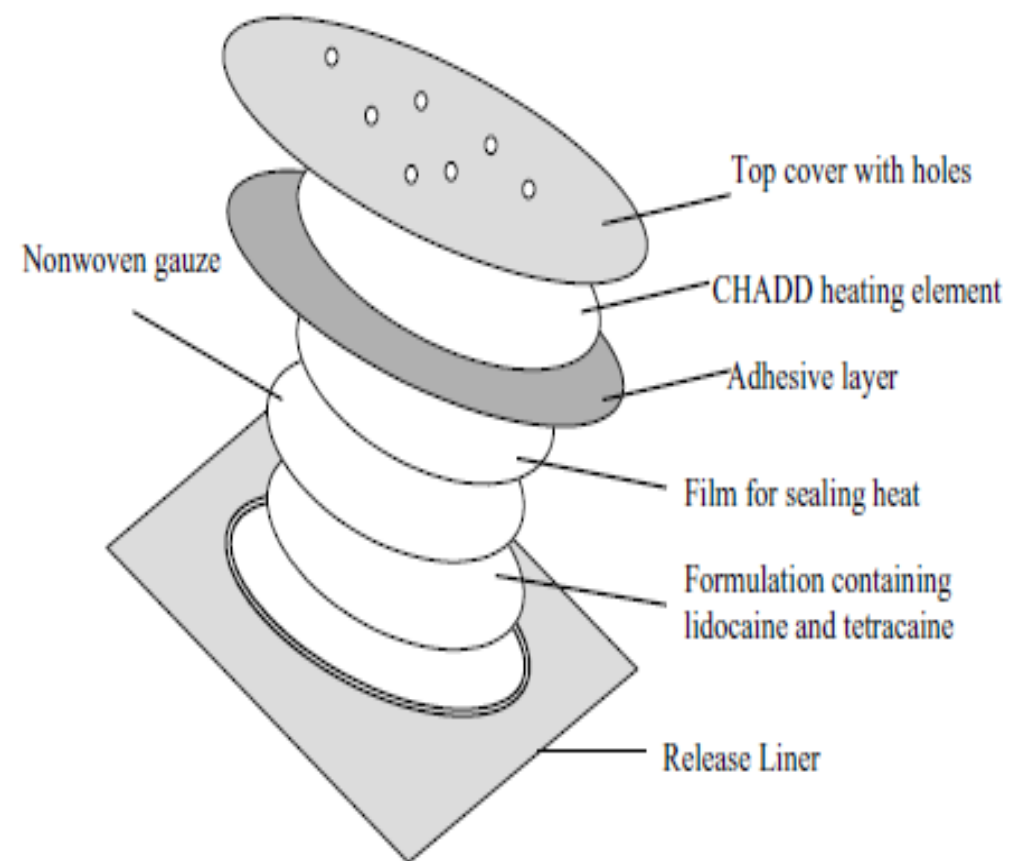


Figure 1 Illustration of Synera patch.

Adjuvant Agents

- Nitroglycerin (Rective) Oint 10.4% , Oint 2%, Transdermal Nitro-dur, Nitrodisc, TransdermNitro
Indication for Rotator cuff injury, Varicose vein, NSAIDs intolerance
Gel 2 cm of skin , 4-8 time per day
Disc for 12-16 h per day
Side effects Palpitation, Headache, Flushing
- Systemic Granulocyte colony stimulating factor (Exogenous G-CSF)
- Anti Tumor necrotizing factor- α
- Zinc Oxide Oint 10% for First degree Burn, Eczema
- Triadent oral paste Paste, Triamcinolone 0.1%
- Ethyl Chloride Spray for Biopsy needling

NDC-0885-3719-08

Contents: 1 unit

Nitro-Dur[®] (nitroglycerin)

Transdermal Infusion System

0.2 mg/hr
(10 cm²)

Each 10 cm² unit contains 40 mg of nitroglycerin.
Approximate total release in vivo 0.2 mg/hr.

Caution: Federal law prohibits dispensing without prescription.

AEN

Alcon
Pharmaceuticals, Inc.
Fort Worth, TX





Увеличить

Non pharmacological treatment

Education (understanding of the condition)

Distraction such as talking, singing, praying, describing photographs,
listening to music and playing games, counting, bubble blowing

Cutaneous stimulation

Laser Therapy

Homeopathy

Acupuncture

Bio feedback

Hypnosis

Imagery

Relaxation

Cognitive and behavioral techniques

Complementary and Alternative Medicine

- Traditional Alternative Medicine
 - Acupuncture
 - Ayurveda
 - Homeopathy
 - Naturopathy
 - Chinese/Oriental
- Mind-Body Interventions
 - Cognitive Behavioral Therapy
 - Meditation
 - Biofeedback
 - Hypnosis
 - Prayer
 - Art, Music, Dance
- Biologically Based Therapies
 - Dietary Supplements
 - Herbal Medicine
- Manipulative and Body-Based Methods
 - Chiropractics
 - Massage
- Energy Therapies
 - Electromagnetic Therapy

Acupuncture
(moxa)



Tuina/Shiatsu



Herbal Formulas/ Rx
(Dietary Recommendations)



Qigong/TaiJi



- Connection between nature and human being
- Natural ecosystems require balance
- The health of the human body depends on balance within it's systems as well.



Transcutaneous Electrical Nerve Stimulation TENS



L A S E R

Light

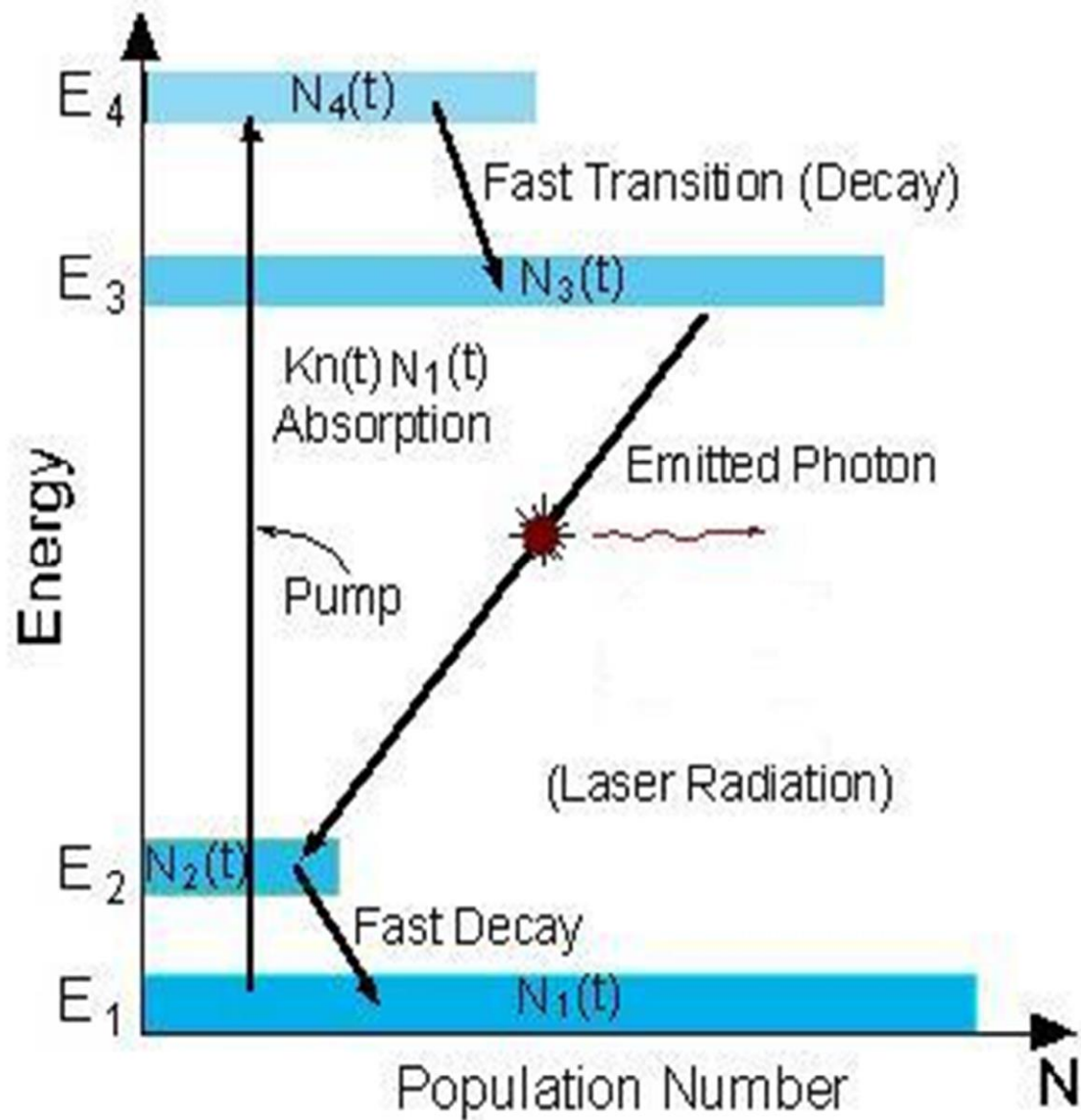
Amplification

by the **S**timulated

Emission

of **R**adiation





Energy level diagram in a four level laser

CHARACTERISTICS OF LASER LIGHT

What is different with normal light?

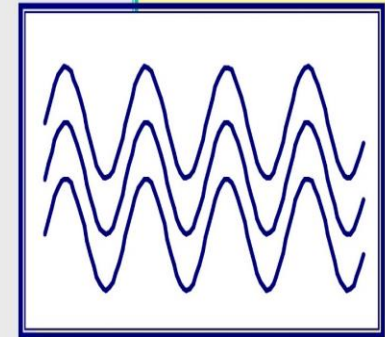
MONOCHROMATIC

DIRECTIONAL

COHERENT

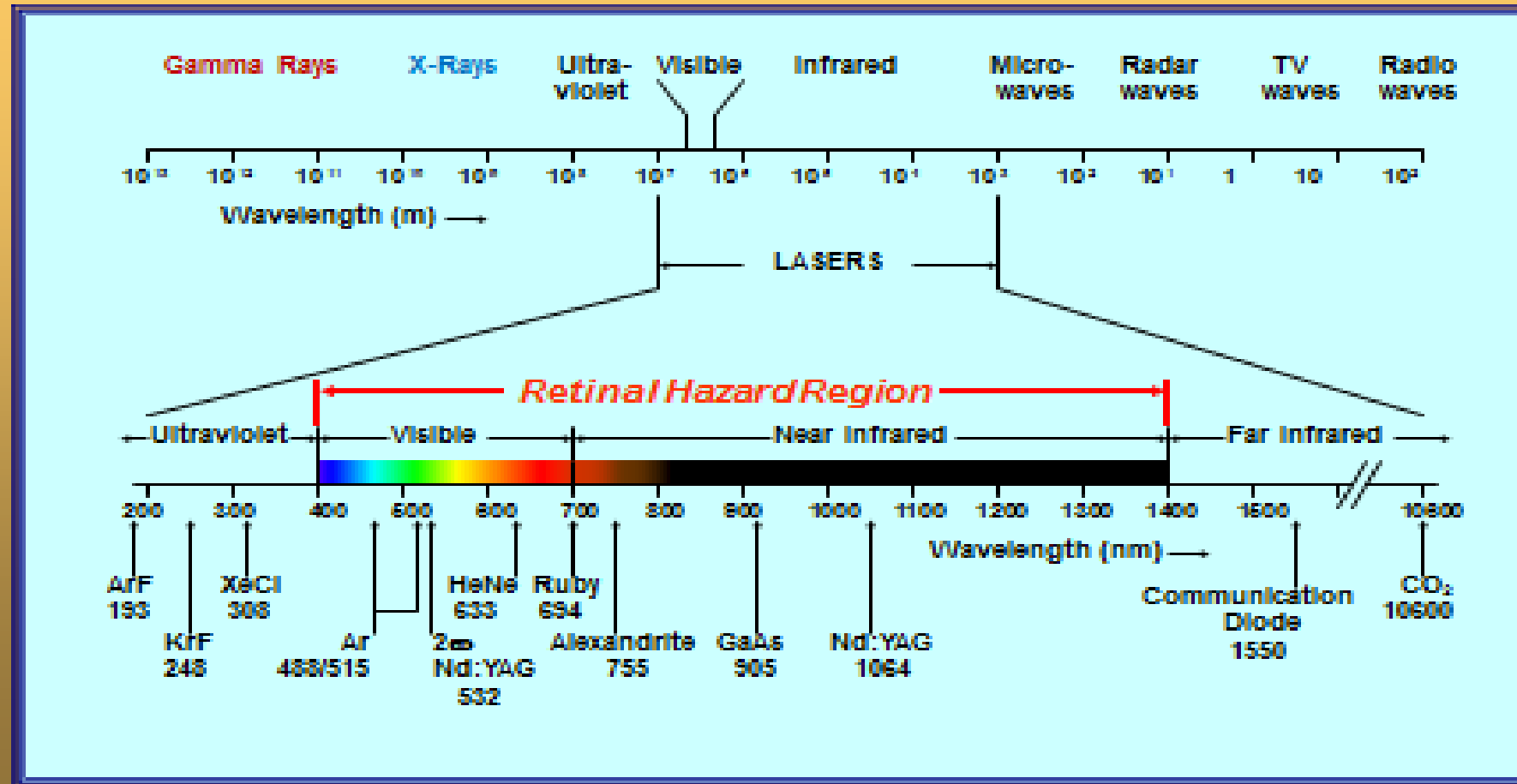
Collimated

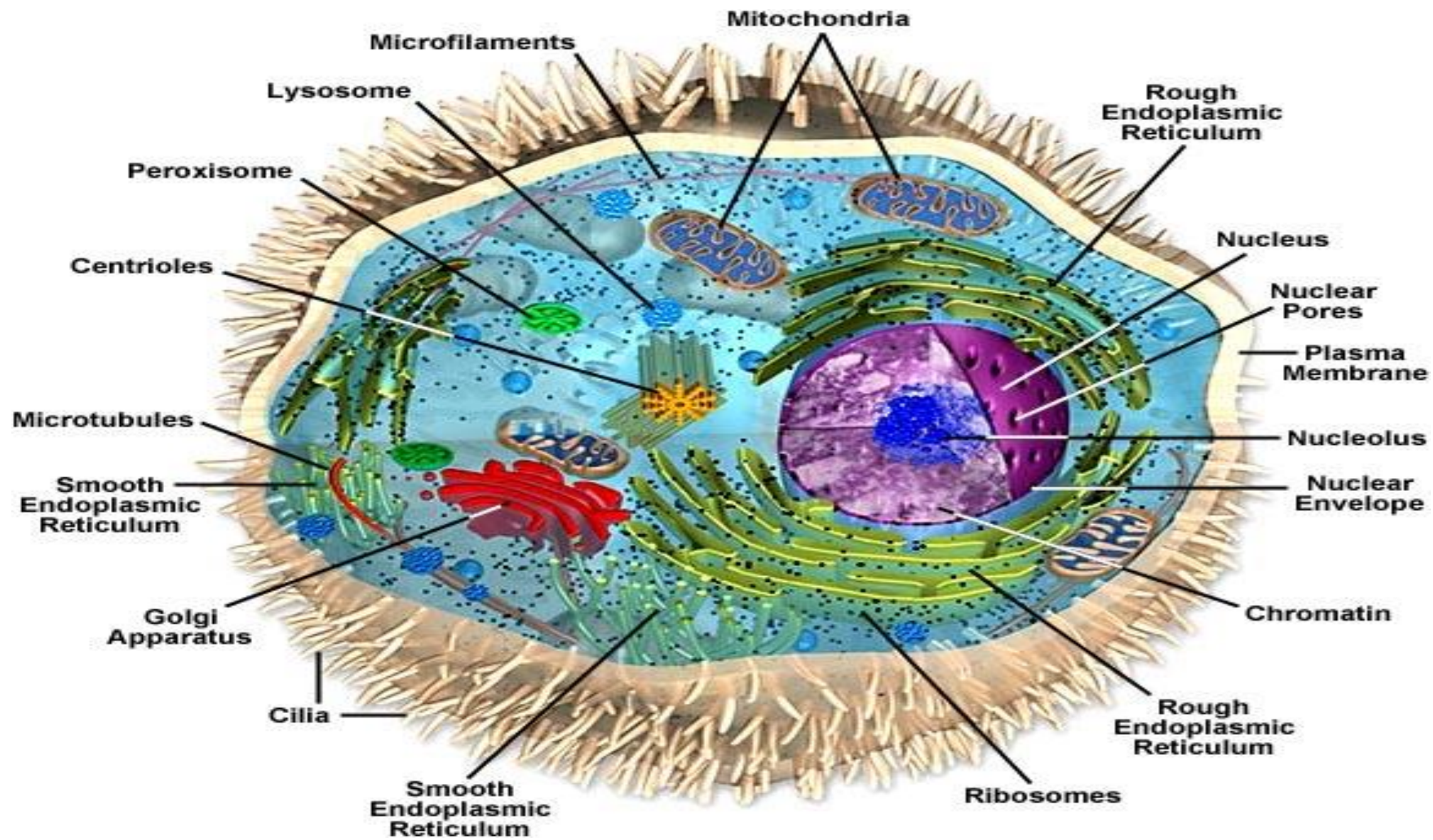
Low divergency

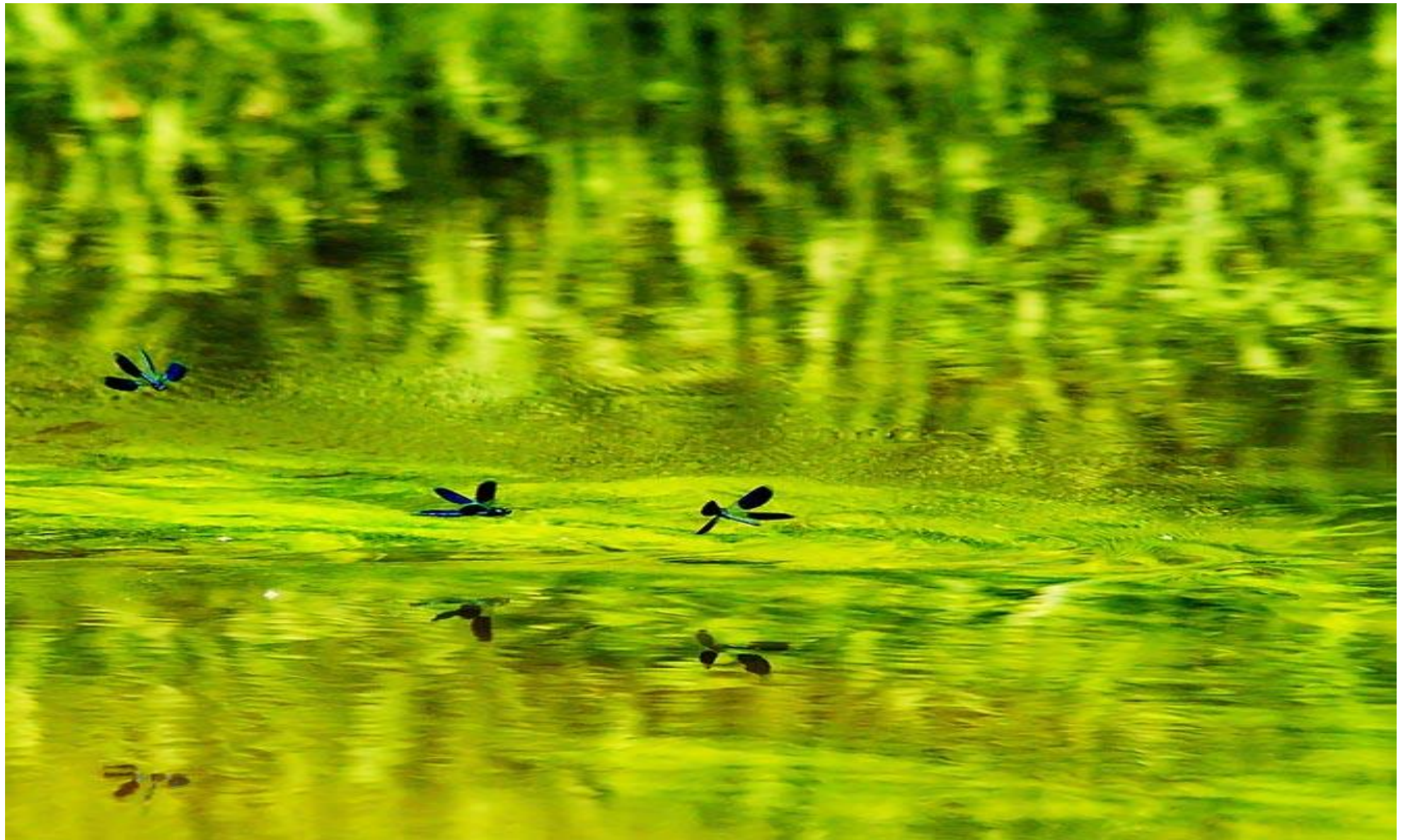


The combination of these three properties makes laser light focus 100 times better than ordinary light (high intensity)

LASER SPECTRUM







Pain Management with Acupuncture



Safety



- The FDA approved acupuncture needles for use in 1996.
- The FDA requires that sterile, nontoxic needles be used and disposed of after use.
- Few complications have been reported to the FDA.

The World Health Organization and FDA have approved acupuncture to treat the following conditions:

Allergies

Arthritis

Asthma

Angina pectoris

Back pain

Bursitis

Chronic pain

Constipation

Diabetes

Endometriosis

Fibroids

Gynecological problems

Hypertension

IBS

Infertility

Insomnia

Menopausal symptoms

Muscle spasms

Nausea and vomit

Neuralgia

Stress

Smoking cessation

Sea Sickness

Weight control



LI-4

Location

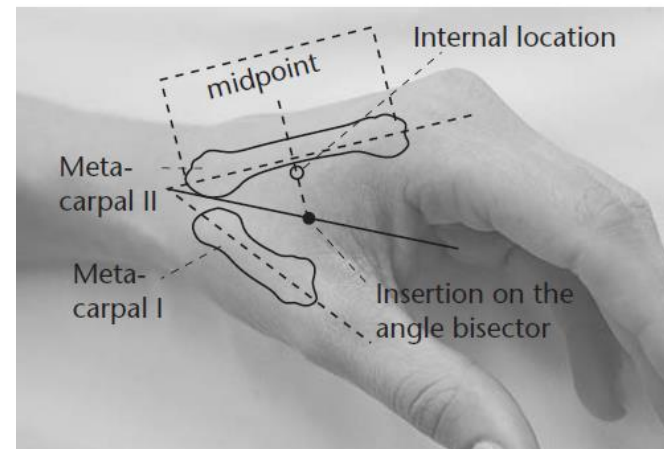
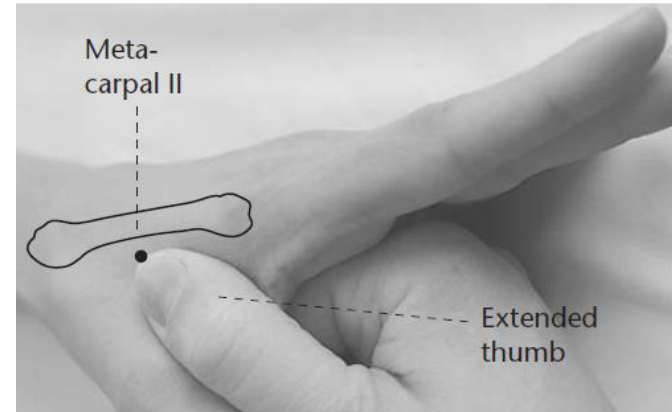
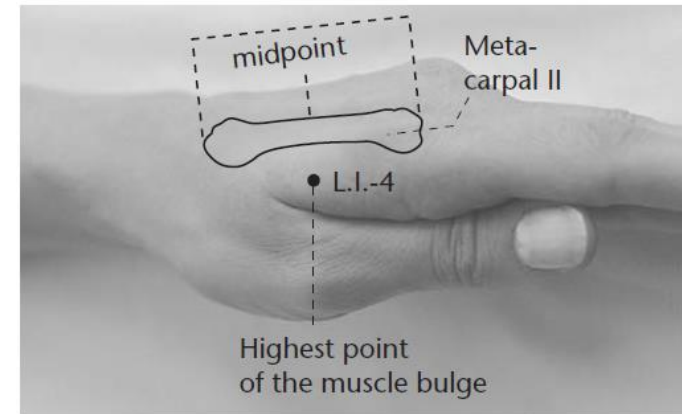
On the radial aspect of the hand, between the 1st and 2nd metacarpal bones, closer to the 2nd metacarpal bone and approximately at its midpoint.

How to find

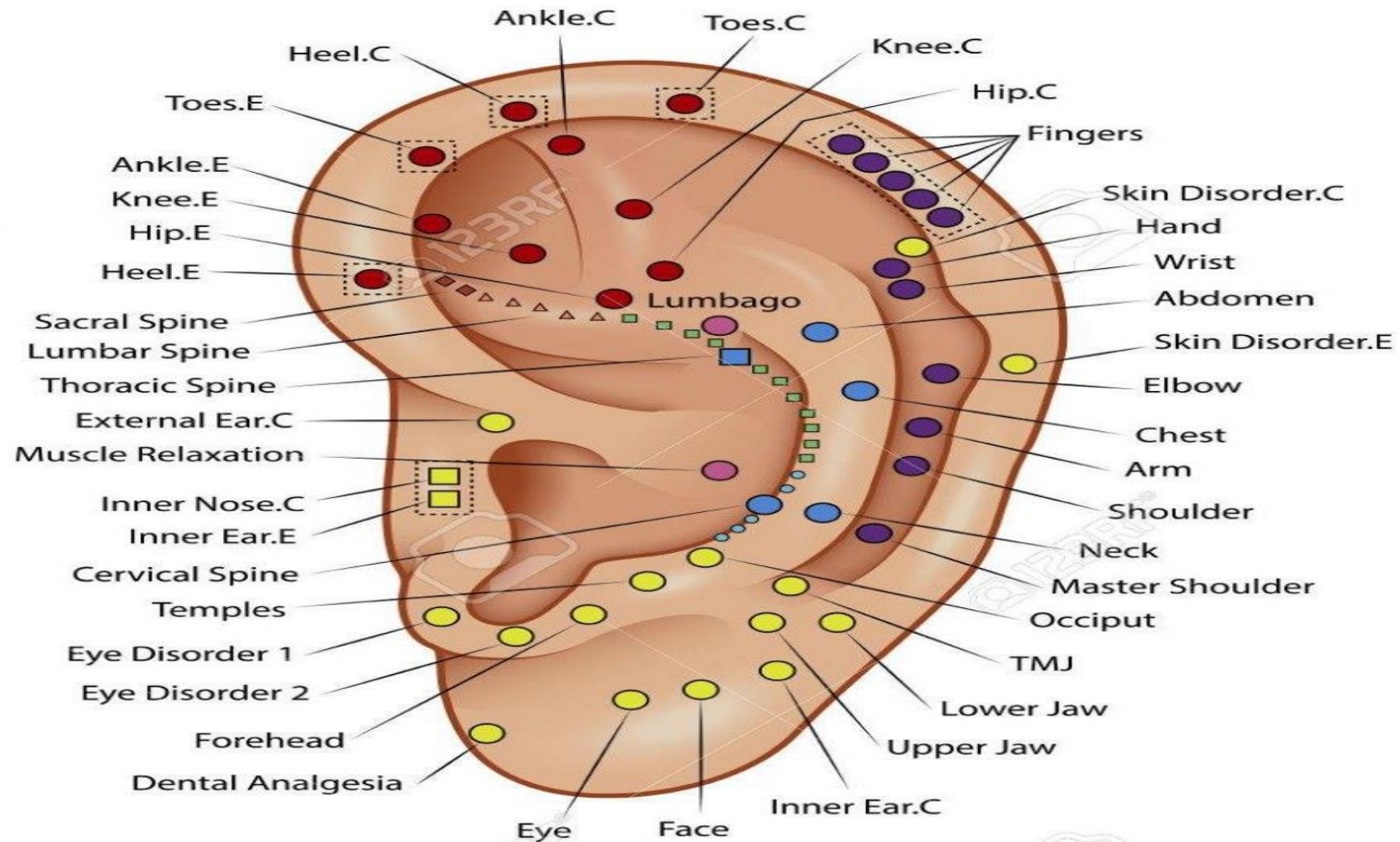
When pressing the thumb and index finger together, the adductor pollicis and the interosseus dorsalis muscles will form a bulge. Needle **L.I.-4** at the highest point of the bulge and push it further towards the inferior aspect of the second metacarpal bone. **Or:** Spread the thumb and forefinger and place the distal phalanx of the thumb of the other hand on the webbed border. When flexing the thumb, its tip will point to **L.I.-4**. **Or:** Insertion on the angle bisector between the 1st and 2nd metacarpal bones, needling in the direction of the midpoint of the second metacarpal bone.

Needling

0.5–1 cun vertically or slightly obliquely towards the palmar aspect of the hand. Caution: Reducing needle techniques are contraindicated during pregnancy; exception: to induce labour.



Auricular Therapy Reflex



关 OFF



开 ON

电源 POWER

805-D



电针仪

ELECTRIC ACUPUNCTURE UNIT

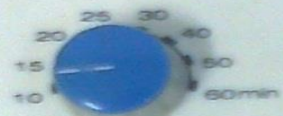


毫针
ML-NEEDLE



皮肤
SKIN

治疗方式
TREATMENT MODE



定时 TIMER

断续
D-D



波形 WAVEFORM



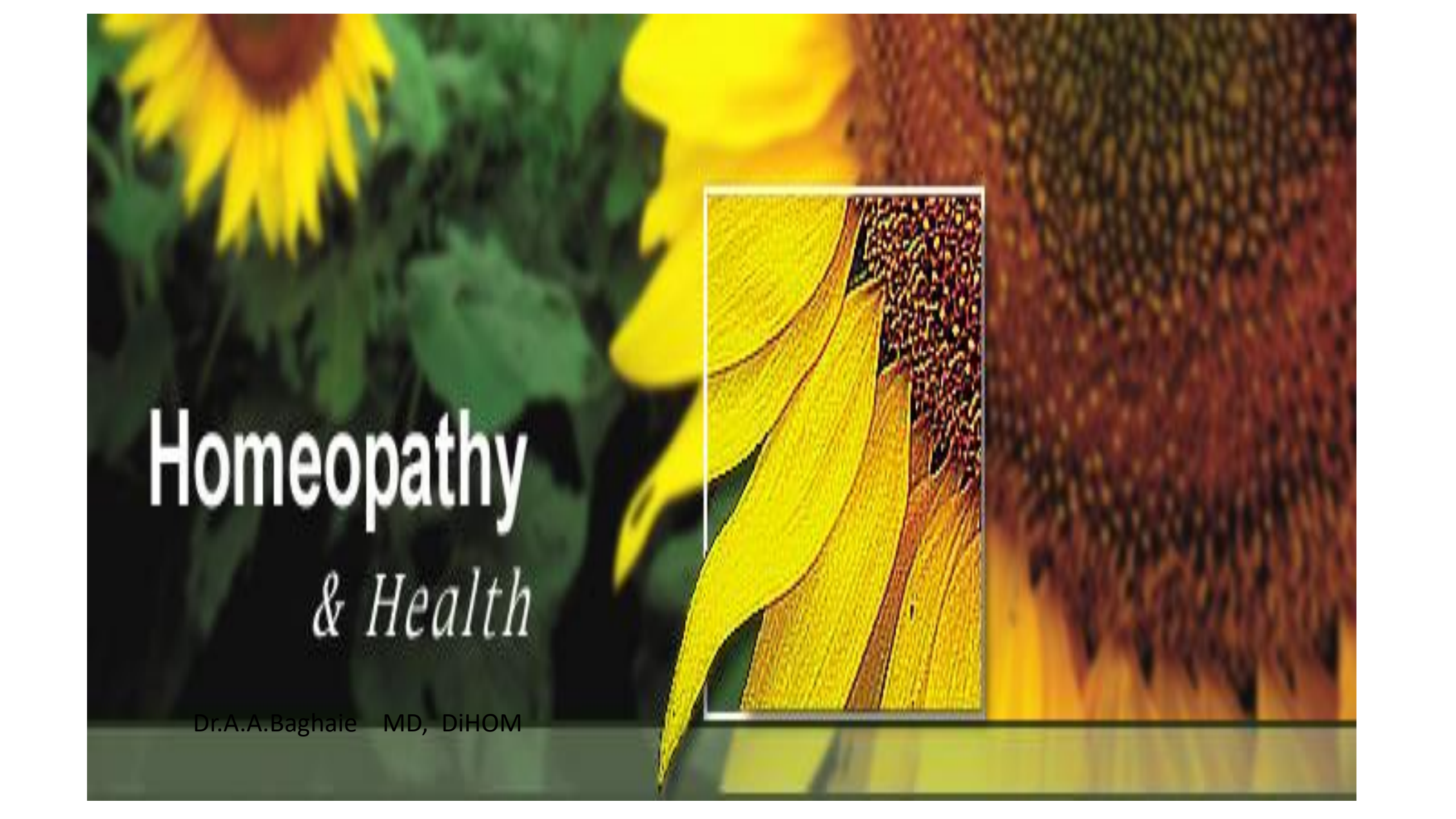
频率 FREQUENCY



输出回零指示
OUTPUT TO '0' INDICATED

输出 OUTPUT 10-P
2500 0-12V 5000 0-25V





Homeopathy & Health

Dr.A.A.Baghaie MD, DiHOM

اصول هومیوپاتی چیست؟

Medico | News

قانون مشابهت‌ها: مواد طبیعی (گیاهان، مواد معدنی، حیوانات) که در دوزهای بالا می‌توانند علائم بیماری ایجاد کنند، در دوزهای بسیار رقیق شده می‌توانند همان علائم را درمان کنند.

رقت و تکثیر: داروهای هومیوپاتی به صورت شدید رقیق شده در آب یا الکل تولید می‌شوند تا انرژی و اطلاعات خاصی را از ماده اولیه به بدن منتقل کنند. این رقیق‌سازی به حدی است که در بسیاری از موارد، چیزی جز مولکول‌های آب یا الکل باقی نمی‌ماند، اما طرفداران هومیوپاتی معتقدند که "انرژی" دارو همچنان مؤثر است.

****بنابراین، هومیوپاتی به جای استفاده از مواد شیمیایی قوی، به بدن فرصت می‌دهد تا به‌طور طبیعی به تعادل برسد**

Principles of Homeopathy

- Whole body Systems- Holism
- Individualization
- Similar principle
- Proven remedies
- Potentate remedies
- Infinitesimal doses
- Single remedies



Chiropractic



Hydrotherapy



Yoga Poses For Back Pain



The Great Seal Pose



One legged King Pigeon



Butterfly Pose



The Half lord of Fishes



The upward facing Dog

Virtual reality

Technology that isolates the patient from the real world ,
letting his vision
only in contact with
a three dimensional virtual environment

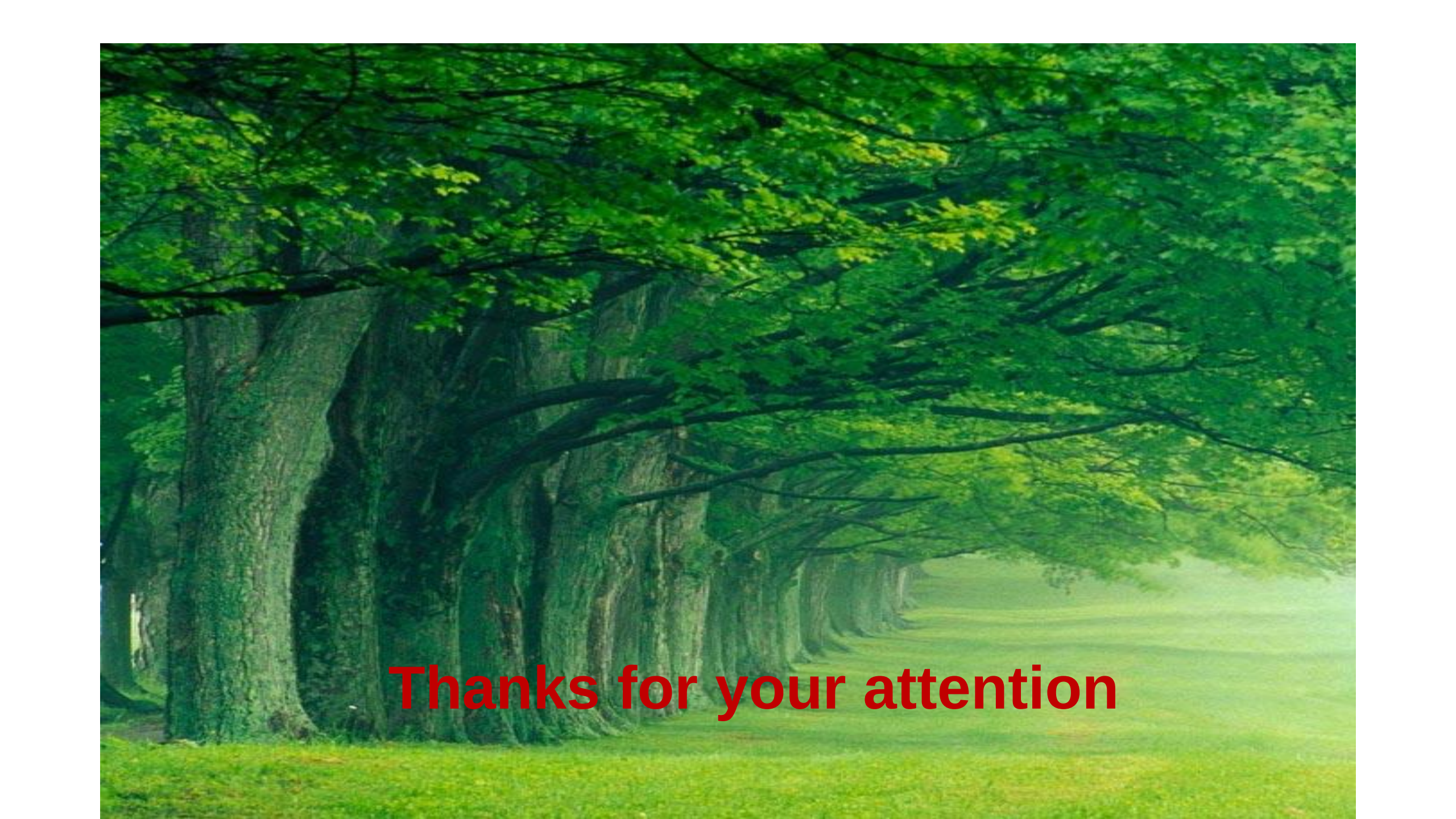


Clinical use of virtual reality distraction during burn wound care.



Clinical use of virtual reality distraction during burn wound care. A burn patient undergoes postburn skin stretching and passive joint range-of-motion while experiencing immersive virtual reality analgesia. Both auditory and visual stimulation are provided through a lightweight head-mounted display that can track the users position in the virtual environment by assessment of head position, and user interaction with objects in the virtual environment is controlled by manual trackball.



A photograph of a dense forest with large, mature trees. The trees have thick, textured trunks and a thick canopy of vibrant green leaves. Sunlight filters through the leaves, creating a dappled light effect on the ground. The ground is covered in a lush green lawn. The overall atmosphere is peaceful and serene.

Thanks for your attention