***Rehabilitation***

rehabilitation after head injury – see TrH1 p.

rehabilitation after stroke – see Vas5 p.

physical therapy for pain (heat, cold, mechanotherapy, acupuncture) – see S20 p.

physical therapy for gait disorders – see Mov7 p.

**Rehabilitation** (Lat. *re* + *habilita* = "return to ability") – facilitation of recovery from function loss; goal:

1. complete recovery with full, unrestricted function; for others, it is
2. ability to perform as many activities of daily living (ADLs) as possible.

*Proper selection and timing of rehabilitation make substantial contribution to optimum quality of life for patient and family despite persistent impairments!*

Two principal approaches are used in combination:

* + 1. ***bypass impediment*** by teaching adaptive techniques to use preserved function.
    2. facilitate ***return of function*** (still impossible in neurologic injuries).
  + rehabilitation may begin in acute care hospital, but ***rehabilitation hospitals*** provide most extensive and intensive care (≥ 3 h/day).
  + ***nursing homes*** have less intensive programs (1-3 h/day, up to 5 days/wk).
  + less frequent\* rehabilitation programs may be offered in ***outpatient*** settings or at ***home***.

\*outpatient rehabilitation can be intensive (several hours/day up to 5 days/wk).

* + to initiate formal rehabilitation therapy, physician must write referral/prescription to physiatrist, therapist, or rehabilitation center.
* referral/prescription should state **diagnosis** and **goal** of therapy.
* **goals** should be *as specific as possible* (e.g. training to use prosthetic limb, maximizing general muscle strength and overall endurance); vague instructions (e.g. “physical therapy to evaluate and treat”) are often accepted, but are not optimal.
  + progress may be slow for:
    1. elderly patients
    2. patients who lack muscle strength
    3. patients who lack motivation.

Rehabilitation involves **interdisciplinary team**:

* + - 1. **Physician** - team leader; coordinates rehabilitation services; provides medical care.
         * generally, physician's role is assumed by physiatrist in specialized rehabilitation center, but in presence of complicated injuries of head or spine, original treating physician may be best-qualified person to oversee rehabilitation.
      2. **Physical therapist (physiatrist)** - aims to improve joint and muscle function (particularly in lower extremities):

1. **strengthening** exercises (electrical stimulation during periods of denervation)
2. **gait** and **balance** training
3. **contracture** prevention & **spasticity** reduction (stretching is most effective and least painful when tissue temperature is raised to 43° C).
4. use of **ambulation devices**
5. **pain relief**
   * + 1. **Occupational** **therapist** - focuses on self-care activities and fine motor coordination (particularly in upper extremities).
          - develops patient's ability *to handle everyday objects*.
          - occupational therapists select ***assistive-adaptive devices*** (e.g. wrist weights can be used to dampen arm ataxia) and prepare ***splints*** to maintain proper positioning of limbs during period of rehabilitation
          - occupational therapists may assess patient's ***home for hazards***.
       2. **Speech therapist** - focuses on speech and swallowing disorders.
          - diet restriction to consistencies that can be swallowed without aspiration reduces risk of complications of dysphagia.
       3. **Neuropsychologist** - focuses on cognitive problems.
       4. **Psychologist** - focuses on depression, lack of motivation to regain lost function.
       5. **Rehabilitation nurse** - in addition to nursing care, incorporates into daily routine skills learned by patients and institutes treatments to restore sphincter continence.
       6. **Social worker** implements discharge plan (e.g. for financial problems).
       7. **Vocational counselor** – for those unable to return to former occupations but able to find future employment in another area.

Prostheses

- artificial limbs designed to replace lower or upper extremities after amputation.

* + technical innovations have greatly improved comfort and functionality.
  + prostheses can be cosmetically altered to appear natural.
  + prosthetist should be consulted early.
  + physical therapy should be started before prosthesis is fitted; therapy should continue until patients can function with new limb.

*Panaudota literatūra*:

“The Merck Manual”, 17th ed., 1999

“The Merck Manual”, 18th ed., 2005

Allen “Essential of Neurosurgery”, 1995

Rowland “Merritt's Textbook of Neurology”, 9th ed., 1995