

INTEGRATING MEDICAL REHABILITATION INTO THE MANAGEMENT OF CANCER PATIENTS

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Disclosure statement

I have no actual or potential conflict of interest in relation to this program/presentation.

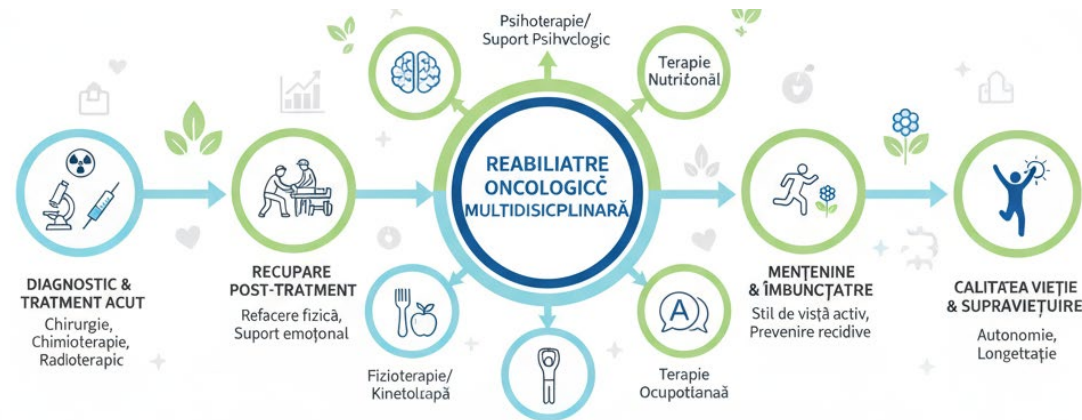
The role of rehabilitation in cancer care

Clinical benefits

- Early mobilization reduces postoperative complications (pulmonary, thromboembolic)
- It improves functionality, endurance, and independence.
- It shortens the length of hospital stay and reduces associated medical costs

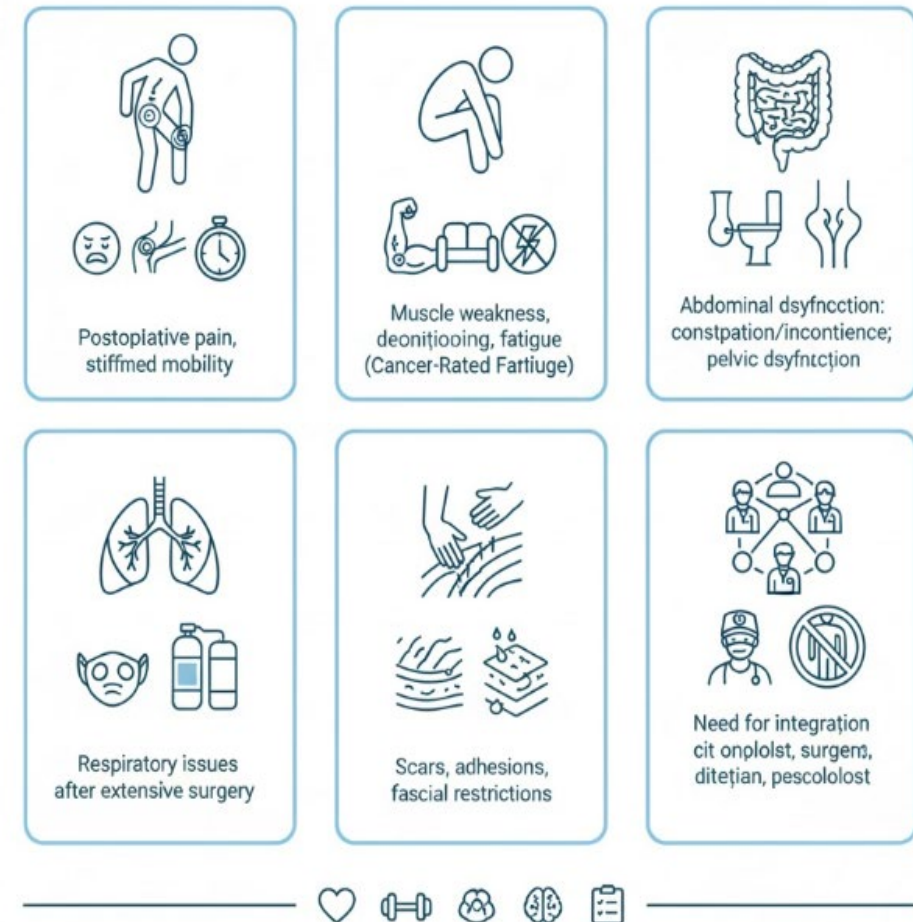
Reintegration and quality of life

- Addresses organ dysfunction and fatigue
- Facilitates social and professional reintegration
- An integral part of the multidisciplinary recovery plan



The impact of treatment and rehabilitation needs

- Postoperative pain, stiffness, limited mobility
- Muscle weakness, loss of fitness; fatigue
- Abdominal dysfunction: constipation/incontinence; pelvic dysfunction
- Respiratory disorders following extensive surgery
- Scarring, adhesions, fascial restrictions
- Requires collaboration with an oncologist, surgeon, dietitian, and psychologist



Rehabilitation goals: preoperative vs. immediate postoperative

Preoperative

Assessment of physical condition, mobility, and muscle strength

Respiratory training and general toning exercises

Education on early postoperative mobilization

Optimization of functional capacity prior to surgery

Postoperative (in the hospital)

Prevention of respiratory complications through breathing exercises

Gradual mobilization of the limbs and trunk

Lymphatic drainage if indicated

Gentle mobilization of the abdomen, avoiding excessive strain

PREOPERATOR



POSTOPERATOR IMEDIAT



Rehabilitation goals: recovery and maintenance

Recovery (post-discharge)

- Moderate aerobic exercise (walking, stationary bike)
- Abdominal/pelvic physical therapy to strengthen deep muscles
- Balance and gait exercises
- Stretching and joint mobilization
- Individualized programs tailored to the patient's condition

Maintenance (long-term)

- Regular physical activity (structured exercise)
- Prevention of recurrence through improved body composition
- Management of cancer-related fatigue
- Interventions for digestive and continence disorders, if present



Techniques and Procedures (I)



- Breathing exercises: diaphragmatic breathing, stimulus spirometry, chest expansion
- Passive/active mobilization: hip, knee, ankle, spine
- Corrective physical therapy: activation of the transverse abdominis, proper posture

Techniques and Procedures (II)

- Manual therapy and fascial mobilization: scar tissue, adhesions, myofascial pain
- Manual lymphatic drainage (if edema/lymphedema is present)
- Pelvic floor and sphincter rehabilitation (PFMT, biofeedback)
- Balance, coordination, assisted walking
- Progressive aerobic exercise, based on tolerance



Proven benefits and recommendations



- Physical exercise reduces cancer-related fatigue and significantly improves quality of life
- Early mobilization and interventions reduce the risk of postoperative pulmonary and thromboembolic complications
- Tailored exercise programs can improve long-term prognosis and reduce the risk of recurrence
- International guidelines recommend integrating structured physical rehabilitation into the standard oncological treatment plan

Adjuvant methods in rehabilitation

- Electrotherapy
- Supplements (omega-3, antioxidants) and nutritional interventions – with medical approval
- Psychosocial interventions: mindfulness, behavioral education for adherence
- Regenerative therapies (stem cells/exosomes) – under investigation, non-standard



International guidelines for the safety of electrotherapy in oncology (NCCN, ESMO, ASCO, EONS)

ELECTRICAL TECHNIQUES PERMITTED FOR ONCOLOGY PATIENTS (with standard precautions)

1. TENS (Transcutaneous Electrical Nerve Stimulation)
2. NMES / EMS (Neuromuscular Electrical Stimulation)
3. Interferential current (IFC)
4. Diadynamic current (Bernard)
5. Trabert / Stanger / pulsed galvanic current
6. EMG biofeedback

⚠ ELECTRICAL TECHNIQUES PERMITTED ONLY WITH GREAT CAUTION (individual assessment)

1. Therapeutic laser (LLLT / PBM)
2. Electromagnetic fields (PEMF)
3. Non-thermal radiofrequency

✗ ELECTRICAL TECHNIQUES CONTRAINDICATED IN ONCOLOGY

1. Deep diathermy (Shortwave Diathermy, SWD)
2. Therapeutic ultrasound (US) at standard intensity
3. Tecar / Capacitive and resistive radiofrequency (CET/RET, DEEP RF)
4. Any current that produces local hyperthermia

Psychological therapy and psycho-oncology



- Includes cognitive-behavioral therapy, emotional support, and adjustment counseling
- Reduces anxiety, depression, and sleep disorders, and improves quality of life
- Sometimes combined with oncological hypnosis, mindfulness, or art therapy

Personalized oncology nutrition



- Anti-inflammatory diets tailored to post-surgical digestive tolerance and during cancer treatments
- Adequate protein intake to prevent sarcopenia and improve metabolic reserves
- Omega-3 supplements, probiotics, and soluble fiber—recommended only with the approval of the treating oncologist

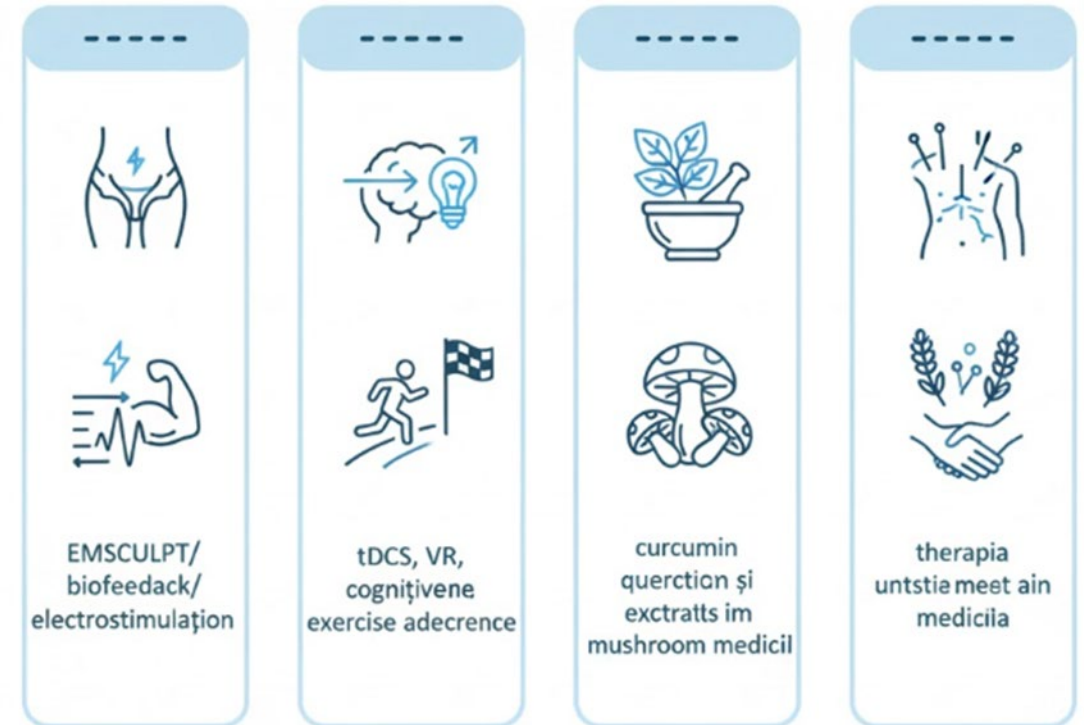
Neuromodulation and Integrative Medicine

EMSELLA/biofeedback/electrostimulation for pelvic floor disorders – modern, non-invasive technologies for pelvic floor rehabilitation

tDCS, VR – technologies for fatigue management, cognitive training, motivation, and improving adherence to exercise programs

Adjuvant phytotherapy: curcumin, quercetin, medicinal mushroom extracts (maitake, reishi) – only with the oncologist's approval

Acupuncture for nausea, anxiety, and pain; aromatherapy, specialized oncology massage – integration with conventional treatment



EMSELLA: what it is and how it works

Therapeutic chair with HIFEM (High-Intensity Focused Electromagnetic) technology

~11,000 supramaximal contractions per session (30 min)

Targets the pelvic floor muscles,
non-invasive, no active effort required



EMSELLA: safety, indications, and precautions

Clear instructions

Patients who have completed cancer treatment and have fecal or urinary incontinence

Patients without active recurrence or metal implants in the pelvic area

Those who have passed the acute phase of treatment (post-surgery, post-radiotherapy)

Complementary to pelvic floor muscle training (PFMT) with the consent of the attending physician

Contraindications and precautions

If the patient has a pacemaker, pumps, or metal implants in the abdomen or pelvis

If the patient is currently undergoing active pelvic radiation therapy

If the patient has active, unresolved cancer in the pelvis

If the patient has pelvic infections, open wounds, fistulas, or recent post-surgical complications

Virtual reality (VR) in cancer rehabilitation



Reducing anxiety and stress; alleviating "chemobrain" (cognitive effects of chemotherapy)

Exercises for walking, balance, and coordination with real-time feedback

VRRS (Virtual Reality Rehabilitation System) systems: immersive, interactive, and customizable

tDCS in Severe Chronic Fatigue (EXOMIND)



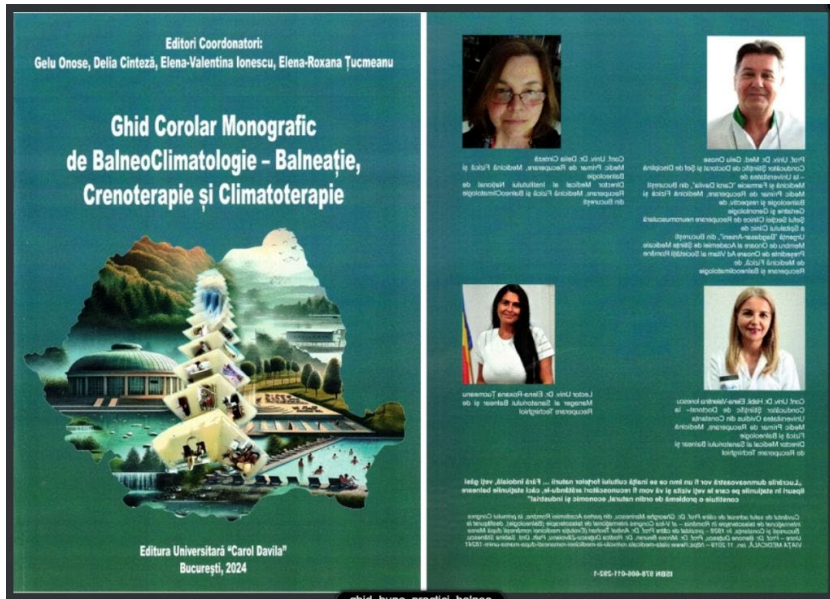
Direct current (1–2 mA) delivered via scalp electrodes; modulates the neural networks involved in attention and energy regulation

Pilot studies: significant reduction in chronic fatigue (CRF), improved attention and mental clarity

Sessions of 20–30 minutes per day for 2–3 weeks, with lasting positive results

Balneoclimatology: methodology and factors

Methodology and natural therapeutic factors



Recommended only after stable oncological remission (at least 1 year after treatment)

In the absence of confirmed recurrence or metastases and under medical supervision

Balneotherapy, crenotherapy, kinesitherapy, climatotherapy in specialized centers

Sulfate, chloride, bicarbonate, and isotonic mineral waters

Sapropelic mud (in small doses and at moderate temperatures)

Marine or mountain climate for general climatotherapy

Natural aerosols and therapeutic gases (selective indications)

Balneoclimatology: classification and an applied example

Recommendation classes:

Class I: Strong recommendation, supported by solid scientific evidence and extensive clinical practice

Class IIa: Probably beneficial recommendation, but with less convincing evidence (broad consensus)

Class IIb: possibly beneficial indication, but with limited or conflicting evidence

Class III: not indicated – use is not recommended, may even be harmful

Evidence categories:

Category A: multiple randomized trials, meta-analyses, consensus statements

Category B: individual studies, observational studies, case series

Category C: expert opinion, group consensus, local clinical experience

Example applied in oncology:

- Post-colorectal cancer convalescence (no recurrence, 1 year after treatment): Class IIa – Category B
- Onco-rehabilitation at a health resort (with medical monitoring): Class I – Category C (in specialized centers)

Final conclusions and recommendations

PFMT shows promise for postoperative incontinence, but robust studies are needed

Rehabilitation improves functional capacity; effects on complications/hospitalization—still uncertain

Multiphase, personalized program: aerobic exercise + strength training + pelvic floor rehabilitation + behavioral interventions

Future directions: technologies (telemonitoring), response biomarkers, regenerative interventions

Thank you for your attention!

